UNDERGRADUATE CALENDAR OF THE UNIVERSITY OF NEW BRUNSWICK CANADA

2015 - 2016

Established 1785 as the Provincial
Academy of Arts and Sciences

Fredericton Campus	Saint John Campus
College Hill, Box 4400	Tucker Park, Box 5050
Fredericton, N.B. E3B 5A3	Saint John, N.B E2L 4L5
Telephone (506) 453-4666	Telephone (506) 648-5500

The Calendar is available in electronic form on the UNB website:
www.unb.ca/academics/calendar/undergraduate/current/index.html

Important Notices

This Calendar is printed some months before the year for which it is intended to provide guidance, and students are advised that matters dealt with in it are under continuing review and revision. The content of this Calendar is subject to change without notice, and every student accepted for registration in the University shall be deemed to have agreed to any such deletion, revision or addition whether made before or after said acceptance.

The University will make every reasonable effort to offer courses as required within programs. Prospective students should note that admission to a degree or other program does not guarantee admission to any given course except those specified as required within that program. Students should select elective courses so as to ensure that courses are taken at the most appropriate time within their schedule.

The University of New Brunswick does not accept any responsibility for loss or damage suffered or incurred by any student as a result of suspension or termination of services, courses or classes caused by reason of strikes, lockouts, riots, weather, damage to university property or for any other cause beyond the reasonable control of the University of New Brunswick.

The University of New Brunswick Undergraduate Calendar is available in electronic form on our website:
www.unb.ca/calendar/undergraduate/

Inquiries regarding academic matters should be directed to the Office of the Registrar

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Fredericton, New Brunswick, E3B 5A3
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2015 Summer Term Fredericton

Note: the dates shown below apply to Undergraduate programs. They do not necessarily apply to the School of Graduate Studies, the Faculty of Law, Nursing ASP, or to Open Entry courses offered through the College of Extended Learning. Students in other programs should consult the appropriate Calendar or brochure.

Summer Term Session Dates:
Session A – May 4 - June 26 – (6 week session)
Session B – May 4 – May 29 – (3 week session)
Session C – June 1 – June 26 (3 week session)
Session D –July 6 – August 17 (6 week session)
Session E – July 6 – July 24 (3 week session)
Session F – July 27 – August 17 (3 week session)

Tuition and related fees are to be set by Financial Services, please refer to their website at www.unb.ca/financialservices/students/index.html.

	Full Session May 4 - Aug 17	Session A May 4 – June 26	Session B May 4 - 29	Session C June 1 - 26	Session D July 6 – Aug 17	Session E July 6 - 24	Session F July 27 – Aug 17
Last day to Add or Drop a course. Courses dropped up to and including this day are not shown on academic record.	*See Note Below	May 11	May 6	June 3	July 9	July 7	July 28
Last day to Drop a course without academic penalty. A grade of "W" withdrawn will be shown on your academic record.	*See Note Below	June 4	May 19	June 15	July 29	July 16	Aug 9
Exam Dates	Aug 15th, 17th	June 24-25-26	May 28th, 29th	June 24-25-26	Aug 15th, 17th	July 24	Aug 15th, 17th
Deadline for Course Payment	The first day of class is the deadline for summer term course fees to be paid in full.						
Prorate Refund Deadline	May-Aug courses (Section A-F) are based on prorated fees from the first day of class up to the sixth class. No refund will be issued after the sixth class.						

Notes: Dates listed for each session include exam dates.
Courses listed on the timetable without a session letter (FR01) are Full Session. This may vary depending on the individual course start & end dates.
*Note: The Add/Drop Dates for Full Session Courses follow the term regulation which states that students may drop a term course up to the second Friday following the start date.

MONTH	DAY	DATE	EVENT
May 2015	Monday	04	• UNB Summer Term begins • Fall Session Summer Courses begin (May 4 – Aug 17). Session A (May 4 – June 26) classes begin. Session B (May 4-29) classes begin. • Tuition fees are due.
	Monday	18	• Victoria Day – University Holiday – no classes*
	Tuesday	26	• Last day of classes in Session B
	Wednesday	27	• Encaenia, UNB Fredericton • Reading Day Session B
	Thursday	28	• Encaenia, UNB Fredericton • Final examinations for Session B
	Friday	29	• Graduation, UNB Saint John • Final Examinations for Session B.
June 2015	Monday	01	• Session C classes begin (June 1-26) • Tuition fees are due
	Monday	22	• Last day of classes for Session A and Session C.
	Tuesday	23	• Reading Day for Session A and Session C classes.
	Wednesday - Friday	24-26	• Final examinations for Session A and Session C.
July 2015	Wednesday	01	• Canada Day – University Holiday – no classes*
	Monday	06	• Session D classes begin (July 6-Aug 17) and Session E classes begin (July 6- July 24). • Tuition fees are due.
	Wednesday	22	• Last day of classes for Session E.
	Thursday	23	• Reading for Session E.
	Friday	24	• Final Examinations for Session E.

	Monday	27	• Session F classes begin (July 27-Aug 17) • Tuition fees are due.
August 2015	Monday	03	• New Brunswick Day – University Holiday – no classes*
	Thursday	13	• Last day of classes for Session D and Session F.
	Friday	14	• Reading Day for Session D and F.
	Saturday-Monday	15-17	• Final Examinations for Session D and F.

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2015 Summer Term Saint John

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Note: the dates shown below apply to Undergraduate programs. They do not necessarily apply to the School of Graduate Studies, the Faculty of Law, Nursing ASP, or to Open Entry courses offered through the College of Extended Learning. Students in other programs should consult the appropriate Calendar or brochure.

Dates listed for each session include the exam dates.

Summer Term Session Dates:

May 4 – July 4 – (8 week session)

May 4 – August 8 – (12 week session)

June 6 – August 8 – (4 week session)

Tuition and related fees are to be set by Financial Services, please refer to their website at www.unb.ca/financialservices/students/index.html

Summer Term 2015- Deadline Dates

	8 week session May 4- July 4	12 week session May 4 – Aug 8	4 Week Session July 6 – Aug 8
Last day to Add or Drop a course. Courses dropped up to and including this day are not shown on academic record.	May 11	May 15	July 10
Last day to Drop a course without academic penalty. A grade of "W" withdrawn will be shown on your academic record.	June 3	July 17	July 22
Exam Dates	June 29-July 4	Aug 4 – Aug 8	Aug 4 – Aug 8
Deadline for Course Payment	1st day of class	1st day of class	1st day of class
Prorate Refund Deadline	Set by Financial Services	Set by Financial Services	Set by Financial Services

May 2015	Monday	04	• 8 Week (May 4 – July 4) and 12 week (May 4 – Aug 9) classes begin.
	Monday	18	• Victoria Day – University Holiday – no classes.
	Wednesday	27	• Encaenia, UNB Fredericton
	Thursday	28	• Encaenia, UNB Saint John
	Friday	29	• Graduation, UNB Saint John
	Friday	19	• Last day to opt out of Student Union Health & Dental Plan • Last day to be granted an exemption from International Health Insurance Plan.
June 2015	Friday	26	• Last day of classes for 8 Week Session
	Monday	29	• Start of Final Examinations for 8 Week session (June 29 – July 4). • Start of Reading Week – 12 Week session (June 29 – July 4).
July 2015	Wednesday	01	• Canada Day – University Holiday – no classes or examinations.
	Monday	06	• 4 Week session classes begin.
	Friday	31	• Last day of classes for 12 week and 4 Week sessions.
August 2015	Monday	03	• New Brunswick Day – University Holiday – no classes or examinations
	Tuesday	04	• Start of Final Examinations (Aug. 4 – Aug. 8) for 12 Week and 4 Week sessions.

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2015-2016 Calendar of Academic Dates

Note: the dates shown below apply to Undergraduate programs. They do not necessarily apply to the School of Graduate Studies, the Faculty of Law, or to Open Access courses offered through the College of Extended Learning. Students in other programs should consult the appropriate Calendar or brochure.

Tuition and related fees are to be set by Financial Services, please refer to their website at www.unb.ca/financialservices/students/index.html

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FALL TERM BEGINS

September 2015	Monday	07	• Labour Day – University Holiday – no classes
	Wednesday	9	• Residence open for continuing students
	Tuesday – Wednesday	8-9	• Academic Orientation
	Thursday	10	• Start of classes for both Campuses (not including Law and 11-month B.Ed)
	Tuesday	15	• Last day for payment of University tuition and fees
	Friday	18	• Last day for adding Fall Term and full-year courses • Fall Term and full-year courses dropped up to and including this date not shown on academic record. • Last day to opt out of Student Union Health & Dental Plan. • Last day to opt out of International Health Insurance with NB Medicare.
October 2015	Monday	12	• Thanksgiving Day – University Holiday – no classes*
	Thursday	22	• Fall Convocation – UNB Fredericton •

	Friday	23	• Fall Convocation – UNB Saint John • Last day to withdraw from Fall Term courses with pro-rated refund.
November 2015	Monday	02	• Last day to withdraw from Fall Term courses without academic penalty. A grade of "W" (withdrawn) will be shown on the academic record.
	Wednesday	11	• Remembrance Day – University Holiday – no classes*
	Thursday	12	• Fall Term Reading Day – No classes or tests/assignments scheduled.
	Monday	23	• Last day in Fall Term to hold class tests.
December 2015	Tuesday	08	• Last day of Fall Term classes.
	Wednesday	09	• Reading Day
	Thursday	10	• Final Examinations begin.
	Saturday	19	• Final Examinations end.
WINTER TERM BEGINS			
January 2016	Friday	01	• University Holiday*
	Monday	04	• Start of classes for both campuses
	Tuesday	12	• Last day for payment of Winter term fees for new students and full-time students paying by instalments.
	Friday	15	• Last day for Adding winter term courses. Winter term courses dropped up to and including this date not shown on academic transcript. After this date a notation of "W" (withdraw no academic penalty) will be shown on the academic transcript. • Last day to withdraw from full-year courses without academic penalty. A notation of "W" (withdrawn) will be shown on the academic transcript. After this date a notation of WF (withdraw fail) will apply.
	Friday	22	• Last day to opt-out of Student Union Health and Dental Plan for those students who entered in January, 2016. • Last day to opt-out of International Health Insurance for those students who enrolled in January.
February 2016	Friday	12	• Last day to withdraw from Winter Term courses with pro-rated refund.
	Friday	26	• Last day to withdraw from Winter Term courses without Academic penalty. A grade of "W" (withdrawn) will be shown on the academic record. After this date a grade of WF (withdraw fail) will apply.
March 2016	Monday-Friday	7-11	• Winter term break – no classes.
	Monday	21	• Last day in Winter Term to hold class tests.
	Friday-Monday	25-28	• *Easter. University Holiday – no classes.
April 2016	Thursday	07	• Last day of Winter Term classes.
		08	• Reading Day.
		09	• Final examinations begin.
		19	• Final examinations end.

FREDERICTON SENATE
2014-2015

EX-OFFICIO MEMBERS

The President, H.E.A. (Eddy) Campbell, BSc, MSc, PhD

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    A. S. Secco, BSc, PhD

Provost and Vice-President (Research),
    D.H Burns, BSc, PhD

Vice-President (Finance & Corporate Services),
    D. V. Murray, BComm, CA

Vice-President (Saint John),
    R. MacKinnon, BA, MA, PhD

President, St. Thomas University,
    D. Russell, BA, LLB, LLM

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Dean of Business Administration: Devashis Mitra, BA, CA, PhD

Acting Dean of Computer Science: Andrew McAllister, BA, MSc, PhD

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Dean of Engineering:
    Chris Diduch, BScE, MScE, PhD

Dean of Forestry & Faculty Environmental Management:
    V. Lantz, BA, MA, PhD (Acting)

Acting Dean of Graduate Studies: B. MacDonald, BSc, MSc, PhD

Dean of Kinesiology: W. Albert, BSc, MA, PhD

Dean of Law: Jeremy Levitt, JD, PhD

Dean of Nursing: Kathleen Valentine, RN, MS, PhD

Dean of Renaissance College: C. Stacey, BSc, MSc, PhD

Dean of Science: David MaGee, BSc, PhD

Executive Director of Student Affairs & Services:
    TBA

Executive Director of Alumni Affairs:
    M. Grant-McGivney, BSE

Executive Director of the College of Extended
    Learning: Ian Allen

Director of Libraries (Fredericton): L. Balcom, BA, MLIS (Acting)

Registrar (Fredericton): D. J. Hinton BSc, MSc

Assoc VP (Learning Environment): S. Cleave, BA, MA, PhD

Secretary of the Senate (non-voting): S. DeVarenne, BSc

THE ELECTED FACULTY MEMBERS OF THE BOARD (FREDERICTON)
· B. Balcom BSc, PhD
· Norm Betts, PhD
· Nicole O'Byrne, BSc, BA, LLB, LLM, PhD
· D. Wright, BA, MA, PhD

TWO MEMBERS APPOINTED BY THE BOARD FROM THE

MEMBERS OF THE BOARD EXCLUSIVE OF THE ELECTED

FACULTY MEMBERS OF THE BOARD
· K. Goddard, BA
· M. Stewart, BA, MPA
·

ALUMNI REPRESENTATIVE
·   Mike O'Brien, BSc.ME

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	· C. Canitz, BA, MA, PhD
	· E. Mancke, BA, MA, PhD
	· C. Poulin, BA, MA, PhD
	· A. Reid, BA, MA, PhD
Faculty of Business Administration	· R. Sheppard, MBA, PhD
	· D. DuPlessis, BA, MS, MA, PhD
Faculty of Computer Science	· K. Kent, BSc, MSc, PhD
Faculty of Education	· A. Benjamin, BA, MA, PHD
	· L. Randell, BPE, BEd, MEd, PhD
Faculty of Engineering	· A.B. Cooke, BSc, Dipl Eng, BEng, PhD,PEng
	· K. Englehart, BScE, MScE, PhD
Faculty of Forestry and Environmental	· J. Meng, BSc, MSc, PhD
Management :	B. Leblon, BSc, PhD
Faculty of Kinesiology	· J. Bukard, BA, MPE
Faculty of Law	· J. McEvoy, BA, LLB, LLM, LLL
Faculty of Nursing	· K. Weaver, BN, MN, PhD
Renaissance College	· T. Mengel, MA, M.Ed, M.Sc, PhD
Faculty of Science	· A. Adam, BSc, MSc, PhD
	· R. Cunjak. BSc, MSc, PhD
	· B. Monson, BSc, MSc, PhD
	· C. Shaw, BSc, MSc, PhD

LIBRARY REPRESENTATIVE
· S. Hanratty, BA, MLIS

SIX FACULTY MEMBERS ELECTED AT-LARGE
· D. G. Bell, MA, LLB, LLM
· D. Burke, RB, BN, MN
· P. Evans, BSc, MSc, PhD
· D. Lentz, BSc, MSc, PhD
· B. Lowry, BASc, MASc, PhD
· A. Sears, BEd, MEd, PhD

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· Edward Choi
· Tyler Coffin
· Adam McAvoy
· Lyle Skiner
· Lee Thomas
· Mark Vangel

TWO MEMBERS ELECTED BY AND FROM AMONG THE PART-TIME INSTRUCTORS AND LIBRARIANS
· Cindy Brown, BA, MA, PhD
· Maria Davis

PART-TIME STUDENT REPRESENTATIVE:
· Emmanuel Albert

GRADUATE STUDENT REPRESENTATIVE:
· Olga Palazhchenko

EX-OFFICIO MEMBERS

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Vice-President (Research):
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Director, Information Services & Systems
TBA

Director, Student Services:
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ONE MEMBER APPOINTED BY AND FROM MEMBERS OF THE BOARD EXCLUSIVE OF ELECTED FACULTY MEMBERS

·
S. Brittain

ONE MEMBER APPOINTED BY AND FROM THE PART-TIME INSTRUCTORS AND LIBRARIES

- M. Wagih

ELECTED FACULTY MEMBERS OF THE BOARD

· John Johnson, BSc, MSc, PhD
· T. Goud

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· M. Campbell
Faculty of Business
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· B. Rami, BSc, MSc, PhD
Faculty of Science, Applied Science & Engineering
· L. Keeping-Burke
· K. Mawhinney

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· B. Collings (Business)
· D. Creelman (Arts)
· G. Fleet (Business)
· J. Kieffer (SASE)
  M. Mendelson (Business)
· G. Marquis (Arts)
· S. Tucker (Business)

ALUMNI REPRESENTATIVE

· J. Jollineau

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A. Macosky
· P. Maher
· C. Maher

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- J. Phinney

ONE MEMBER ELECTED BY AND FROM THE CONTRACT ACADEMIC INSTRUCTORS AND CONTRACT ACADEMIC LIBRARIANS (NON-VOTING PENDING AMENDMENT TO THE UNB ACT)

- Mary Astorino

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  David H. Burns, BSc, PhD
Vice-President (Finance and Corporate Services):
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Director, Student Services (UNBSJ):
  Kevin Bonner, BA, MEd
Director, Student Recruitment
  Dax MacLean, BScKin, MEd

Director, Information Services & Systems (UNBSJ):
  TBA
Director of Libraries (UNBF):
  Lesley Balcom, BA, MLIS
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  David J. Hinton, BSc, MSc
Registrar (UNBSJ):
  Mark Bishop, BA, MEd
University Secretary:
  Sarah DeVarenne, BSc
University Treasurer:
  Lawrence Guitard, BBA, LLB, CA
University Comptroller:
  Don Harrington
Assistant Comptroller:
  Cindy Flann, BBA, CGA

DEANS OF FACULTIES

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  Faculty of Arts : George MacLean, BA, MA, PhD
  Faculty of Business Administration:
    Davashis Mitra, BA, PhD, CA, FCA
  Faculty of Computer Science:
    Ali Ghorbani, BS, MS, PhD
  Faculty of Education: Ann Sherman, BSc, MEd, PhD
  Faculty of Engineering:
    Chris Diduch, BScE, MScE, PhD
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    Van Lantz, BA, MA, PhD
  Faculty of Kinesiology:
    Wayne Albert, Bsc, MA, PhD
  Faculty of Law: John Williamson, BBA, LLB, LLM (Interim)
  Faculty of Nursing: Kathleen Valentine, RN, MS, PhD
  Renaissance College:
    Cynthia Stacey, BSc, MSc, PhD
  Faculty of Science: David MaGee, BSc, PhD

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Faculty of Business: Fazley Siddiq, BA, MA, PhD
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  Ruth Shaw, BScDA, MScCS, PhD

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Vice-President (Research and International Cooperation) Emeritus:
Frank Wilson, BScE, MScE, PhD, FCAE, FCSCE, FEIC, P.Eng

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- Davis, Gwendolyn, BA, CertEd, MA, PhD
- Ericson, Penelope, BScN, MScN
- Faig, Wolfgang, Dipl Ing, MscE, DrIng, PEng
- Kent, Peter C.,BA, MA, PhD
- Kepros, Peter G., BS, MS, PhD
- Methven, Ian, BScF, PhD
- Nair, K. P. K., BE, MTech, PhD
- Small, Marian, BA, MA, EdD
- Stevenson, Christopher, BSc, MA, MPE, PhD
- Unger, Israel, BSc, MSc, PhD
- Wasson, W. Dana, BSc(EE), SM, PhD

Professors Emeriti
- Acheson, T. William, BA, MA, PhD - History
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- Allardyce, Gilbert D., BA, MA, PhD - History
- Arcelus, Francisco, BA, MS, PhD - Administration
- Askansas, Wiktor, BA, MBA, PhD - Administration
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- Buckner, Phillip, BA, PhD-History
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- Carusetta, Ellen
- Chrzanowski, Adam J., BScE, MScE, Dr Ing - Geodesy & Geomatics Engineering
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- Hamilton, Angus C., BASc, MASc - Surveying Engineering
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- Kealey, Gregory
- Kealey, Linda
- Krause, Margarida, Licenciature, MSc, PhD - Biology
- Kurz, Bernd - Computer Science
- Leavitt, Robert - Education
- Leckie, Irene, BScN, MSN - Nursing
- Lees, Ronald, BSc, MSc, PhD - Physics

- Levine, Aaron Lawrence, BA, MA, PhD - Economics
- Linton, Colan, BSc, PhD, DIC - Physics
- Lister, Derek - Chemical Engineering
- Logan, Alan, BSc, PhD - Physical Sciences, Saint John
- London, J. Dalton G., BA, MA, D d'U - Education
- Lorey, Christoph, BA, MA, PhD - German
- MacIver, Donald A., BEd, MEd, PhD - Educational Foundations
- MacNeil, David, Beng, MEng – Computer Science
- MacKeracher, Dorothy, BSc, MEd, PhD - Education
- Mason, Gordon R., BSc, MSc, PhD - Mathematics & Statistics
- Mattar, Saba
- McDonnell, Paul M., BA, MA, PhD - Psychology
- Morris, David, BSc, PhD - Chemical Engineering
- Nicki, Richard M., BA, MA, MA, PhD - Psychology
- Paim, Uno, BA, PhD - Biology
- Parker, Philip, BScEng, MSc, PhD, PEng - Electrical and Computer Engineering
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- Powell, Graham, BSc, Msc, PhD - Forestry & Environmental Management
- Poyatos, Fernando, BA, MA, PhD - Spanish
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- Ruthven, Douglas M., BA, MA, PhD, ScD - Chemical Engineering
- Scott, Robert N., BSc , DSc - Electrical Engineering
- Seabrook, William, NSc, MSc, PhD, DIC - Biology
- Sharp, Allan - BSc, PhD - Physics
- Shyu, Larwrence N., BA, MA, PhD - History
- Smith, Beverley G., BCL – Law
- Sousa, Antonio - MSc, DPhil - Mechanical Engineering
- Stoppard, Janet, BSc, MSc, PhD - Psychology
- Steward, Frank, SB, SM, ScD, PEng- Chemical Engineering & Centre for Nuclear Energy Research
- Stirling, Mary Lou, BA, MEd, EdD - Education
- Taylor, James, BSEE, MSEE, PhD - Electrical & Computer Engineering
- Thakkar, Ali
- Thomas, Martin L. H., Bsc, MSA, PhD - Biology, Saint John
- Thompson, Gillian, BA (Hons), MA, PhD - History
- Terhune, John M. - BSc, MSc, Lic. Science - Saint John
- Toner, Peter, BA, MA, DPhil - History & Politics
- Tupper, Brian O.J., BSc, PhD, DSc, FIMA - Mathematics and Statistics
- Turner, Steven - BA, PhD - History
- Valenta, Zdenek, Dipl. Ing. Chem., MSc, PhD - Chemistry
- van den Hoonaard, Will, BA, MA, PhD- Sociology
- Vanicek, Petr, MEng, PhD, DSc, - Geodesy & Geomatics Engineering
- Veitch, Edward
- Venart, James, BASc, PhD - Mechanical Engineering
- Verma, Ram D., BSc, MSc, PhD- Physics
- Wells, David E., BSc, BASc, MASc, PhD, PEng - Geodesy and Geomatics Engineering
- Whitney, Norman J., BSc, MSc, PhD
- Williams, Paul F., BSc, MSc, PhD - Geology
- Wuest, Judith, BScN, MN, PhD - Nursing
- Young, D. Murray, BA, PhD - History

Librarian Emeriti
- Crocker, Anne, BA, BLS
- Gunn, Gertrude E., BA, MA, MLS, PhD

Registrar Emeritus:
- Beckett, Barry, BSc, Dip Ed, Phd

Governor Emeriti:
- O'Brien, David, BBA, LLB, MSc, QC
- Ganong, David, BBA, MBA

Chancellor Emeritus:
- Currie, Richard J., OC, CBHF, MBA, LLD, PEng

Note: Only living Emeritus Honorees are listed.

Fall Convocation 2014
- Newling, Ben (Physics, F)
- Hamm, Lyle (Education, F)

Fall Convocation 2013
- Golding, Jasen (Forestry & Environmental Management, F)
- Johnson, John (SASE, SJ)

Fall Convocation 2012
- Belanger, Louis (Arts, SJ)

Fall Convocation 2011
- Gray, Christopher (Chemistry, SJ)
- Civi, Eman (Business, SJ)

Fall Convocation 2010
- Durnford, Dionne (Biology, F)
- Blatherwick, Mary (Education, F)

Fall Convocation 2009
- O'Sullivan, Lucia (Psychology, F)
- Larivee, Catherine (Nursing, SJ)

Fall Convocation 2008
- John Grant McLaughlin (Education, F)
- David Flagel (Humanities and Languages, SJ)

Fall Convocation 2007
- Merzik Kamel (Mathematical, Sciences, SJ)
- Joanna Everitt (History & Politics, SJ)

Fall Convocation 2006
- Sandra Bell (English, SJ)
- Phillip Sexsmith (Education, F)

Fall Convocation 2005
- Barbara Gill (Education, F)
- Allan Reid (Culture & Language Studies, SJ)

Fall Convocation 2004
- Danielle Charron (French, F)
- Nancy Nason-Clark (Sociology, SJ)

Encaenia 2003
- Kathleen Berry (Education, F)
- Constantine Passaris (Economics, F)

Spring Convocation 2003
- Jim Keifer (Biology, SJ)
- Sarah Maier (English, SJ)

Fall Convocation 2001
- E.W. (Ted) Robak (Forestry & Environmental Management, F)
- Barry Bisson (Engineering, F)

Fall Convocation 2000
- Diana Austin (English, F)
- Thom Erdle (Forestry & Environmental Management, F)

Fall Convocation 1999
- Lily Both (Pyschology, SJ)
- Paul MacDonald (Pyschology, F)

Fall Convocation 1998
- Ruth Shaw (Math, Stats & CS, SJ)
- Stephen Ross (Physics, F)

Fall Convocation 1997
- Kate Frego (Biology, SJ)
- Wendy Robbins (English, F)

Fall Convocation 1996
- Judy Buchanan (Nursing, SJ)
- James Murray (Classics & Ancient History, F)

Encaenia 1995
- Gracie Getty (Nursing, F)
- Steven Turner (History, F)

Spring Convocation 1994
- Mohammad Hamdan (Mathematics, Stats & CS, SJ)

Encaenia 1994
- Lesley Flemming (Biology, F)

Encaenia 1993
- David Townsend (Law, F)

Spring Convocation 1993
- Robert Chanteloup (Sociology, SJ)

Fall Convocation 1992
- Phillip Wright (Administration, F)

Encaenia 1992
- Barbara Trenholm (Administration, F)

Encaenia 1991
- William Mullin (Biology, F)
- Roger Ploude (English, F)

Encaenia 1990
- William Chernoff (Mathematics & Stats, F)
- Byron Walton (Engineering, SJ)

Encaenia 1989
- Jane M. Fritz (Computer Science, F)
- Friedrich Grien (Chemistry, F)

Encaenia 1988
- Teresa Killoran (Education, F)
- James M. Tolliver (Administration, F)

Encaenia 1987
- Barbara MacKinnon (Biology, F)
- Donald F. Rowan (English, F)

Spring Convocation 1986
- Pete McGahan (Dean of Faculty, SJ)

Encaenia 1986
- Jillian Sullivan (Mathematics & Stats, F)

Encaenia 1985
- Wiktor Askanas (Administration, F)
- Arun J. Valsangkar (Civil Engineering, F)

Encaenia 1984
- David Rehorick (Sociology, F)
- Beverly G. Smith (Law, F)

Encaenia 1983
- Reavley Gair (English, F)
- G. Charles Kunn (Political Science, F)

Encaenia 1982
- Daniel M. Hurley (Law, F)
- Linda A. Parker (Pyschology, F)

Encaenia 1981
- Kevin Halcrow (Biology, SJ)
- Howard MacFarlene (Civil Engineering, F)

Encaenia 1980
- Clayton R. Lewis (Mathematics, F)
- C. Shirley MacLeod (Nursing, F)

Encaenia 1979
- Thomas A. Austin (Computer Science, F)
- Daniel M. Keppie (Biology and Forestry, F)

Encaenia 1978
- Verne M. Ireton (Mechanical Engineering, F)
- Ronald M. Lees (Physics, F)

Encaenia 1977
- Gilbert Allardyce (History, F)
- Wilfred B.W. Martin (Sociology, F)

Encaenia 1976
- Sidney I. Pobishushchy (Political Science, F)
- Joanne E. Harris (Mathematics, SJ)

Encaenia 1975
- Leonard C. Smith (Classics, F)
- Lawrence E. Garey (Mathematics, SJ)

Encaenia 1974
- William Y. Smith (Economics, F)
- Zdenek Valenta (Chemistry, F)

Encaenia 1973
- Allan P. Stuart (Chemistry, F)
- R. Wayne Jollineau (Administration, F)

Encaenia 1972
- Leonard P. Edwards (Mathematics, F)
- Barbara J. Pepperdene (Sociology, F)

UNB ASSOCIATED ALUMNI / ALUMNAE

UNB ASSOCIATED ALUMNI

The Associated Alumni was founded in 1862 for "the advancement of the interests of the University of New Brunswick by all honourable means." Its membership consists of all those who have attended at least one semester at UNB and numbers over 40,000.

THE ALUMNI COUNCIL

Each spring the membership of the Associated Alumni elects a representative group of individuals to act as a council for the Alumni Association. This council meets at least three times a year and conducts the business of the Associated Alumni through various committees.

The Office of Alumni Affairs, an office of the University, works with the Council of the Associated Alumni in attaining its objectives.

ASSOCIATED ALUMNI OBJECTIVES

1. The Association strives to enhance the image of the University in the eyes of the general public.
2. The Association is a liaison between the University administration and the student body.
3. The Association fosters good relations among the student body, the Fredericton and Saint John communities and the Alumni Association.
4. The Association endeavours to make students' stay at UNB as rewarding as possible, developing an "Alumni conscious" student body.
5. The Association assists the University in its fund raising activities with (a) governments, (b) private corporations and (c) individuals, be they Alumni or others.
6. The Association encourages, through personal contact and through its scholarship program, top-quality prospective students to attend UNB and maintains an interest in their welfare during their University careers.

ASSOCIATED ALUMNI COUNCIL 2015-2016

EXECUTIVE

· President: Brooke Yeates, BA'95, Sudbury, ON.
· Vice- President: Jill Jollineau, Med'02 - SJ, Saint John, N.B.
· Treasurer: Jamie Petrie, BBA'90, LLB'94, Fredericton, N.B.
· Secretary: Karen Taylor, BA'72, MPA'88, Woodstock, N.B.
· Past President: Marc Bedard, BBA'74, Upper Cape, N.B.

REPRESENTATIVES TO BOARD OF GOVERNORS

· Heather Neilson, BPE'72, Fredericton, N.B.
· Larry Hachey, BBA'87-SJ, Saint John, N.B.
· Marc Bedard, BBA'74, Upper Cape, N.B.

ELECTED COUNCILLORS

· Barbara Hughes Campbell, BA'69, Fredericton, N.B.
· Maxine MacMillan, BA'90, MEd'91, Saint John, N.B.
· Shelley Pelkey, BBA'88, Stittsville (Ottawa), ON
· Jamie Petrie, BBA'90, LLB'94, Fredericton, N.B.
· Quinn DeLong, BA'05, Fredericton, N.B.
· Joel Dickenson, BBA'02, Fredericton, N.B.
· Shyam Maheshwari, MBA'13 - SJ, Saint John, N.B.
· Weldon Leblanc, BBA'86, West Kelowna, N.B.

APPOINTED COUNCILLORS

· Mike O'Brien, BScME'82, Fredericton, N.B.
· Jim Simons, BA'71, Hudson, QC
· Gary Leslie, BBA'85, BPE'88, Saint John, N.B.
· Raha Mosca, C-BAI'09, MBA'13, Saint John, N.B.
· Justin Strong, BSc.EE'07, Calgary, AB
· Peter Syroid, BSc.ME'98, D-TME'98, MBA'03, Fredericton, N.B.

STUDENT REPRESENTATIVES

· Emily Fox, BA'17, Saint John, N.B.
· Mikayla Donovan, BScKin'16, Canterbury, N.B.

OTHER MEMBERS

UNB President: Dr. Eddy Campbell, Fredericton, N.B.

President of the Associated Alumnae: Martine Stewart, BA'91, Fredericton, N.B.
Association Executive Director: Margaret Grant-McGivney, BScCE'88, New Maryland, N.B.

UNB ASSOCIATED ALUMNAE

The Associated Alumnae was founded in 1910 and incorporated in 1919. The object of the Association is to promote, directly and indirectly, the educational and financial interests of the University, especially as such interests are related to the women graduates and undergraduates of the University. Membership in the Associated Alumnae consists of women graduates and former women students of the University who have successfully completed one year.

The Association furnished and equipped UNB's first residence for women, the Maggie Jean Chestnut House, generously donated to the Alumnae by Lord Beaverbrook. In May 1952, this residence was transferred to the University. The Alumnae Memorial Library, located in Lady Dunn Hall, and libraries in other residences for women students, were established and are maintained by the Association.

The Associated Alumnae annually awards several scholarships to women students, including: an Entrance Scholarship in Education named in honour of Muriel Farris Baird; the Zula V. Hallett Scholarship, awarded to a woman student entering third-year Physical Education; the Marion Fleet Rogers Scholarship to a woman student entering third year at UNB Saint John; and an award for part-time students. The total annual value of all scholarships provided exceeds $18,000. Two prizes, the Dorothy Elson Prize and the Agnes Grey Wilson Prize, are also donated by the Associated Alumnae.

ASSOCIATED ALUMNAE COUNCIL 2015

EXECUTIVE

· President: Martine Stewart BA'91, Fredericton, N.B.
· 1st Vice-President: Maia Deveau, BA'89, LLB'91, Fredericton, N.B.
· 2nd Vice-President: Norah Malloy, BA'69, Fredericton, N.B.
· Past-President: Karen Taylor, BA'72, MPA'88, Woodstock, N.B.
· Secretary: Jennifer Sutherland-Green, LLB'09, Fredericton, N.B.
· Treasurer: Jennifer Ward, BBA'08, Fredericton, N.B.

COUNCILLORS

· Mardi Cockburn, BA '52, Fredericton, N.B.
· Karen Caverhill, LLB'87, Fredericton, N.B.
· Carol Dixon, BBA'80, Fredericton, N.B.
· Barb Elliot, BT'79, BEd'81, Fredericton, N.B.
· Jane McGinn, BScCE'88, ME'99, Fredericton, N.B.
· Cheryl Scholten, BBA'87, LLB'04, Fredericton, N.B.
· Jane Washburn, BBA'

For more information go to: http://alumni.unb.ca/

PRINCIPALS (1820-1860) AND PRESIDENTS OF THE UNIVERSITY (1861-PRESENT)

James Somerville	1820-1829
Edwin Jacob	1829-1860
Joseph Hea	1860-1861
William Brydone Jack	1861-1885
Thomas Harrison	1885-1906
Cecil Charles Jones	1906-1940
Norman MacKenzie, C.C.	1940-1944
Milton F. Gregg, V.C.	1944-1947
A. Foster Baird	1947-1948
Albert Trueman, O.C.	1948-1953
C. William Argue (Acting)	1953
Colin B. Mackay, O.C., Q.C.	1953-1969
James O. Dineen	1969-1972
Desmond Pacey (Acting)	1972-1973
John M. Anderson	1973-1979
Thomas J. Condon (Acting)	1979-1980
James Downey, O.C.	1980-1990
Robin L. Armstrong	1990-1996
Elizabeth Parr-Johnston	1996-2002
James F. O'Sullivan (Acting)	1997
John D. McLaughlin	2002-2009
H.E.A. Eddy Campbell	2009 -

FREDERICTON CAMPUS HISTORY

As the American Revolutionary war drew to a close, thousands of Loyalists gathered in New York City to await transportation to homes in other British Colonies. Among these Loyalists were Charles Inglis, a former interim President of King's College, New York (Columbia University); Benjamin Moore, later President of Columbia; and Jonathan Odell, minister, poet and pamphleteer. These men were the visionaries of their day. In the midst of war, privation and exile, they drew up a plan for the future education of their sons in the Nova Scotia wilderness. Recognizing that the new American nation would provide instruction only in revolutionary "Principles contrary to the British Constitution" and that the cost of an overseas education would be prohibitive, they urged the representatives of the British government to consider the "founding of a College… where Youth may receive a virtuous Education" in such things as "Religion, Literature, Loyalty, & good Morals…"

Initially, these gentlemen intended that the area of Nova Scotia have only one college. However, in 1784 when the Province of New Brunswick was created from a part of Nova Scotia, New Brunswickers began a clamour for their own school which led to the foundation of two of Canada's oldest institutions of higher learning - King's College, Windsor, Nova Scotia (now affiliated with Dalhousie University) and the academy which became the University of New Brunswick.

UNB began with a petition presented to Governor Thomas Carleton on 13 December 1785. Headed by William Paine, the seven memorialists asked Carleton to grant a charter of incorporation for an "academy of school or liberal arts and sciences," which they maintained would result in many "public advantages and… conveniences." In addition, the "principal Officers of disbanded Corps and other Inhabitants" in and around the provincial capital of Fredericton asked that the Governor reserve a substantial grant of land in support of this academy.

Despite the approval of Carleton, it was many months before the academy opened. During this period a draft charter was written, based on the 1754 Charter of King's College, New York, urging that the college never "exclude or restrain any Person…of any religious Denomination, Sect or Profession…from equal…Liberties, Privileges, [or] Degrees"- a very liberal notion in the eighteenth century. Unfortunately, times were changing in New Brunswick and such sentiments seemed to recall the recent American Revolution. Therefore, while the academy had commenced operations by the 1790s, it functioned less as a college and more as a symbol of Carleton's governmental policy for the promotion of twin tenets of the Anglican religion and the British Constitution. As the provincial leaders of the opposition dismissed the academy of as nothing but a "country school," Carleton realized he must more actively and effectively offer its support. On 12 February 1800, over the signature of Provincial Secretary Jonathan Odell, the College of New Brunswick received a Provincial Charter, the first college in Canada to be so honored. It was intended that the academy would serve as the College's preparatory school and that the two would be governed by a Common College Council drawn almost entirely from the ranks of a governmental hierarchy. As for the professors, they were all to be Anglicans.

For a number of years, the history of the future University continued to lie with the academy. A series

of masters came and went until 1811 when the Reverend James Somerville, an ex-patriate Scotsman, took the position of Principal Preceptor. There can be no question that Somerville, a graduate of the University of Aberdeen, was a superb teacher who provided the Council and New Brunswick with their first chance to have a real college. In 1820, Somerville, was formally named president of the College of New Brunswick and, in April 1822, he held the very first college classes in Fredericton. This development helped spur efforts to set the institution on a firmer footing. A new Charter for "Brunswick College" was proposed in 1823, asking for permanent and substantial funding directly from the King. Lieutenant Governor Sir Howard Douglas quickly threw his influence behind the scheme. Douglas viewed the welfare of the College to be of prime importance to the success of New Brunswick. To this end, he pressed for a Royal Charter and urged the erection of a fine stone building to house the institution.

Three designs for the building were submitted in 1825 to the Council, which selected that drawn J.E. Woolford. There was, of course, a good deal more involved in the transformation of the neglected College of New Brunswick into King's College, Fredericton. Douglas spent the next four years keeping a wary eye on the growth of his "child. In 1826, having chosen the site for the building himself, Douglas laid the cornerstone. In December 1827, largely through Douglas' efforts in Great Britain, King's College, Fredericton, received a Royal Charter nearly identical to that granted to King's College, Toronto. Before allowing the new Charter to take effect, the College of New Brunswick performed one final, official act, on 21 February 1828, by awarding degrees to its first and last three graduates.

On I January 1829, King's College and the structure (now known as Sir Howard Douglas Hall, formerly referred to as the Old Arts Building) erected to house it were officially opened. In one way, King's was a failure. In its thirty-year tenure it graduated fewer than 125 students, in large measure because its classical curriculum was not well-suited to the needs of New Brunswickers. Yet, it was at King's that many of the courses offered in later years by the University of New Brunswick had their start. In 1834, for example, three of the professors proposed admitting "young men of good abilities and diligence" to a special, one-year course entitling each to a teacher's certificate. Even after the creation of the Provincial Normal School this kind of university training continued sporadically and

in various forms until the Faculty of Education emerged in the twentieth century.

It was also in the 1830s that King's introduced "public lectures," more familiar to today's students as "extension courses". These early lectures dealt with subjects such as geology, chemistry, physics and astronomy. Much to the disgust of one professor, James Robb, some of his lectures at the College were open to the general public, including the young women of Fredericton. Some years later, Mr. McMahon Cregan, an engineer from England who was brought to New Brunswick to conduct a survey for the European and North American Railway, offered "instruction of a really practical and useful character" in the field of engineering to students and non-students alike.

King's spent several tumultuous periods in conflict with members of the New Brunswick Legislature. Ostensibly, they were arguing over the issues of the curriculum and religion but the real issue was probably the cost of higher education. Fortunately, King's did have defenders, in particular, the elegant debater William Needham who, in the face of threats to burn down the College or to turn it into an agricultural school, made an impassioned speech that saved the institution from such ignominious fates. Through the efforts of Needham, Lieutenant Governor Sir Edmund Head and a few others, the Legislature was persuaded to reform rather than destroy the College. On 13 April 1859, the act creating the secular, provincial University of New Brunswick was passed.

At first, the UNB charter seemed to promise more than the University could deliver but, slowly, under the guidance and tutelage of several innovative professors, both the University's attitude and curriculum blossomed. In 1880, UNB began offering a certificate to those women who performed well in entrance (matriculation) examinations, though women were not permitted to enrol at the University. In 1885 a brilliant young woman named Mary Kingsley Tibbits met head-on the University's stricture against women and, in 1886, became UNB's first, regularly admitted, woman student. The racial barrier had been broken earlier with the completely non-controversial entry of you Arthur St. George Richardson, a black who came to UNB via Bermuda and Saint John. Gradually, the University expanded its educational horizons. In 1887 the four-year program was introduced and in 1891 a Bachelor of Science degree was added to complement the traditional BA. Just after the turn of the century, when Cecil Charles Jones took over as

Chancellor of the institution, whose title subsequently was changed to that of President, the foundations were laid for three major faculties: Law, Engineering and Forestry.

The post-World War I era brought the first great expansion of the physical facilities of the campus. In 1920, UNB consisted of the Sir Howard Douglas Hall (Old Arts Building), the Science Building, the small Observatory, a small gymnasium and the Dominion Entomological Laboratory. By 1931, Memorial Hall, a modern Library and a Forestry and Geology Building had been added. The first university residence was a gift from Lord Beaverbrook who, growing up in New Brunswick as William Maxwell Aitken, studied law, and over the succeeding years developed an increasing interest in the welfare of the university. Other buildings brought into being through his efforts and those of his family were the Lady Beaverbrook Gymnasium, Aitken House, Ludlow Hall, for the Faculty of Law, and the Aitken Centre. In 1947, his Lordship became the University's Chancellor, to be succeeded by his son, Sir Max Aitken, in 1966 and in turn by Lady Violet Aitken, the wife of Sir Max, who served until 1993.

After World War II, returning veterans pushed registration to over 770 in 1946, almost double the number enrolled in 1941. With this increased student population came a commensurate increase in faculty and course offerings, and a surge of building activity from 1953 to 1977 that transformed the campus. The year 1964 brought three important developments. Teachers' College (the old Provincial Normal School) was relocated on the campus, to become incorporated into an enlarged Faculty of Education in 1973; St. Thomas University also relocated on campus, moving from Chatham and affiliating with UNB; and a second UNB campus was established in Saint John.

UNB reached the end of its second century as a major provincial and national institution, offering a wide range of graduate and undergraduate programs in administration, arts, computer, science, education, engineering, forestry, law, nursing, physical education and science: the University enters its third century proudly treasuring its past and eagerly facing the challenges of the future.

SAINT JOHN CAMPUS HISTORY

The University of New Brunswick Saint John was established in September 1964 following the recommendation of the Royal Commission on Higher Education, chaired by the late Dr. John J. Deutsch of Queen's University. The Deutsch Commission emphasized the need for facilities for higher education in this metropolitan community of over 100,000 persons.

During the first five years of operation, classes were offered in the first two years of degree programs in Arts and Science, Business, Engineering, Physical Education, Forestry and Nursing. Classes took place at various locations in the city of Saint John, including Beaverbrook House, formerly the home of the UNB Faculty of Law. In the fall of 1969, the new campus at Tucker Park was opened consisting of three buildings - Sir Douglas Hazen Hall, William Ganong Hall and the Ward Chipman Library Building. This site, proposed by the City Council as early as 1963, was originally bequeathed to the City of Saint John for park purposes. At the request of the City, the New Brunswick Legislature authorized the conveyance of a portion of this land for the new campus.

In 1975 the G. Forbes Elliot Athletics Centre was added to the physical plant. Since its opening, the versatile, well-equipped building has served the recreational needs of both the campus and greater Saint John communities. In 1985 the Jeux Canada Games Stadium was constructed on campus, and in 1986 the Thomas J. Condon Student Centre was opened.

UNB Saint John's physical facilities expanded again in the 1990s with the opening of the new academic building, Phillip W. Oland Hall, in late 1992, and the addition of the campus's first on-site student housing facility, the Sir James Dunn Residence, in the fall of 1993. K.C. Irving Hall, opened in January 1999, followed by the Colin B. MacKay residence and Saint John College in 2003.

A special feature of UNB Saint John is the fact that many of the permanent buildings on the campus are connected by a series of tunnels and walkways, allowing comfortable access to all facilities during inclement weather and the months of winter.

UNB Saint John now offers full four-year degree programs in Applied Management, Arts, Business Administration, Computer Science, Data Analysis, Economics, , Education, Financial Mathematics, Health Sciences, Information Sciences, Nursing and Science. Students now enroll in the first two years of Engineering programs on the Saint John campus, after which they would transfer to the Fredericton campus to complete the degree The campus is also home to a number of Masters students whose research is contributing to regional, national, and international endeavours. In addition to the full-time

enrolment, many of part-time students are now pursuing their studies at the Saint John campus.

FREDERICTON HISTORIC BUILDINGS

Burden Academy

As a Centennial project, the University brought to the campus and restored a one-room New Brunswick schoolhouse, located more than a hundred years at Burden in York County. The schoolhouse, located at the King's College Road entrance, was officially opened in May 1967.

McCord Hall

McCord Hall located at the east entrance of the Sir Howard Douglas Hall (Old Arts Building), was once used as the University's ice house. The nineteenth-century structure was restored in 1963 and named in honour of David T.W. McCord, the distinguished writer and former executive director of the Harvard University Fund Council, and honorary graduate of UNB.

The Neville Homestead

The Neville Homestead, a small white clapboard house on the east side of the campus, dates back to 1876. It was the home of Fred Neville, University groundskeeper for 42 years, who lived in the house from his birth in 1878 to his death in 1969. The Neville family first settled the land in 1850 with a purchase from Hon. William Odell. In its 84th year, the house was moved a short distance to its present location to make way for a new men's residence, named to honour Mr. Neville. The Homestead now houses the Student Employment Service.

Sir Howard Douglas Hall

The building that housed King's College is now known as the Sir Howard Douglas Hall (Old Arts Building) and is the oldest university building in Canada still functioning as a viable part of a university campus. In the Great Hall are portraits of past president and two memorial stained glass windows. Immediately to the left of the front entrance is the Edwin Jacob Chapel, named in memory of Vice-President and Principal of King's College. A permanent display illustrating the history of the University is located in the Great Hall, including the cornerstone of the building, laid in 1826 and excavated in 1978 prior to the sesquicentennial celebrations.

William Brydone Jack Observatory

The Observatory, located at the east entrance to the Sir Howard Douglas Hall (Old Arts Building), was built in 1851 through the efforts of William Brydone Jack , Professor of Mathematics and Natural Philosophy at King's College and later President of UNB. Constructed of wood, it has an octagonal tower especially designed to house its equatorial telescope. It now houses a small museum.

Richard J. Currie Center

The Richard J. Currie Center is named after UNB's Chancellor () a UNB alumnus, and generous supporter of the University.

The five story 139,000 square foot building is among the single largest construction project in Fredericton's History. Officially opened in October 2011 the Currie Center was designed to address the integrated wellness needs of the University of New Brunswick and the greater Fredericton Community. It provides facilities for fitness, recreation and high-performance athletics as well as new space for community research activities and services.

SAINT JOHN CAMPUS BUILDINGS

Sir Douglas Hazen Hall

This building is named for Sir Douglas Hazen (1860-1937), a prominent former premier, member of the federal cabinet and Chief Justice of the province. Hazen Hall houses the offices of all departments in the Faculty of Arts, the campus computing centre, classrooms and a 240 -seat lecture theatre.

William Ganong Hall

The Science building, William Ganong, is named after Francis William Ganong (1864-1941), a graduate of UNB, long-time faculty member at Smith College and a former president of the Botanical Society of America. The four-storey building is designed to provide facilities for Biology, Chemistry, Geology and Physics. Ganong Hall houses the largest lecture theatre on the campus, a micro-lab, a spacious display area, student laboratories, and facilities of a more specialized nature, such as a large greenhouse, a controlled environment room and research laboratories.

Phillip W. Oland Hall

W. Oland Hall opened in December, 1992 at UNB Saint John and houses the Faculty of Business and

most of its administrative offices, including the Registrar's Office, the Business Office, the President's Office, the Vice-President's Office, the Advancement Office, the Alumni Office, and Student Services. Five classrooms, an audio-visual theatre, a business case room with four break-out labs and a micro-computer lab are also contained in Phillip W. Oland Hall.

The building is named for one of UNB's staunchest supporters. A loyal alumnus (BSc 1930, DLitt 1978), Phillip W. Oland (1910-1996) was chairperson and CEO of Moosehead Breweries Ltd. Dr. Oland dedicated a lifetime of service to his country and his community. He served in the Canadian Armed Forces during World War II, was the founder of the New Brunswick Youth Orchestra and sat on numerous board and committees for such organizations as the United Way, the YM/YWCA, the University of New Brunswick and St. Thomas University.

Ward Chipman Library

The Ward Chipman Library, one of the three original buildings on campus, is named in honor of Ward Chipman (1754-1824), a Massachusetts Loyalist who was deputy muster-master general to the British forces during the American Revolution; thereafter, he settled in Saint John where he culminated a distinguished legal career in being named to the New Brunswick Supreme Court. As of 2011, the Ward Chipman Library is being renovated to reflect the current needs of the campus.

K.C. Irving Hall

The K.C. Irving Hall is one UNB Saint John's newest academic buildings, opened in fall 1999. The home of the campus's Biology, Engineering and Nursing Departments, Irving hall features modern classrooms and state-of-the-art research and computer laboratories.

The building is named for Kenneth Colin Irving, in recognition of his family's significant contribution to the economy of New Brunswick and to the lives, culture and education of New Brunswickers. The Irvings have provided generous support to the university as well as numerous community groups and initiatives.

Thomas J. Condon Student Centre

UNB Saint John's Student Centre, located adjacent to the Athletics Centre, is interconnected to the other buildings on campus by an overhead walkway and an underground tunnel. The centre houses the cafeteria, Student Representative Council offices, a social club and lounge. The building was named in honour of Vice-President Emeritus Thomas J. Condon.

G. Forbes Elliot Athletics Centre

UNB Saint John's Athletics Centre features a 30,000 square foot surface with an all-purpose synthetic floor. The Athletics Centre includes space for four basketball courts, four tennis courts, four volleyball courts, six badminton courts and a four-lane running track. There is also plenty of space for activities such as soccer and flag football. Spectators can enjoy the Universitys athletic teams, the Seawolves, from the 900 bleacher seats overlooking the main court surface. The ground floor includes locker and shower rooms, equipment storage rooms, a trainer's room, and an officials' room. Upstairs, there are a suite of offices and a reception area, a classroom, lounge, games room, and conditioning room.

The Athletics Centre serves the recreational and physical education needs of UNB Saint John students, faculty and staff, as well as several community groups. The Centre bears the name of the founding principal of UNB Saint John.

Canada Games Stadium

UNB Saint boasts one of the finest track and field facilities in the country. A legacy of the 1985 Jeux Canada Games, the stadium has a 400-metre, eight-lane all weather running track and a natural grass infield lighted for night play. There is fixed seating for 5,000, a press box, and other auxiliary facilities.

Sir James Dunn and Colin B. MacKay Residences

UNB Saint John offers two residences on campus overlooking the beautiful Kennebecasis River.

The Dr. Colin B. MacKay residence, opening September 2003 and was designed with input from our own students. It offers 168 beds in the form of spacious double suites for independent style living. Suites include two single bedrooms, kitchenette, complete with microwave and fridge and private three-piece bath. At UNB Saint John, housing is non-smoking, co-ed and security locked. Each room is furnished and standard house amenities include furnished TV rooms and study lounges, high-speed Internet and cable TV connections and laundry facilities.

The Sir James Dunn Residence, which opened in September 1993, offers 71 beds and an indoor connection to the campus. Single and Double rooms are available. Construction of the Dunn was made possible by a generous donation from the Sir James Dunn Foundation. It is named in honour of the noted Canadian industrialist and philanthropist, Sir James Dunn, who was a native of Bathurst, NB.

Hans W. Klohn Commons

Hans W. Klohn Commons opened in September 2011. The commons offers students the latest in technology, writing and library services. It houses a student technology centre; writing, math and statistics tutoring centres; and classroom and conference rooms. It integrates IT, information services, the computing centre and library in a single place.

The Commons is named for prominent New Brunswick businessman Hans W. Klohn who is well known for his many contributions to the steel fabrication and construction industry in Atlantic Canada and beyond.

Annexes

The annexes house facilities for the International Office, International Recruiting, the Student Health Centre, and for part-time faculty and graduate students.

For more information regarding the History of UNB please visit:
http://www.unb.ca/aboutunb/history/index.html

REGULATIONS
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	Bachelor of Arts Bachelor of Applied Arts (Craft and Design FR)	Bachelor of Business Administration Bachelor of Applied Management in Hospitality & Tourism (3+1) (SJ)	Bachelor of Computer Science (FR) Bachelor of Science in Computer Science (SJ) Bachelor of Arts/Bachelor of Computer Science (FR)	Bachelor of Computer Science/ Bachelor of Science (FR)
IMPORTANT INFORMATION	Students applying for the BAA apply directly to the FR Admissions Office. Students are asked to indicate which campus they intend to begin their studies - UNB Faculty of Arts or NBCCD.		Bachelor of Computer Science and Science in Computer Science: Applicants who do not meet the admission requirements for direct entry to the degree program, but offer a minimum admission average of 60% (and other conditions as may be required by the admitting faculty) may be given conditional admission to the appropriate faculty in an entrance program to the extent that capacity allows. See Note #12.	Senior-year Mathematics, Chemistry and another approved science are required courses for admission to these programs. An average of the marks in senior Math, Chemistry, and the best other science course must be at least 75%. Students who present only Chemistry will be considered at the discretion of the Faculty.
Minimum Average Requirements	Minimum Required Average in English/Francais 60% Min. Admission Average 65%	Minimum Required Average in English/Francais and Math 60% Min. Admission Average 75%	Minimum Required Average in English/Francais 60%; Math(s) and Science 65% and elective 60%. Min. Admission Average 75%	Minimum Required Average for Math(s) 60%. Min. Admission Average 75%
NEW BRUNSWICK ANGLOPHONE	English 122 4 Electives - Group 1 1 Elective Group 1 or 2 or 3	English 122 Pre-Calculus A 120 Pre-Calculus B 120 2 electives - Group 1 1 elective - Group 1, 2 or 3	English 122 Pre-Calculus A 120 Pre-Calculus B 120 One of Biology 122, Physics 122 or Chemistry 122 1 elective - Group 1 1 elective - Group 1 or 2	English 122 Pre-Calculus A 120 Pre-Calculus 12B Chemistry 122, and one of (Grade 122 Physics, Biology, Geology or another provincially approved science), 1 elective - Group 1 or 2
NEW BRUNSWICK FRANCOPHONE	Francais 10411 4 Electives - Group 1. 1 Elective Group 1, 2 or 3	Francais 10411 Mathematique 30331C Mathematique 30411C 2 electives - Group 1 1 elective - Group 1, 2 or 3	Francais 10411 Mathematique 30311C Mathematique 30411C One of Biologie 53411, Physique 51411 or Chimie 52411 1 elective - Group 1 1 elective - Group 1 or 2	Francais 10411 Mathematique 30331C Mathematique 30411C Chimie 52411, and one of Grade 12 Physique, Biologie or another provincially approved science), 1 elective - Group 1 or 2.
PRINCE EDWARD ISLAND	English 621 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, Math 611A or Math 611B 2 electives - Group 1 1 elective - Group 1, 2 or 3	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, Math 611A or Math 611B One of Biology 621, Physics 621 or Chemistry 621 1 elective - Group 1 1 elective - Group 1 or 2 (min. 60%)	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, 611A or 611B Chemistry 621, and one of (621 Physics, Biology, Geology or another provincially approved science) 1 elective - Group 1 or 2.
NOVA SCOTIA	English 12 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 12 Pre-Calculus 11 Pre-Calculus 12 2 electives - Group 1 1 elective - Group 1, 2 or 3	English 12 Pre-Calculus 11 Pre-Calculus 12 One of Biology 12, Physics 12 or Chemistry 12 1 elective - Group 1 1 elective - Group 1 or 2	English 12 Pre-Calculus 11 Pre-Calculus 12 Chemistry 12, and one of (Grade 12 Physics, Biology, Geology or another provincially approved science) 1 elective - Group 1 or 2
NEWFOUNDLAND AND LABRADOR	English 3201 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 2 electives - Group 1 1 elective - Group 1, 2 or 3	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 One of Biology 3201, Physics 3204 or Chemistry 3202 1 elective - Group 1 1 elective Group 1 or 2	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Chemistry 3202, and one of (Physics 3204, Biology 3201 or another provincially approved science) 1 elective - Group 1 or 2
QUEBEC (Secondary School Diploma)	English 516 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 516 Math 436 Math 536 2 electives - Group 1 1 elective - Group 1 or 2 or 3	English 516 Math 436 Math 536 One of Biology 534, Physics 534 or Chemistry 534 1 elective - Group 1 1 elective - Group 1 or 2	English 516 Math 436 Math 536 Chemistry 534, and one of (534 Physics, Biology or Geology or another provincially approved science) 1 elective - Group 1 or 2
ONTARIO	English 4U 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 4U Math MCV4U plus one of MHF4U, MDM4U, MCF3M or MCR3U 2 electives - Group 1 1 elective - Group 1, 2 or 3 See note #13. We accept Math MCB4U & MGA4U	English 4U Math MCV4U and Math MHF4U One of Biology SBI4U, Physics SPH4U or Chemistry SCH4U 1 elective Group 1 1 elective - Group 1 or 2 See note #13. We accept Math MCB4U & MGA4U	English 4U Math MCV4U Math MHF4U Chemistry SCH4U, and one of (Physics SPH4U, Biology SBI4U or another provincially approved science) 1 elective - Group 1 or 2 Will accept Math MCB4U & MGA4U
MB, SK, AB, BC, NT, NU, YT	English 12 4 Electives - Group 1, 1 Elective Group 1, 2 or 3,	English 12 Math 11 Math 12 (including Pre-Calculus, 2 electives - Group 1 1 elective - Group 1, 2 or 3	English 12 Math 11 Math 12 (including Pre-Calculus) One of Biology 12, Physics 12 or Chemistry 12 1 elective - Group 1 1 elective - Group 1 or 2	English 12 Math 11 Math 12 (including Pre-Calculus) Chemistry 12, and one of (Grade 12 Physics, Biology, Geology or another provincially approved science) 1 elective - Group 1 or 2
UNITED STATES See Note #16	English 12 4 Electives - Group 1 1 Elective Group 1, 2 or 3	English 12 Math 11 Math 12 (including Pre-Calc) 2 electives - Group 1 1 elective - Group 1, 2 or 3 See	English 12 Math 11 Math 12 (including Pre-Calc) One of Biology 12, Physics 12 or Chemistry 12 1 elective - Group 1 1 elective - Group 1 or 2	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12, and one of (Grade 12 Physics, Biology, Geology, or another state approved science elective) 1 elective - Group 1 or 2

	Bachelor of Geomatics (FR)	Bachelor of Information Systems (FR) Bachelor of Information Sciences (SJ)	Bachelor of Nursing	Bachelor of Philosophy in Interdisciplinary Studies (FR)
IMPORTANT INFORMATION	Applications will be assessed by the Department. In order to be considered for admission, applicants normally will possess one of the following qualifications as deemed acceptable by the Department: completion of a recognized 2 or 3 year Diploma in Geomatics Engineering Technology; completion of post-secondary education; experience, maturity and qualities indicating the ability to undertake study in Geomatics. Applicants are expected to have knowledge of calculus, computer science, probability and statistics, as well as preferably physics equivalent to first year university courses. Although admission may be granted after completion of appropriate secondary courses, it is preferred that applicants have completed a Diploma in Geomatics Engineering Technology or equivalent. For applicants directly from secondary school it is strongly recommended that applicants have completed all admission requirements. Note: Grade 12 Physics is recommended as a Group 1 elective.	Please note: Admission to the Bachelor of Information Systems (Fredericton) has been suspended effective May 25, 2015.	Senior year Chemistry and Biology are required. A minimum overall average of 70% is required on English, Math, Biology and Chemistry. If a higher level Math course in the Calculus stream is presented, the math course with the highest grade will be considered. Mature applicants must present Grade 12 English, Chemistry, and Biology plus grade 11 Mathematics (or equivalent) with a minimum grade of 70% in each course and other conditions as outlined by the Faculty. Other forms in addition to the normal application are required for this program on the Fredericton campus. These forms are available from the Fredericton Admissions Offices or the UNB website. All admissions are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission. All applicants are encouraged to apply early. The language of instruction within the UNB Fredericton Nursing program is English and prospective students whose native language is not English will be required to demonstrate competence in the English language prior to admission.	An average of 75% or higher on senior-year English and the required Mathematics is required. All admissions are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission. Applicants must also submit to the Admissions Office a resume which clearly and concisely outlines the applicant's; educational and career goals, volunteer activities, prior learning experiences, diversity of background and skills (such as but not limited to: artistic, musical, athletic, cultural, linguistic), and leadership experience. Typically, this information can be communicated well in two or three pages. No special forms or formats are required.
Minimum Average Requirements	Minimum Required Averages in English, Math(s) and 2 Group 1 Electives 70%; 1 Group 1 elective requirement is 60%. Min. Admission Average 75%	Minimum Required Averages in English and Group Electives 60%; Math(s) 65%. Min. Admission Average 75%	Minimum Required Averages in English/Francais, Math, Chemistry and Biology 70%. Minimum Admission Average 75%	Minimum Admission Average 7%5
NEW BRUNSWICK ANGLOPHONE	English 122 Pre-Calculus A 120 Pre-Calculus B 120 2 elective - Group 1 1 elective - Group 1	English 122 Pre-Calculus A 120 Pre-Calculus B 120 2 electives from Group 1 1 elective from Group 1 or 2	English 122 Pre-Calculus 110 or Foundations of Mathematics120 Chemistry 122 Biology 120 2 electives - Group 1	English 122 Pre-Calculus 110 or Foundations of Mathematics 120 3 electives -Group 1 1 elective - Group 1, 2 or 3
NEW BRUNSWICK FRANCOPHONE	Francais 10411 Mathematique 30331C Mathematique 30411C 2 elective - Group 1 1 elective - Group 1	Francais 10411 Mathematique 30331C Mathematique 30411C 2 electives from Group 1 1 elective from Group 1 or 2	Francais 10411 Mathematique 30321B or 30331C Chimie 52411 Biologie 53411 2 electives - Group 1	Francais 10411 Mathematique 30321B or Mathematique 30331C 3 electives -Group 1 1 elective - Group 1, 2 or 3
PRINCE EDWARD ISLAND	English 621 Math 521A or Math 521B 1 of: Math 621A or Math 621B, Math 611A, or Math 611B 2 electives - Group 1 1 elective - Group 1	English 621 Math 521A or Math 521B 1 of: Math 621A or Math 621B, Math 611A or Math 611B 2 electives - Group 1 1 elective - Group, 1 or 2	English 621 Math 521A or Math 521B Chemistry 621 Biology 621 2 electives - Group 1	English 621 Math 521A or Math 521B 3 electives - Group 1 1 elective - Group 1, 2 or 3
NOVA SCOTIA	English 12 Pre-Calculus 11 Pre-calculus 12 2 electives - Group 1 1 elective - Group 1	English 12 Pre-Calculus 11 Pre-Calculus 12 2 electives from Group 1 1 elective from Group 1 or 2	English 12 Calculus 11 or Mathematics 12 Chemistry 12 Biology 12 (2 electives - Group 1	English 12 Pre-Calculus 11 or Mathematics 12 3 electives - Group 1 1 elective - Group 1, 2 or 3
NEWFOUNDLAND AND LABRADOR	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 2 electives - Group 1 1 elective - Group 1	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 2 electives - Group 1 1 elective - Group 1 or 2	English 3201 Academic Math 2201 or Advanced Math 2200 Chemistry 3202 Biology 3201 2 electives - Group 1	English 3201 Academic Math 2201 or Advanced Math 2200 3 electives - Group 1 1 elective - Group 1 , 2 or 3
QUEBEC (Secondary School Diploma)	English 516 Math 436 Math 536 2 electives - Group 1 – 1 elective - Group 1	English 516 Math 436 Math 536 2 electives - Group 1 1 elective - Group 1 or 2 (min.	English 516 Math 436 or Math 536 Chemistry 534 Biology 534 2 electives - Group 1	English 516 Math 436 3 electives - Group 1, 1 elective Group 1, 2 or 3
ONTARIO	English 4U Math MCV4U Math MHF4U 2 electives - Group 1 1 elective - Group 1	English 4U Math MCV4U Math MHF4U 2 electives - Group 1 1 elective - Group 1 or 2 See note #13. We accept Math MCB4U & MGA4U	English 4U Math MCF3M or MCR3U Chemistry SCH4U Biology SBI4U 2 electives - Group 1	English 4U Math MCF3U or MCR3U 3 electives - Group 1 1 elective - Group 1, 2 or 3
MB, SK, AB, BC, NT, NU, YT	English 12 Math 11 Math 12 (including Pre-Calc) 2 electives - Group 1 1 elective - Group 1	English 12 Math 11 Math 12 (including Pre-Calc) 2 electives - Group 1 1 elective - Group 1 or 2	English 12 Math 11 Chemistry 12 Biology 12 2 electives - Group 1	English 12 Math 11 3 electives - Group 1 1 elective - Group 1, 2 or 3
UNITED STATES See Note #16	English 12 Math 11 Math 12 (including Pre-Calc) 2 electives - Group 1 1 elective - Group 1 See Important Information	English 12 Math 11 Math 12 (including Pre-Calc) 2 electives - Group 1 1 elective - Group 1 or 2	English 12 Math 11 Chemistry 12 Biology 12 2 electives - Group 1	English 12 Math 11 3 electives - Group 1 1 elective - Group 1, 2 or 3

	Bachelor of Recreation and Sport Studies (FR)	Bachelor of Science in Engineering Bachelor of Computer Science/ Bachelor of Science in Engineering (Geomatics) (FR)	Bachelor of Science in Forest Engineering	Bachelor of Science in Forestry (FR) Bachelor of Science in Environment and Natural Resources (FR)
IMPORTANT INFORMATION	All admissions are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission. Ontario applicants may present PSE4U Exercise Science to satisfy the senior Biology requirement. New Brunswick students interested in the BRSS-Education concentration, Pre-Calculus 11 is recommended.	All admissions to the Faculty are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission. All first year students begin study in a common first term of courses (ENG-1). Subsequent admission to one of the specific disciplines (Civil, Chemical, Electrical, Geological, Mechanical, Geomatics, Software) is competitive and is based on academic performance in first year. Only the first two years of the Bachelor of Science in Engineering program are offered at UNB Saint John.	Please note: Admission to the Bachelor of Forest Engineering degree program has been suspended effective June 1, 2010. For further information please contact the Dean of Forestry and Environmental Management.	Applicants who do not meet the admission requirements for direct entry to the Bachelor of Science in Forestry degree program, but offer a minimum admission average of 60% (and other conditions as may be required by the admitting faculty) may be given conditional admission to the appropriate faculty in an entrance program. See Note #12.
Minimum Average Requirements	Minimum Required Averages in English/Francais 60% Minimum Admission Average 75%	Minimum Required Averages in English/Francais, Math(s), Physics and Chemistry 70% Minimum Required average in Group Elective 60% Minimum Admission Average 75%	Minimum Required Averages in English/Francais, Math(s), Physics and Chemistry 70% Minimum Required average in Group Elective 60% Minimum Admission Average 75%	Minimum Required Averages in English/Francais, Math(s), Sciences 70%. Minimum Required Average for Group Elective 60%. Minimum Admission Average 75%
NEW BRUNSWICK ANGLOPHONE	English 122 Foundations of Mathematics 120 1 of: Biology 120, Chemistry 122, or Physics 122 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5.	English 122 Pre-Calculus A 120 Pre-Calculus B 120 Physics 122 Chemistry 122 1 elective - Group 1, 2 or 4 (	English 122 Pre-Calculus A 120 Pre-Calculus B 120 Physics 122 Chemistry 122 1 elective - Group 1, 2 or 4 (	English 122 Pre-Calculus A 120 Pre-Calculus B 120 Biology 120 or Physics 122 Chemistry 122 1 elective - Group 1 or 2
NEW BRUNSWICK FRANCOPHONE	Francais 10411 Mathematique 30321B or Mathematique 30331C 1 of: Biologie 53411, Chimie 52411, or Phsique 51411 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5.	Francais 10411 Mathematique 30331C Mathematique 30411C Physique 51411 Chimie 52411 (1 elective - Group 1, 2 or 4	Francais 10411 Mathematique 30331C Mathematique 30411C Physique 51411 Chimie 52411 (1 elective - Group 1, 2 or 4	Francais 10411 Mathematique 30331C Mathematique 30411C (min. grade 70%), Biologie 53411 or Physique 51411 (min. grade of 70%). Chimie 52411 (min. grade of 70%), 1 elective - Group 1 or 2 (min. grade of 60%)
PRINCE EDWARD ISLAND	English 621 Math 621A or Math 621B Math 611A or Math 611B 1 of: Biology 621, Chemistry 621, or Physics 621 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, Math 611A or Math 611B Physics 621 Chemistry 621 1 elective - Group 1,2 or 4	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, Math 611A or Math 611B Physics 621 Chemistry 621 1 elective - Group 1,2 or 4	English 621 Math 521A or Math 521B 1 of: Math 621A, Math 621B, Math 611A or Math 611B Biology 621 or Physics 621 Chemistry 621 1 elective - Group 1 or 2
NOVA SCOTIA	English 12 Mathematics 12 1 of: Biology 12, Physics 12, or Chemistry 12 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5.	English 12 Pre-Calculus 11 Pre-Calculus 12 Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4	English 12 Pre-Calculus 11 Pre-Calculus 12 Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4	English 12 Pre-Calculus 11 Pre-Calculus 12 Biology 12 or Physics 12 Chemistry 12 1 elective - Group 1 or 2
NEWFOUNDLAND AND LABRADOR	English 3201 Advanced Math 3200 or Academic Math 3201 1 of: Biology 3201, Chemistry 3202, or Physics 3204 2 electives - Group 1 1 elective , Group 1, 2, 3 or 5 .	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Physics 3204 Chemistry 3202 1 elective - Group 1, 2 or 4	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Physics 3204 Chemistry 3202 1 elective - Group 1, 2 or 4	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Biology 3201 or Physics 3204 Chemistry 3202 1 elective - Group 1 or 2
QUEBEC (Secondary School Diploma)	English 516 Math 536 1 of: Biology 534, or Physics 534 2 electives Group 1 1 elective - Group 1,2,3 or 5.	English 516 Math 436 Math 536 Physics 534 Chemistry 534 (1 elective - Group 1, 2 or 4	English 516 Math 436 Math 536 Physics 534 Chemistry 534 (1 elective - Group 1, 2 or 4	English 516 Math 436 Math 536 Biology 534 or Physics 534 Chemistry 534 1 elective - Group 1 or 2
ONTARIO	English 4U Math MCV4U or MHF4U 1 of: Biology SBI4U, Chemistry SCH4U or Physics SPH4U 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5. See note #13. We accept Math MCB4U or MGA4U.	English 4U Math MCV4U Math MHF4U Chemistry SCH4U Physics SPH4U 1 elective - Group 1, 2 or 4 Note #13. We accept Math MCB4U & MGA4U	English 4U Math MCV4U Math MHF4U Chemistry SCH4U Physics SPH4U 1 elective - Group 1, 2 or 4 Note #13. We accept Math MCB4U & MGA4U	English 4U Math MCV4U Math MHF4U Chemistry SCH4U Biology SBI4U or Physics SPH4U (1 elective - Group 1 or 2 See Note #13. We accept Math MCB4U & MGa4U
MB, SK, AB, BC, NT, NU, YT	English 12 Math 12 1 of: Biology 12, Chemistry 12, or Physics 12 2 electives - Group 1 1 elective - Group 1 ,2, 3 or 5.	English 12 Math 11 Math 12 (including Pre-Calc) Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4	English 12 Math 11 Math 12 (including Pre-Calc) Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12 Biology 12 or Physics 12 1 elective - Group 1 or 2
UNITED STATES See Note #16	English 12 Math 12 1 of: Biology 12, Chemistry 12, or Physics 12 2 electives - Group 1 1 elective - Group 1, 2, 3 or 5. See	English 12 Math 11 Math 12 (including Pre-Calc) Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4 See	English 12 Math 11 Math 12 (including Pre-Calc) Physics 12 Chemistry 12 1 elective - Group 1, 2 or 4	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12 Biology 12 or Physics 12 1 elective - Group 1 or 2

	Bachelor of Science in Kinesiology (FR)	Bachelor of Science / Bachelor of Medical Laboratory Science (FR) / Bachelor of Arts/Bachelor of Science (FR) / Bachelor of Arts and Science (FR)	Bachelor of Science in Economics (SJ)	Bachelor of Science in Financial Mathematics (SJ)
IMPORTANT INFORMATION	All admissions are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission. Ontario applicants may present PSE4U Exercise Science to satisfy the senior Biology requirement.	Senior-year Mathematics, Chemistry and another approved science are required courses for admission to these programs. An average of the marks in senior Math, Chemistry, and the best other science course must be at least 75%. Please see additional note at end of Admissions Chart.	Prospective students with Grade 12 English, Grade 12 Math and any combination of two Grade 12 sciences (Biology, Chemistry, Geology or Physics) will be considered for admission at the discretion of the faculty, and are encouraged to apply. The minimum admission average of the six courses if 75%. Also, the science average must be at least 75%. The science average is based on Grade 12 Math, and the best of Grade 12 Biology, Chemistry, Geology and Physics.	Prospective students with Grade 12 English, Math and any combination of two Grade 12 sciences (Biology, Chemistry, Geology or Physics) will be considered for admission at the discretion of the faculty, and are encouraged to apply. The minimum admission average of the six courses is 75%. Also, the science average must be at least 75%.The science average is based on Grade 12 Math, and the best of Grade 12 Biology, Chemistry, Geology and Physics. Please note: Admission to the Bachelor of Science in Financial Mathematics degree program has been suspended effective September 16, 2015.
Minimum Average Requirements	Minimum Required Averages in English/Francais 60% Minimum Admission Average 75%	Minimum Admission Average 75%	Minimum Required Averages in English 60% Minimum Admission Average 75%	Minimum Required Averages in English/Francais, Chemistry, Physics, Elective 60% Minimum Required Average in Math(s) 65% Minimum Admission Average 75%
NEW BRUNSWICK ANGLOPHONE	English 122 Pre-Calculus A 120 Pre-Calculus B 120 2 of Biology 120, Chemistry 122 or Physics 122 1 elective - Group 1, 2 or 3 or 5.	English 122, Pre-Calculus A 120 Pre-Calculus B 120 Chemistry 122 One of Grade 122 Physics, Biology, Geology or another provincially approved science 1 elective - Group 1 or 2	English 122/Francais Pre-Calculus A 120 Pre-Calculus B 120 Physics 122 Chemistry 122 1 elective - Group 1 or 2	English 122 Pre-Calculus A 120 Pre-Calculus B 120 Chemistry 122 Physics 122 1 elective - Group 1 or 2
NEW BRUNSWICK FRANCOPHONE	Francais 10411 Mathematique 30331C Mathematique 30411C 2 of Biologie 53411, Chimie 52411 or Physique 51411 1 elective - Group 1, 2 or 3 or 5	Francais 10411 Mathematique 30331C Mathematique 30411C Chimie 52411 1 of Grade 12 Physique, Biologie, or another provincially approved science 1 elective - Group 1 or 2	Francais 104112 Mathematique 30331C Mathematique 30411C Physique 51411 Chimie 52411 1 elective - Group 1 or 2	Francais 10411 Mathematique 30331C Mathematique 30411C Chimie 52411 Physique 51411 1 elective - Group 1 or 2
PRINCE EDWARD ISLAND	English 621 Math 521A or Math 521B 1 of: Math 621A/621B/611A/611B 2 of: Chemistry 621, Biology 621 or Physics 621 1 elective - Group 1,2,3 or 5.	English 621 Math 521A or 521B 1 of Math 621A/621B/611A/611B Chemistry 621 1 of Physics, Biology, Geology, or another provincially approved science 1 elective - Group 1 or 2	English 621 Math 521A or Math 521B 1 of: Math 621A/621B/611A/611B Physics 621 Chemistry 621 1 elective - Group 1 or	English 621 Math 521A or Math 521B 1 of: Math 621A/621B/611A/611B Chemistry 621 Physics 621 1 elective - Group 1 or 2
NOVA SCOTIA	English 12 Pre-Calculus 11 Pre-Calculus 12 2 of: Chemistry 12, Biology 12, or Physics 12 1 elective - Group 1,2,3 or 5.	English 12 Pre-Calculus 11 Pre-Calculus 12 Chemistry 12 One of Grade 12 Physics, Biology, Geology or another provincially approved science 1 elective - Group 1 or 2	English 12 Advanced Math 12 or Academic Math 12 Pre-Calculus Math 12 Physics 12 Chemistry 12 1 elective - Group 1 or 2	English 12 Pre-Calculus 11 Pre-Calculus 12 Chemistry 12 Physics 12 1 elective - Group 1 or 2
NEWFOUNDLAND AND LABRADOR	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200, or Academic Math 3201 2 of: Chemistry 3202, Biology 3201 or Physics 3204 1 elective - Group 1,2,3 or 5.	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Chemistry 3202; One of Physics 3204, Biology 3201 or another provincially approved science 1 elective - Group 1 or 2	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Physics 3204 Chemistry 3202 1 elective - Group 1 or 2	English 3201 Advanced Math 2200 or Academic Math 2201 Advanced Math 3200 or Academic Math 3201 Chemistry 3202 Physics 3204 1 elective - Group 1 or 2
QUEBEC (Secondary School Diploma)	English 516 Math 436 Math 536 2 of: Chemistry 534, Biology 534 or Physics 534 1 elective - Group 1, 2, 3 or 5.	English 516 Math 436 Math 536 Chemistry 534 One of 534 Physics, Biology, Geology or another provincially approved science 1 elective - Group 1 or 2	English 516 Math 436 Math 536 Physics 534 Chemistry 534 1 elective - Group 1 or 2	English 516 Math 436 Math 536 Chemistry 534 Physics 534 1 elective - Group 1 or 2
ONTARIO	English 4U Math MCV4U Math MHF4U 2 of: Chemistry SCH4U, Biology SBI4U or Physics SPH4U 1 elective - Group 1,2, 3 or 5 See Note #13. MCB4U & MGA4U accepted	English 4U Math MCV4U Math MHF4U Chemistry SCH4U One of Physics SPH4U, Biology SBI4U or another provincially approved science 1 elective - Group 1 or 2 MCB4U & MGA4U accepted	English 4U Math MCV4U Math MHF4U Physics SPI4U Chemistry SCH4U 1 elective - Group 1 or 2 See Note #13.	English 4U Math MCV4U Math MHF4U Chemistry SCH4U Physics SPH4U 1 elective - Group 1 or 2
MB, SK, AB, BC, NT, NU, YT	English 12 Math 11 Math 12 (including Pre-Calc) 2 of: Chemistry 12, Biology 12 or Physics 12 1 elective - Group 1, 2, 3 or 5.	English 12; Math 11; Math 12 (including Pre-Calc); Chemistry 12; One of Grade 12 Physics, Biology, Geology or another provincially approved science; 1 elective - Group 1 or 2	English 12 Math 11 Math 12 Physics 12 Chemistry 12 1 elective - Group 1 or 2	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12 Physics 12 1 elective - Group 1 or 2
UNITED STATES See Note #16	English 12 Math 11 Math 12 (including Pre-Calc) 2 of: Chemistry 12, Biology 12 or Physics 12 1 elective - Group 1,2,3 or 5	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12 One of Grade 12 Physics, Biology, Geology or another state approved Science 1 elective - Group 1 or 2	English 12 Math 11 Math 12 (including Pre-Calc) Physics 12 Chemistry 12 1 elective - Group 1 or 2	English 12 Math 11 Math 12 (including Pre-Calc) Chemistry 12 Physics 12 1 elective - Group 1 or 2

ADDITIONAL NOTE TO ADMISSIONS TABLE (Bachelor of Science)

BSC: Applicants who do not meet the admission requirements for direct entry to the Bachelor of Science degree program, but offer a minimum admission average of 70% (and other conditions as may be required by the admitting Faculty) may be given conditional admission to the appropriate Faculty in an entrance program to the extent that capacity allows.

Students applying to the Bachelor of Science program who present only Chemistry will be considered at the discretion of the Faculty. Applicants who do not meet the admission requirements for direct entry to the degree program, but offer a minimum admission average of 60% (and other conditions as may be required by the admitting faculty) may be given the conditional admission to the appropriate faculty in an entrance program to the extent that capacity allows. Students with high academic standing may be considered for admission if they present any two of three grade 12 Sciences, eg. Biology/Chemistry; Biology/Physics; Physics/Chemistry, etc. See Note #12. All admissions to the BMLS program are on a competitive basis; satisfaction of the minimum requirements does not guarantee admission.

NOTES TO ADMISSION CHART

1. A pass at the high school level is required for each subject counted for admission (unless otherwise specified).

2. To count for admission a subject must be taken at the Grade 12 "academic" level (N.B. Level 2) unless otherwise specified; level 1, French Immersion, and advanced courses are satisfactory substitutes (where they exist). Courses taken at the "general" or "open" levels will not be accepted for admission purposes.

3. Students intending to enter the Science program (BSc), the following concurrent programs - BA/BSc, BCS/BSc; the Bachelor of Medical Labratory Science program (BMLS), the Bachelor of Arts and Sciences program (BASc), the Engineering programs (BScE), and the Bachelor of Computer Science/Engineering concurrent program (BCS/BScE) should note that two years each of high school Chemistry and Physics will normally be required.

4. Students whose first language is French may offer senior French in place of English to fulfill the English admission requirement and may then offer English as a Group 1 elective.

5. Meeting the minimum admission requirement does not guarantee admission to a UNB program.

6. The faculties of Arts and Science (Fredericton) and Science, Applied Science & Engineering (Saint John) offer a number of combined programs. These faculties offer a concurrent BA/BSc program (5 years of study leading to both a BA and a BSc degree) and a BASc (4 years of study leading to a Bachelor of Arts and Science degree). See Admission Chart for admission requirements to these programs.

7. The Faculty of Arts (Fredericton) offers the Bachelor of Applied Arts (Craft and Design) (BAA). This degree program is design for students who wish to combine practical work in craft and design with elements of the Bachelor of Arts academic program. Students will complete two years at each of the University of New Brunswick and the New Brunswick Community College of Craft and Design. Students must also meet the admission requirements as listed in the Admissions chart. For further information, contact the Admissions Office.

8. The Faculty of Science offers a Bachelor of Medical Laboratory Science (BMLS). This program consists of courses offered at UNB (Fredericton and Saint John) and at the New Brunswick Community College. Admission requirements are the same as for the BSc program.

9. A concurrent program in Arts and Computer Science is available on the Fredericton campus in which both a Bachelor of Arts and a Bachelor of Computer Science degree can be completed in 5 years.

10. A concurrent program in Computer Science and Science (BSC/BSc) is available on the Fredericton campus in which both a Bachelor of Computer Science and a Bachelor of Science degree can be completed in 5 years. Admission requirements are the same as the BSc program, with the additional qualification of a mark of 60% or higher in senior - year Mathematics.

11. A concurrent program in Computer Science and Engineering (BCs/BScE) is available on the Fredericton Campus in which both a Bachelor of Computer Science and a Bachelor of Science in Engineering (Geomatics) can be completed. This concurrent program requires at least 6 years of study. Admission requirements are the same as a Bachelor of Science in Engineering program,

12. Students intending to enroll in Math 1003/1002, Introduction to Calculus I and MATH 1001, Calculus for Life Sciences, must take a Math placement Test which will be administered during Orientation week in September. Materials to prepare for this test are available on the web at http://www.math.unb.ca/ready as well as from the Mathematics Departments in New Brunswick High Schools and UNB. Based on their test scores, and the regulations set out by the Mathematics Department, students may be required to take a Pre-Calculus course (Math 0863 UNBF or Math 1863 UNBSJ) or a special section of Math 1003 that covers the material of the course over two semesters, or a regular (one semester) section of Math 1003.

13. (1). Ontario applicants may present Math MCB4U and Math MGA4U wherever Math MCV4U and MHF4U are required.
(2). Ontario applicants presenting 3A and 4A courses from the old curriculum should contact the Registrar's Office for clarification regarding specific program requirements.

14. Science 122 is an approved Group 1 elective but it will not be accepted as a substitute for Chemistry 122 or Physics 122 for admission to programs requiring either of these courses.

15. New Brunswick students should present the following Mathematics courses:
(a) For programs not requiring calculus (Nursing and Bachelor of Philosophy), UNB will require either Pre-Calculus 11 or Foundations 12 (b). For programs requiring a calculus course (including Business Administration), UNB will require Pre-Calculus 12A and Pre-Calculus 12B. The grades earned in both courses will be used to determine the admission average.

16. FOR UNITED STATES APPLICANTS ONLY if you are applying from the U.S., you must submit a high school transcript, Guidance Counselor's or Principal's report, and your SAT 1 or ACT scores. You must offer a grade of "B" in courses used for admission, a B-average or better, a rank in the upper half of your class, and a combined SAT 1 score of 1100 on the critical reading and math components (higher standards required in restricted enrolment programs). On the new SAT Writing component, we require scores in the range of 500-600 for Writing, 55-60 for Multiple Choice, and 7.5-8.5 for Essay.

17. Information about admission to the Faculty of Education, Faculty of Law, Bachelor of Integrated Studies, Bachelor of Applied Management, Bachelor of Applied Management in Accounting, Bachelor of Applied Management in Electronic Commerce, Bachelor of Applied Management in Hospitality and Tourism, and the Bachelor of Health Sciences programs are in appropriate sections of the Calendar. Please consult the Table of contents for page numbers.

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New Brunswick Courses shown below; equivalent courses from other provinces and the United States will be accepted.

Please Note: Ontario course HRT3M is an approved elective; HRE4M is not. SES4U, SNC4M and PSE4U are approved electives.

GROUP ONE	GROUP TWO	GROUP THREE	GROUP FOUR	GROUP FIVE
Anglais 22411 Biologie 53411/53421 Biology 122 Calculus 120 Canadian Literature 120 Chemistry 122 Chimie 52411 Computer Science 110/ 120 Co-Op Education 120 Droit 86411 Economics 120 Economie 44411 Education Cooperative 88411 Espagnol 23411 Environmental Science 122 FILA 120 Francais 10421 Foundations of Mathematics 120 (for admission to Arts and Applied Arts only) French 122 Geography 110/120 Geographie du Monde 41411 Geology 120 History 112/122 Histoire 42311/42411 Intro. Sc. Informatique 87411 Info. Appli. 81311/81911 Institutions Politiques, Economiques et Jurdiques 43411 Journalism 120 Law 120 Latin 120 Mandarin 120 Mathematique 30411C/30421C Physics 122 Physique 51411/51421 Political Science 120 Popular Music 120 Pre-Calculus 110 (for admission to Arts and Applied Arts only) Pre-Calculus A 120 Pre-Calculus B 120 Psychology 120 Reading Tutor 120 Science 122 Science de L'Environnement 54411 Sociology 120 Spanish 120 Stats 120 Statistique 31411 World Issues 120 Writing 110	Intro. to Accounting 120 Accounting 120 (computerized) Business Organization & Management 120 Comptabilite 84411 Marketing 122 Native Studies 120	Advanced Interdisciplinary Studies (for admission to Renaissance College only) Art 110/122 Art 91411 Communication 120 (Media Studies 120) Etude des Medias 11411 F1 Techniques in Fine Arts110 F1 Techniques in Communication 120 Music 110/120 Musique 92411 Theatre Arts 120 (Drama 120) Theatre 93411	Computer Aided Drafting 120 Dessin Industrial 67311 Electricite 61311 Introduction to Electronics 1100 Micro Electronics 120	Health & Physical Education 120 Ed Physique 71411

ADMISSION REGULATIONS FOR THE ACADEMIC YEAR 2015-16

Admission Regulations

A. General Information

1. Applicants may obtain information or application forms from the Admissions Office, University of New Brunswick, P.O. Box 4400, Fredericton, N.B. E3B 5A3 (phone (506) 453-4865, Fredericton International Admission inquiries can be directed to int-unbf@unb.ca, phone (506) 458-7386. Saint John Admission inquiries can be directed to unbsjreg@unb.ca, phone (506) 648-5670.

   PDF applications are available for download at http://www.unb.ca/admissions/undergraduate/

   Applicants are also encouraged to consult UNB's website (www.unb.ca) for up-to-date developments, including how to apply online (https://apply.unb.ca)

2. A student applying for entrance to the University of New Brunswick (UNB) must submit an application form including the application processing fee (Canadian and Permanent Resident fee is $55, International is $60) . A **non-refundable tuition deposit** of $100 is required from all applicants after they have been accepted excluding the Bachelor of Nursing and Education (Fredericton campus) programs. Students admitted to the Bachelor of Nursing program must submit a non-refundable admissions deposit of $250. Students admitted to the Bachelor of Education program (Fredericton campus) must submit a non-refundable admissions fee of $300.

3. The final date for application, including required supporting documentation, for the 2015-2016 session is 31 March (31 December for BEd programs - Fredericton campus and November 15 for BNASP program). Applications received after that date may be considered, provided that space is available, but late applicants are cautioned that their applications will not be processed until the earlier applications are assessed, and that they may not necessarily be accepted to their program of primary choice. This application deadline does not apply to applications for Graduate Studies. It is recommended that applications for programs with enrollment limits, be submitted early.

4. **Meeting the minimum admission requirements does not guarantee admission to any program.**

5. Applicants who wish to be considered for entrance scholarships need to complete the general online scholarship application (http://www.unb.ca/scholarships/highschool/index.html) by March 1.

6. Given the lead time required for visa processing, international students are encouraged to apply early. Offers of admission can be made throughout the year, until such time as programs are declared closed.

7. Students will normally follow the regulations in the Calendar for the year of their admission.

8. The University reserves the right to refuse admission.

B. Non Public-Schooled Applicants

Applicants in this category may have been home-schooled or may have attended a private school that does not follow a regular provincial curriculum. These applicants must provide the following:

1. A complete Admission Application form with the application processing fee.

2. A letter identifying the applicant's "non-public-schooled" status, and if possible, a transcript detailing grade 11 and grade 12 courses. Course outlines, syllabi, evaluation and criteria, and a list of resource materials should be provided for each course.

3. Evidence of a minimum score of 1100 in the SAT 1.

   For programs requiring specific grades in particular courses, evidence of achievement can be provided as follows:

   a. Complete SAT 2 test in required courses and achieve a minimum of 550 out of 800, or
   b. Complete the Grade 12 Adult High School Certification Provincial exam for that subject and achieve the grade specified in the program pre-requisite (e.g. a minimum grade of 60% is required in English 122 for admission to the Faculty of Arts), or
   c. Achieve a minimum grade of 4 in an approved Advanced Placement (AP) course.

4. Submit evidence of achievement as outlined above having official documents (transcripts/statements of results) sent directly from the testing agency to the Admissions Office. Documents will not be accepted directly from applicants.

C. Mature Applicants

1. Canadian citizens and permanent residents who do not meet the usual entrance requirements and who are 21 years of age or older by the session for which acceptance is sought may be considered for admission. In addition to the documentation normally requested, such applicants are encouraged to submit a letter indicating why they feel they are likely to profit from a university education.

2. Normally admission to an undergraduate program will be assessed after a mature applicant has completed UNB courses on a part-time basis approved for the purpose; high school graduates, adult high school diploma recipients, and holders of high school equivalency certificates (GED) may be exempted from this requirement. Since some Faculties specifically require certain courses in Mathematics and Science, qualifying course work may also be required; proof of successful completion in the specified course, as offered by the N.B. Department of Post-Secondary Education & Training and/or the NBCC network, is acceptable. All applicants should consult the Registrar's Office before registering.

3. Applicants who have attended another college or university but who have been away from formal education for a minimum of five years may make application under this regulation. However, clear evidence of ability to handle university-level studies, or of extenuating circumstances, will be required. In select cases, qualifying course work may not be required.

D. Academic Probation for Transfer Students

1. When students transferring from another Faculty, University, or post-secondary institution are admitted on Academic Probation, that placement on Academic Probation will be considered to be the one allowable placement under these regulations.

E. Admission from Community College

Graduates from Community College Programs and students who have successfully completed study in community college programs should request that official transcripts of their work be forwarded to the Registrar's Office.

1. Such transcripts will be considered for transfer credit provided:
   a. the courses being considered for credit satisfy the program requirements at the University of New Brunswick.
   b. the courses being considered meet the standard of grade required within the program at the University of New Brunswick.

F. Admission with Advanced Standing

1. The University of New Brunswick welcomes and encourages applications from International Baccalaureate (IB) students. UNB offers transfer credits for select successfully completed Higher Level IB courses (minimum grade of 5,)

2. Credit may be given for appropriate courses if an applicant has completed at least one full year of CEGEP. Normally, a minimum mark of 65% will be required in each subject for which credit is sought.

3. Applicants from overseas who already possess entrance requirements as stated on GCE 'O' level or its equivalent may be considered for transfer credit, for appropriate courses in the program they propose to enter, on the basis of GCE 'A' level passes with at least a minimum grade of 'C'.

4. Applicants that have written AP exams may be eligible for advance credit. Minimum grade requirements and specific transfer courses will depend upon the particular AP course and program applied for. Applicants should have official results forwarded to the Admissions Office for assessment.

5. An admitted applicant who has taken recognized OAC credits may be considered for transfer credit in appropriate courses. Normally a mark of 65% will be required in each subject for which credit is sought. In some subjects a higher grade may be required.

6. The maximum amount of transfer credit which may be allowed will not be more than the normal number of credit hours in first year of the program to which the student is admitted.

G. International Applicants

1. For applicants from Great Britain and countries with GCE equivalent examinations, GCE "O" level at "B" or grade three level in English, and five academic options is required.

2. Applicants from other countries should consult the UNB web http://www.unb.ca/prospective/international/ page for detailed admission requirements that can differ between countries.

3. International students and permanent residents whose native language is not English must submit the results of an English language proficiency test: TOEFL, MELAB IELTS and CAEL have been approved for this purpose. This requirement may be waived in cases where the applicant has been in Canada for three or more years. In all cases, the University reserves the right to require proof of language proficiency before permission will be granted to register in academic courses.

4. Academically admissible applicants, who are unable to provide the required English proficiency score for direct admission, may be conditionally accepted to most degree programs. Applicants will be tested upon arrival to UNB. For further information, please visit: http://www.unb.ca/prospective/international/

H. Applicants from the United States of America or from High Schools Using American - Based High School Curriculum

1. Applicants from Grade 12 of an accredited American-based high school curriculum must offer a rigorous program of required university preparatory courses and receive a favorable recommendation from a high school official. Criteria such as academic standing, rank in class, and SAT score will also be used to determine a candidate's admissibility.

I. Bachelor of Education Program

Admission is granted in consultation with the Faculty of Education. The number of places available in the program are limited and admission is competitive. As not all recognized teachable subject areas are possible for study at UNB, applicants are encouraged to verify with the Faculty prior to application.

Criteria for Admission

Minimum requirement for admission to the Bachelor of Education Degree Program is the successful completion of an undergraduate degree with teachable subjects from a recognized university, college or other post-secondary institution. A minimum cumulative grade point average (CGPA) of 2.7 is required.

To be admitted to the BEd Elementary Program, applicants must have completed at least 30 credit hours (10 term courses) in teachable subjects. Choose a minimum of three credit hours of course work from the first category (English) listed below and the remaining 27 credit hours from at least four different categories (Items 1 through 8 below).

1. English
2. Science and Technology (biology, chemistry, physics, general science, environmental science, or computer science)
3. Humanities (history, geography, political science)
4. Mathematics (algebra, calculus, geometry)
5. Languages
6. The Arts (music, visual arts, drama, theatre, creative writing)
7. Physical and health education
8. Social Science (anthropology, psychology, sociology)

In addition to the above, applicants must complete an application package that includes:

1. Statement of interest in teaching (one page)
2. Outline of why the program is selected (one page)
3. List activities relevant to teaching
4. Three references

Secondary Program

Applicants must have completed an undergraduate degree with a minimum cumulative grade point average of 2.7. Students must have completed at least 30 credit hours (10 term courses) in the first teachable area and 18 credit hours (6 term courses) in the second teachable area or they must have completed at least 24 credit hours (8 term courses) in each of two teachable areas. All applicants must have completed at least one term English course.

In addition to the above, applicants must complete an application package that includes:

1. Statement of interest in teaching (one page)
2. Outline of why the program is selected (one page)
3. List of references relative to teaching
4. Three references

Selection of the applicants for the after-degrees program is competitive, so meeting the minimum requirements does not guarantee admission to the program.

Significant weight will be given to the academic record. Consideration will also be given to the applicant's suitability for, and interest in, education.

Required Documentation

The following documents will be submitted by December 31st prior to the beginning of the academic year for which the applicant is seeking admission:

1. Application form, and education supplementary forms which include evidence of experience and education indicating a suitability for and an interest in education, and a personal statement of intent and purpose.
2. Official transcript(s) of academic record to date, other than University of New Brunswick transcripts. Applicants must arrange for an official transcript at each university, college, or other post-secondary institution attended to be sent directly to the Admissions Office by the academic records department of the institution. Applicants must also arrange for an official transcript of all grades received after the time of application to be sent directly to the Admissions Office as soon as it becomes available. The Admissions Office cannot accept the applicant's copy of any transcript.
3. Three references, submitted directly to the Admissions Office by persons able to comment on matters relevant to the criteria for admission.

J. Faculty of Education Admission Advantage - FEAA. *Fredericton Campus Only*

For high school applicants and applicants currently in a first year UNB degree program.

The Faculty of Education Admission Advantage extends conditional offers of acceptance into the Bachelor of Education program to exceptional high school students and first year UNB students. Faculty of Education Admission Advantage students apply to the Bachelor of Education program as well as the University of New Brunswick undergraduate program of their choice during the final year of secondary school, or apply to the Bachelor of Education program during the first year of their UNB program.

Faculty of Education Admission Advantage status has the following benefits:

1. A place in the Bachelor of Education program, conditional upon meeting process requirements.
2. A Faculty of Education counselor to assist you with questions or concerns.
3. Access to the Education Society to keep you informed about events, activities, and other involvements that could enhance your admissibility to the education degree program.

If you are currently in, or approaching your senior year of high school, OR are in the first year of study at UNB, you will want to see the details in the Undergraduate Calendar online. For this route you are conditionally admitted to the Bachelor of Education degree and must complete your first degree at the University of New Brunswick.

Secondary school students should complete the following steps:

1. Apply to an undergraduate program at UNB, and indicate interest in FEAA by the application deadline of March 31st.
2. Complete and return the Faculty of Education advance application package by March 31st.

The application for the Faculty of Education Admission Advantage requires that the high school applicant presents all courses necessary for admission to their first program choice (e.g. Bachelor of Arts) with an admission average of 80%.

First year UNB students should complete the following steps:

1. Complete the Faculty of Education advance application by March 31st.

The competitive application for the Faculty of Education Admission Advantage requires that the UNB applicant completes a minimum of 30 credit hours in the first year of study and achieves a grade point average of 3.3.

Selection of applicants for the FEAA is competitive, so meeting the minimum requirements does not guarantee admission to the program.

Progress Criteria

To progress into the Bachelor of Education program, Faculty of Education Admission Advantage students need to:

1. Achieve a cumulative grade point average of 3.0 upon completion of their UNB degree (degree must be completed within a five year period).
2. Participate in a Faculty of Education Seminar Series designed for FEAA students while in undergraduate degree program.
3. Participate in leadership/achievement activities involving working with children, athletics, performing arts, student government, volunteer work, and community services. These activities will be reported annually to the Faculty of Education.
4. Complete final component of Faculty of Education application.

A place in the Faculty of Education will be assured to those students who are awarded Faculty of Education Admission Advantage, provided they meet the progress criteria listed above upon graduation from their first UNB degree program.

Note: If you have questions about this program, please call Dr. Katherine Winslow, Faculty of Education, (506) 447-3048 or e-mail her at winslow@unb.ca

Copies of the FEAA application package can be obtained by e-mailing Admissions@unb.ca

K. Faculty of Education BA/BEd (Early Year) Concurrent Program. *Saint John Campus Only*

Students who wish to become elementary school teachers (grades K-5) may complete both their BA and BEd degrees concurrently on the Saint John Campus of UNB. In order to participate in the concurrent BA/BEd program, students must first apply and be admitted into the BA degree program. Within the BA/BEd in early education students may study any major program of their choice. After successful completion of at least one year of the BA degree, students may apply to enter the Concurrent BA/BEd. If successful, students proceed to take courses in both degree programs over a four year period. After a minimum of five years in total, it is possible to graduate with both degrees. Applicants will be required to provide a written statement outlining personal goals, as well as maintain a B- average (2.7 CGPA). Applicants must also provide two character references. Applicants who meet these criteria and meet the application deadline may be interviewed.

L. Bachelor of Philosophy Offered by Renaissance College

In order to meet learning objectives and to provide the planned experiential learning and mentorship components, the program will have a limited enrollment.

Criteria for Admissions

1. High School applicants must meet admission requirements as specified in the chart of First Year Required Academic Subjects and accompanying notes found in Section B of the UNB Academic Calendar.
2. The UNB regulations applicable to transfer students and mature students are outlined in Section B of the UNB Academic Calendar. Normally, a minimum assessment grade point average of 3.0 (or equivalent) is required for a student to be considered for transfer to Renaissance College.
3. All applicants must also submit to the Admissions Office a resume which clearly and concisely outlines the applicant's educational and career goals, volunteer activities, prior learning experiences, diversity of background, and skills (such as but not limited to: artistic, musical, athletic, cultural, linguistic), and leadership experience. Typically, this information can be communicated well in two or three pages. No specific forms or formats are required.
4. Transfer credit toward required RCLP courses will be given on the basis of evidence provided by the student for demonstrated competence in the learning outcomes associated with each Renaissance College course.

Admissions Committee

An Admissions Committee of faculty members, in cooperation with the UNB Admissions Office, will review the applications. In admitting students, the Admissions Committee will strive to assemble a diverse cohort of highly capable learners and match the student to the program by determining what the College can contribute to the individual, what the individual can contribute to the College, and what the individuals can contribute to each other.

M. Bachelor of Integrated Studies

Criteria for Admission

Normally, applicants to the Bachelor of Integrated Studies program without a prior degree must meet the following requirements:

- Minimum of 25 years of age.
- Complete an interview with the Bachelor of Integrated Studies program advisor to assess their suitability for the program.
- Have completed a minimum of 30 credit hours or transferable credit (or the equivalent through prior learning assessment) of post-secondary study.

Potential applicants with a degree should refer to existing regulations in the UNB Calendar regarding second degrees and should consult the BIS coordinator.

Other Special Requirements

Personal Learning Portfolio:

As part of the application process, the applicant will begin development of a personal learning portfolio that will be used as the basis for the assessment of prior learning. The portfolio will continue to be developed throughout the course of study through a Renaissance College portfolio course and will be submitted as a graduation requirement for the program.

The BIS portfolio documents formative understanding of how and to what degree students achieve the learning outcomes. It is a "meta-analysis" where students engage in a reflective critique that, when written, conveys development and competency in each of the BIS outcomes. Examples from experiences that were not part of BIS courses or other academic courses such as workplace or community activities should also be included where appropriate. The portfolio is not merely a list of "things done," but things done and how the student has grown and developed as a result.

N. Certificate of Proficiency in French

Successful completion of New Brunswick Grade XII French, or the equivalent, is the minimum requirement for admission. Appropriate oral and/or written tests may be given to place students at the proper level.

O. Re-Admissions

1. Students who have been absent from study for a period of at least 12 consecutive months since their last attendance are required to seek re-admission. Students re-admitted to the original or another program of study following an absence from study, or re-admitted since being required to withdraw, will normally follow the calendar for the year study resumes. Individual faculties may have established additional conditions. Students should refer below for further information concerning re-admission since being required to withdraw.

2. Students who have been required to withdraw from this university or any other university or college will not be accepted, under any circumstances, in the following academic year. Such students may be considered for readmission or admission after they have spent some time (at least 12 months) away from university and can provide a satisfactory personal letter outlining why they feel they will now be successful as well as a satisfactory letter of recommendation from employers and/or others. The admitting faculty or the Admissions Committee may require evidence, such as successful completion of designated courses, that applicants are likely to be successful in further studies.

3. A student readmitted since being required to withdraw from this university or any other university, will automatically be on academic probation. Failure to meet the normal academic regulations at the next time of assessment will result in final dismissal from the program. Further applications for readmission to the program will not be considered.

P. Admission to a Second Undergraduate Bachelor Degree

Graduates of UNB may apply for admission to, and follow a program towards a second different undergraduate bachelor degree and in limited cases a second same undergraduate bachelor degree. See Calendar regulation IX, *Requirements for a Second Undergraduate Bachelor Degree*.

Q. Application Fraud or Misconduct

1. Undergraduate students who at the time of application fail to provide required information regarding attendance at another post-secondary institution will normally be required to withdraw from the University for a period of at least twelve months. Where a student is required to withdraw,

   a. work taken during the period after the failure to disclose will be considered for credit only if the student is readmitted and after consultation with the Faculty concerned; and

   b. the notation "Required to Withdraw" will be a permanent statement on the student's transcript of record.

2. Where the Registrar has reason to believe that a student failed at the time of application to disclose attendance at another post-secondary institution as required, the Registrar, where possible, shall discuss the matter with the student. Where the Registrar determines that the student failed to disclose such information as required, the Registrar shall impose such penalty as considered appropriate in the circumstances. By registered mail, the Registrar shall:

   a. notify the student of the decision and penalty imposed;

   b. provide the student with the basis and reasons for the decision

   c. advise the student of the right to appeal to the appropriate Senate Admissions Committee; and

   d. in the event of an appeal, request that the student submit a written statement regarding the case within three weeks, and encourage the student to be present when the case is heard.

3. The regulations with respect to a student's right to appeal on an academic matter shall apply with any necessary modifications to a case referred to the Committee involving a failure to disclose attendance at another post-secondary institution.

R. Transfer Students

University of New Brunswick Students

University of New Brunswick students wishing to transfer to another degree program must complete a Transfer Request form, preferably before March 31st. Applications received after that date will be considered, provided that space is available. It is recommended that transfer applications for degree programs requiring special forms, i.e. BN and Kinesiology, be submitted in January or February. Applications to transfer are available at the Registrar's Office on both campuses or at the following links

www.unb.ca/fredericton/registrar/students/forms.html (Fredericton campus) http://www.unb.ca/saintjohn/registrar/students/index.html (Saint John campus). The record to date will be assessed by the Registrar in consultation with the administrative head of the degree program concerned. If the transfer is accepted, a statement of the student's position in the new program, including the credit hours permitted towards the new degree program, will be made.

Students wishing to transfer to another degree program for a winter term (beginning in January of the academic year) must complete a Transfer Request form before November 15th.

Students will normally be required to have completed at least one full year of academic work before applying to transfer.

Students from other Universities or Post Secondary Institutions

A student wishing to transfer from a recognized university or college to UNB will be considered for admission subject to the following University of New Brunswick regulations:

1. Students should apply in writing by March 31st. Applications received after that date will be considered, provided that space is available.

2. Students who for academic reasons are not eligible for readmission to the university at which they last registered will not be admitted to UNB.

3. A transfer student eligible to continue at the university last attended will be considered on the same basis as UNB students. Note: The Faculty of Law is excluded from these regulations.

4. Courses for which credit has been awarded at the transferring institution will be accepted provided that:
   a. the courses being considered for credit satisfy the program requirements at the University of New Brunswick.
   b. the courses being considered meet the standard of grade required within the program at the University of New Brunswick.

5. Official records will be evaluated and notification will be forwarded from the Registrar's Office concerning the student's position in the program at the University of New Brunswick, including the number of transfer credits awarded.

   Applications for transfer to UNB must be submitted to the Admissions Office. They will be reviewed by the Dean of the Faculty concerned who, together with appropriate University authorities, will determine the position of the applicant.

   In Faculties where the credit system is used, at least half the credits for a degree, diploma or certificate must be taken at this University; in Faculties where the year-system is used, two years must be taken at this University. It is normally expected that the final year of study be completed at this University.

   Applicants wishing to transfer to UNB are advised to address their request to the Admissions Office.

6. A student accepted as a transfer student from another AUCC recognized university or post-secondary institution may be given credit hours towards a degree for acceptable previous courses, but the cumulative grade point average, will be based only on courses taken at this University (i.e. those listed in the UNB Undergraduate Calendar, including certain approved St. Thomas University courses).

7. Students who transfer from another post-secondary institution to a Concurrent Degree program at UNB must

complete at least half the total credit hours for that concurrent program and at least half of the credit hours normally required for each included program at this University.

8. Current University regulations governing the number of credits that must be taken at the University of New Brunswick apply.

9. From time to time and in special circumstances, Faculties may recommend that credits in addition to the normal 50 per cent of the degree program be transferred. Such recommendation will be considered by the Registrar. In situations where approval is denied, and at the request of the Faculty, the matter will be referred to the Senate Admissions Committee for resolution.

S. Challenge for Credit

A significant number of students are entering university having acquired, by work experience and/or forms of study other than attendance at university, a high level of competence in certain areas closely related to courses offered at this University. The Challenge for Credit scheme makes it possible for the University to give recognition to such attainment.

The regulations which follow provide a mechanism for Departments to offer Challenge for Credit examinations in courses which they consider appropriate.

Regulations

The challenge for Credit scheme does not apply to the School of Graduate Studies, Faculty of Law, or the Faculty of Education.

1. (a) Only students who have been admitted to a degree, diploma, or certificate program at the University of New Brunswick may challenge for credit.
   (b). The result of Challenge examinations will be recorded subsequent to registration.

2. Normally, a request for challenge for credit will not be considered after one year from the date of the student's first registration in a degree, diploma, or certificate program at UNB.

3. A student may receive credit by Challenge only when registered in a formal degree, diploma, or certificate program, i.e. no credit for students in "no degree", "visiting", or "qualifying" programs.

4. A student shall not be allowed to challenge for credit more than once in any course.

5. No student may challenge for credit in a course for which the student has previously registered (including registration for an audit) either at UNB or any other university or equivalent institution.

6. (a) The maximum credit which a student may obtain by challenge is whichever is the lesser of the 30 credit hours or 25% of the requirements of the program. (Please note certain Faculties may have a more restrictive policy.)
   (b) Students must still complete at least 50% of the program at UNB excluding credits obtained by Challenge.

7. A student on "academic probation" or "required to withdraw" may not challenge for credit.

8. A student may not challenge for credit in a course of a lower level than one already attempted.

9. Courses challenged will be identified as such on the student's transcript and will be shown as "credit" (CR), or "No Credit" (NCR). A grade of 'C' must be obtained for credit to be allowed.

10. The challenge for credit will normally be in the form of a comprehensive examination. In some cases additional proof of expertise, such as evidence of laboratory experience, will be required.

11. The Department or faculty member concerned will determine the content and form of the challenge for credit examination.

12. Applications must be approved by the department concerned which should be satisfied that there is a responsible basis for requesting a challenge, such as previous work or educational experience.

13. (a) Challenge for credit examinations will be held only on the campuses of the University of New Brunswick.
    (b) Normally, challenge examinations will be held during the first week of lectures in the Fall Term or, in the case of a student admitted to start in January, during the first week of lectures in the second or Winter Term. Application to challenge for credit must be made 30 days in advance of these examination periods. At the discretion of the department concerned and with the agreement of the Registrar, this period may be shortened (e.g. if an examination paper suitable for challenge for credit is already available).

Applications must be accompanied by the appropriate fee in full (Section C.)

Application forms are available at the Registrar's Office.

T. Prior Learning Assessment

Prior Learning Assessment (PLA) refers to the systematic evaluation of learning which an individual has achieved through work, life, and educational experiences, and the relating of that learning to the expected learning outcomes of courses and programs in which the individual is enrolled at UNB for the purpose of granting credit where appropriate. PLA is not the granting of credit for experience but rather for learning. The validity of PLA is based on the recognition that learning takes place in a variety of settings and through a variety of experiences, and that students who bring university-level learning upon entrance to a UNB degree, diploma, or certificate program should receive credit for what they already know or can do, as assessed against the expected outcomes of that program.

If credit is approved, then a grade of "transfer credit" (TR) will be shown on the transcript of record.

Specific course/s for which credit has been approved through prior learning assessment will be identified as such on the student's record.

Unassigned credit to be applied to the student's program will be identified as such on the student record.

Partial course credit as a result of prior learning assessment will not be shown on the student transcript of record. Such a result will form part of a student's computer record if possible in any student information system the University is using and will be held on file in the student's program Faculty and the Registrar's Office.

The result of a PLA evaluation will be recorded subsequent to registration.

For further information, please contact the Dean of your Faculty of the Director, PLA Services.

University-Wide Academic Regulations

I. General Course Regulations

A. Class Attendance

1. Students are expected to attend all classes, laboratories, tutorials, or other class meetings officially designated for a particular course. They are expected, also, to complete all assignments. Departments, or individual instructors, may make specific requirements about attendance and class participation. An instructor may assign a final grade of F in the course to a student who fails to meet any one of these requirements, including failure to maintain the stipulated attendance policy. Such requirements must be communicated in writing to students within the first two weeks of the course (see item A (4) under Examination, Standing and Promotion). It is the responsibility of a student who is absent during the first two weeks to ascertain the requirements of the course.

2. Students are advised to check course restrictions to determine the policy in effect concerning class attendance during the first week of lectures. In some courses, for example, those with limited enrolment, failure to attend during the first week or to make arrangements with the instructor may result in the cancellation of the registration. Approval of the Departmental Chair, or the Dean in Faculties where there is no Chair, is required.

3. It is expected that most problems caused by a student's absence from classes, including absence from mid-term tests, can be resolved with the instructor concerned. If through sickness or other unavoidable cause, a student is absent from classes, the student must advise the instructor immediately upon return to classes. The instructor may request suitable documentation if such confirmation is considered necessary. Health certificates will be accepted for consideration only from the health care professionals who attended the student during the period of absence.

B. Classroom, Lab, Clinical and Fieldwork Safety Decorum

Consistent with the General Regulations on Conduct as set out in the Undergraduate Calendar, faculty, staff, and students are entitled to a classroom, laboratory, clinical, practicum and fieldwork environment which affords respect and dignity to those in attendance, and is free from threats to personal safety, discrimination, harassment, intimidation and behaviour which is destructive, disruptive, disorderly and offensive. The instructor may enforce standards of decorum within the classroom, laboratory, clinical, practicum or fieldwork setting which are consistent with these regulations and has authority to ensure that all health and safety policies are observed in these settings. The instructor is encouraged to refer students to the relevant regulations and policies, including this regulation.

Where a student engages in behaviour which is inconsistent with the General Regulations on Conduct or University health and safety policies, the instructor may take reasonable steps to deal with the situation including immediate removal of the student from the classroom, laboratory, clinical practicum or fieldwork setting. Should it prove necessary, the instructor may call Campus Security to assist with removing a student.

Following such removal, the instructor, in consultation with the Dean and Registrar, will determine whether further action should be taken, including the possible compulsory withdrawal of the student from the course, consideration of an academic offence, or disciplinary action pursuant to the General Regulations on Conduct. Any further action will be conducted in accordance with the normal procedural provisions under the applicable University regulation.

C. Adding Courses

Students have until the second Friday of Fall Term to add fall term or full year courses and the second Friday from the commencement of winter term for the addition of winter term courses. A student adding a course is responsible for ascertaining the requirements of the course and for completing them.

D. Dropping Courses

i. Students may drop term or full-year courses up to the second Friday following the commencement of classes in those courses and those courses will be deleted from the student's record.

ii. Students may withdraw from term or full-year courses after the second Friday of classes in accordance with the regulations set out below.

iii. a. Students are entitled to make decisions to withdraw from courses after the second Friday of classes on an informed basis. An informed basis means that students shall have a reasonable opportunity to assess their progress in each course and to receive feedback on their performance in each course before making a decision. Students have the responsibility to seek information on which to make their decisions to withdraw.

b. In courses where the final grade is based in part on term work such as, but not limited to, essays, reports, assignments, projects including group work, problem solving, tests including mid-term examinations, seminar presentations and/or participation, attendance, students are entitled to receive feedback on the portion of this work completed prior to the deadline for withdrawal from courses without academic penalty. Such feedback normally will include, but is not limited to, the instructor's evaluation of the student's work. Students also are entitled to consult with the course instructor and/or their advisor to obtain feedback on their performance in a course and are encouraged to do so before withdrawing from a course after the second Friday of classes.

iv. After the second Friday of classes, students may withdraw from courses without academic penalty at any time up to and including the deadlines set out in the Undergraduate Calendar of Academic Dates approved annually by the Senates.

v. The last date to withdraw without academic penalty from courses of duration shorter or longer than the usual one term or full-year period is the point where approximately two-thirds of the course time has elapsed.

vi. Withdrawal from courses after the first ten (10) teaching days of classes and no later than the deadlines indicated in iv above will carry no academic penalty and will be shown as "W" on the transcript.

vii. Withdrawal from courses after the deadlines indicated in iv above will be recorded as "WF" on the transcript and a grade of zero (0) will be carried into the calculation of the GPA.

viii. a. Notwithstanding the above, a student may petition the Chair, or in the case of Faculties without departments, the Dean or Dean's designate, of the Department/Faculty which offers the course, to withdraw from a course without academic penalty after the applicable deadline in iv and before the last date of classes for that course. No petition regarding withdrawal shall be considered after the submission of the final grade for the course.

b. The grounds for this petition are restricted to:

i. the student made reasonable efforts to obtain feedback on his/her performance in the course prior to deadline for withdrawal in iv, but was unable to do so;

ii. compassionate, health-related or extenuating circumstances beyond the control of the student demonstrably had a direct impact on the academic performance of the student in the course.

c. The student shall submit the petition in writing no later than the last date of classes in the course, explaining the grounds on which the petition is based. It is the student's responsibility to provide documentation in support of the petition which demonstrates the grounds cited. The Chair, Dean or Dean's designate, as the case may be, has the option, but is not required to meet with the student. It is expected that a decision on the petition will be made expeditiously.

d. The Chair, Dean or Dean's designate, as the case may be, shall have the sole and only discretion to grant the petition, and, where satisfied that the student has established either grounds as set out in b), normally will grant the petition.

e. Where the decision of the Chair, Dean or Dean's designate to grant the petition, the course in question will be shown as "W" on the transcript.

f. The decision of the Chair, Dean or Dean's designate on the petition is final and not subject to appeal. However, students may have recourse to appeal to the relevant appeals committee on related matters as set out elsewhere in these regulations (see for example the section headed "Right of Appeal").

E. Repeating Courses

Students may without special permission register for a course already taken in order to meet a prerequisite or other degree requirement, or in order to improve their grade point average. However, both the original grade and the new grade will each be counted separately towards a grade point average. Students should note that while the credit hours of a repeated course will be used each time in calculating a grade point average and in the totals of courses attempted and passed, they can only be counted once towards the minimum number of credit hours required for a degree.

A student may attempt a course a maximum of three times (including withdrawals but excluding course attempts designated with the # notation). Beyond that, the student must obtain the permission of the Dean of the student's Faculty to register again in the repeated course.

F. Permission to Study off Campus at Another University or Other Post-Secondary Institution

1. All transfer of credits from other universities or other post-secondary institutions must be approved by the Registrar. A student at UNB who wishes to take courses at another university for credit towards the degree program at UNB must obtain a letter of permission, in advance, from the Registrar at UNB. A letter of permission will not be granted to a student required to withdraw and normally will not be granted to a student on academic probation.

2. Courses taken with permission at other universities or post-secondary institutions will be considered for transfer credit if credit is granted at the transferring institution, provided that the standard of grade required within the student's UNB program is met. Students will

be notified in writing at the time permission is given of the specific minimum grade which must be achieved.

3. In Faculties where the credit hour system is used, at least half of the credit hours for a degree must be taken at this University. In Faculties where the year-system is used, two years, including the final year, must be taken at this University. These provisions may be waived by the Registrar in consultation with the Faculty concerned in extraordinary circumstances.

4. Students entering a concurrent degree program are advised that at least one half of the requirements for each degree must be UNB credits.

5. Faculties may impose an academic decision based on the student's performance while studying at another university or post-secondary institution.

6. Grades of C - earned at the other institution normally will not be accepted if a minimum grade of "C" in the course is required in the student's program of study. Special requests for consideration of transfer should be made in writing to the Registrar. A decision will be made in consultation with the Faculty concerned.

G. Policy and Procedure for Supporting Student-Reservists

The University of New Brunswick is committed to providing appropriate academic accommodation to enable Student-Reservists to meet their military obligations. Such accommodations will be provided to both full-time and part-time students in ways that maintain the integrity of the student's academic program. Because each situation involving student -reservists will be unique, each will be dealt with on a case by case basis to ensure the most appropriate accommodation and support for the individual. To the extent possible, existing forms of accommodation as provided in the University calendar will be used to meet the student-reservist's needs.

II. French Language Policy
FREDERICTON

The University of New Brunswick undertakes to meet the needs of undergraduate students with respect to French:

1. By providing French Language courses at a level and of a type appropriate for graduates of French immersion programs in the public schools of New Brunswick.

2. By providing students in all faculties who are not bilingual with more information, encouragement and opportunity for the study of French. (See Certificate of Proficiency in French Section G.)

SAINT JOHN

The Saint John Campus of the University of New Brunswick intends to meet the needs of its undergraduate students with respect to French by providing (where feasible) French Language courses at a level and of a type appropriate for graduates of French immersion programs in the public schools of New Brunswick, and by providing students in all programs who are not bilingual with more information, encouragement and opportunity for the study of French.

Cette politique's addresse aux etudiant(e)s Anglophones. Les etudiant(e)s francophones sont egalement encourage(e)s a suivre des cours au niveau approprie dans la discipline de francais.

See also: Language of Examination (below).

III. Examination, Standing and Promotion

A. Course Syllabus

1. It is the function of the instructor to evaluate and assess a student's work in a course and to award interim and final course grades.

2. The final standing of each student, in each course is assessed on the final examination, if one is held, and term work (essays, reports, assignments, tests [including lab and field work tests], mid-course examinations, practicums or internships, attendance and participation requirements and any other work contributes to the final grade).

3. No later than the second (2nd) Friday of the term the instructor must provide the students attending with a course syllabus that includes:

i. a full explanation of the basis on which the final grade will be calculated, that is: the weighting of tests, examinations, assignments, practicums or internships, attendance, and participation requirements, and any other work which contributes to the final grade.

ii. information on the approximate scheduling of term work which contributes to the final grade and an indication of when and how the final scheduling will be determined.

iii. The University of New Brunswick places a high value on academic integrity and has a policy on plagiarism, cheating and other academic offences.

Plagiarism includes:

1. quoting verbatim or almost verbatim from any source, including all electronic sources, without acknowledgement;

2. adopting someone else's line of thought, argument, arrangement, or supporting evidence without acknowledgement;

3. submitting someone else's work, in whatever form without acknowledgement;

4. knowingly representing as one's own work any ideas of another.

Examples of other academic offences include: cheating on exams, tests, assignments or reports; impersonating somebody at a test or exam; obtaining an exam, test or other course materials through theft, collusion, purchase or other improper manner, submitting course work that is identical or substantially similar to work that has been submitted for another course; and more as set out in the Academic Regulations found in the Undergraduate Calendar.

Penalties for plagiarism and other academic offences range from a minimum of F (zero) in the assignment, exam or test to a maximum of suspension or expulsion from the University, plus a notation of the academic offence on the student's transcript.

For more information, please see the Undergraduate Calendar, Section B, Regulation VIII.A., or visit http://www.unb.ca/academics/calendar/undergraduate/2013/regulatio ns/universitywideacademicregulations/viii- academicoffences/index.html. It is the students responsibility to know the regulations.

4. The course syllabus shall be distributed to the class and may be provided:

i. in writing in a regular class period or,
ii. by any electronic means which has been established as a method of communication within the course and for which student access and support are provided by the University.

5. The decisions made by the instructor about the content of the course syllabus are not appealable. Decisions made by the instructor about the weighting of tests, examinations, assignments, practicums or internships, attendance and participation requirements, and any other work which contributes to the final grade are not subject to appeal unless demonstrably unfair in the circumstances.

6. Regulations governing review or appeal of a grade assigned are found in the Review of the Grades section of the Calendar regulations.

B. Examinations and Evaluation of Course Work

1. The method of examination in a course is determined by the instructor.

2. Final examinations, if any, for fall term courses, and mid-course examinations, are held in December. Final examinations, if any, for winter term courses and for all-year courses (fall and winter term) are normally held in April.

3. Instructors must notify students, preferably within the first two weeks of classes and by no later than the mid-point of a course, if the final examination is to be a take-home examination or one that is to be included in the University's official examination schedule. Students must be informed if the final examination is an open or closed book format by the mid-point of the course. Such notification shall be:
a. in writing distributed to the class in a regular class period or,
b. by any electronic means which has been established as a method of communication within in the course and for which student access and support are provided to the University.

4. The final examination in any course may be waived by the instructor. Notice that an examination has been waived must be communicated to the students attending the course within two weeks of the first date.

5 a. No examination or test may be held in the last 10 lecture days of any term or during the reading period, but see d) below.
b. All term work is due no later than the last day of lectures.
c. A paper, assignment or take-home examination given in lieu of final examination shall be provided to the students by the last day of classes and is due the last day of the examination schedule.
d. The following may be exceptions to the regulations (a) and (c)
i. courses with regular, usually weekly, tests,
ii. course requiring laboratory examinations of a practical nature;
iii. courses in which oral examinations are given. In such cases a mutually agreeable time may be arranged between the student and the instructor.

In the case of the exceptions i) and ii) the tests or examinations must be held during the regular class period. A student or faculty member reports instances of contravention of this regulation to the Registrar.

6. Normally, tests held during the regular lecture period (other than final examinations scheduled by the Registrar) are to be conducted during a regularly scheduled class time. In exceptional circumstances and with the approval of the Dean, an instructor may schedule a test for another time. Such a test is to replace, rather than add to, the regularly scheduled class periods for the course and it must not interrupt other regularly scheduled classes or tests for students.

7. The time period for an official examination scheduled during the final examination period shall not exceed three (3) hours.

There will be at least two (2) hours between the end of one examination period and the start of the next period, allowing for three (3) examination periods each day (Monday to Saturday) during the final examination period.

Students normally may not leave the examination room during the first half hour (30 minutes) of the examination period. Students may be permitted to enter the examination room during the first half hour and will only be permitted to enter after that time with approval of the course instructor or designate. In such cases the instructor or designate may provide additional writing time in response to the circumstances.

8. Students may apply to the Registrar's Office to write a final examination at an alternate time on the basis of documented extenuating circumstances (See Item C., Final Examinations to be written at an Alternate Time).

The University recognizes that there are dates of religious significance other than those identified in the UNB Calendar of Academic Dates. Students whose religious beliefs would prevent them from attending classes or writing tests or final examinations due to their observance of those dates, should contact their instructor(s) at the beginning of the term to request accommodation. Deadlines for assignments that fall on dates of religious observance must still be met unless alternate arrangements have been agreed to by the instructor and/or the Registrar, as the case may require. Instructors will make reasonable offers to accommodate such requests. Instructors have the right to request verification of dates of religious observance.

9. A student who is scheduled to write three examinations in one 24-hour period during the formal examination period may apply to the Registrar to write one of the examinations at another time during the examination period.

10. Instructors must notify students as soon as possible and no later than two weeks prior to the end of classes, of the specific items, other than normal writing instruments (such as pens, pencils, rulers and erasers), they may use in the examination room. These include tables, formulae, memoranda, other electronic or mechanical aids. Notification shall be:
a. in writing distributed to the class in a regular class period, or
b. by any electronic means which has been established as a method of communication within the course and for which student access and support are provided by the University.

11. UNB does not permit the use of personal communication devices during test or exam periods – in particular, devices that could potentially be used to communicate with others while writing an exam, or play back pre-recorded video, sound or text during an exam. Such devices include, but are not limited to, cell phones, pagers, text messaging devices, personal recording devices, PDAs, personal computers including laptops, certain types of calculators and electronic translators. Using such devices during exams will be considered an academic offense as per Section VII of the University Regulations. Exemptions may be made by a professor if a particular device is required in order to complete the exam. See: Academic Calendar, Academic Section , V.A. 14.

12. Students may see their own examinations and papers, by arrangement with instructor, after the grades have been released.

C. Language of Examination

Students who wish to write their examinations in French rather than English must apply in writing to the Registrar one month in advance of the examination date. Permission may be denied in certain courses, particularly in courses where language is part of the course content.

Students admitted without having passed the appropriate high school or equivalent English course, or who were not required to demonstrate on admission an acceptable level of English usage on an approved English test, may, at the discretion of the instructor in consultation with the Registrar, be given special consideration in

writing examinations, tests and assignments. Such special consideration may include oral examinations and/or extension of the time to write an examination. Consideration will not be granted after two years at UNB or any other English speaking institution.

Students who wish to be considered under this provision must make the request to the instructor no later than the mid point of the term.

D. Supplemental Examination

Supplemental examinations are not offered in any Faculty of the University, except the Faculty of Law.

E. Final Examinations Written at an Alternate Time

1. Students, who by reason of illness or extenuating circumstances, are unable to write a final examination at the posted times may apply to the Registrar for permission to write a final examination at an alternate time. A final examination written at an alternate time takes the place of the regularly scheduled final examinations which the student was unable to write. Applications for a final examination at an alternate time, supported by the health certificate or other supporting documentation, must reach the Registrar within two weeks of the posted date of the final examinations which the student was unable to write.

2. Students who become ill and withdraw for this reason during a final examination, or who feel that their performance was affected seriously by illness, even if they do not withdraw, must, if they wish to be eligible to take a final examination at an alternate time (deferred final examination), notify their instructor or an invigilator before leaving the examination room. They should then go immediately to be examined medically. They may then apply to the Registrar within two weeks of the original date of the final examination to write at an alternate time (deferred final examination). Students who know that they will be unable to attend can apply before the originally posted date.

3. When a request to write a final examination at an alternate time is approved and will be written on campus, the student must contact the instructor in the course to determine a mutually agreeable time and place for the examination.

4. The designation incomplete (INC) is recorded for the course in which approval has been granted for the final examination to be written at an alternate time. It is expected that the alternate examination will be written and a final grade submitted by the instructor to the Registrar's Office within two months after the final date for classes in the course in question. This period may be extended upon the recommendation of the course instructor and with the approval of the Registrar. If the final grade is not received by the appropriate date the Registrar will assign a grade of "F" on the student's record. Refer to the regulations on Incomplete for a further explanation of "INC" grades.

5. It is expected that such examinations will be written after the date and time of the regularly scheduled final examination. Students who, because of documented extenuating circumstances, wish to write the final examination before the date and time of the scheduled final examination should submit their request and supporting documentation to the Registrar. If the alternate examination is approved then the student should contact the instructor and to see if an arrangement to write early is possible. Instructors have no obligation to permit a student to write an examination ahead of the scheduled date.

6. Normally examinations will be written on campus. Should students find it necessary to write the examinations off campus, they are required to submit their request and supporting documentation to the Registrar. The request will be reviewed with the instructor and when if

it is agreed that the final examination is to be written off campus, the student will be advised. All arrangements are made through the Registrar's Office. Students are responsible for all charges incurred for final examinations written off-campus.

7. In the rare instance when a student is scheduled to write three final examinations in one 24-hour period during the final examination period, the student may apply to the Registrar to write one of the examinations at another time during the examination period.

8. Applications to take a final examination at an alternate time on grounds not considered acceptable by the Registrar may be referred to the appropriate Senate Committee. The student must make such request to the Registrar within two weeks from the date of the Registrar's letter of notification of this decision.

F. Students with Disabilities

Students with disabilities may request reasonable accommodations to enable them complete academic requirements. The student may be required to provide the University with professional reports which contain specific recommended accommodations which are necessary for the student to achieve the course, examination and program completion. The University will respond to requests for reasonable accommodations as its resources permit. For more information see the Policy and Guideline Handbook for Students with Disabilities.

Students who wish to be considered under this provision must make the request to the instructor no later than the mid point of the term.

G. Grading System and Classification

Courses

Courses in the University are offered in a classroom setting, laboratory setting or through some method of distance education. The regular academic session year is September -April. Within this session, there are two terms, 15 weeks each (including the examination period) September -December and January - April. In addition, there is a Summer Term for both Fredericton and Saint John Campuses that runs from May 1-Aug 31. Within this term there are six sessions that have specific start and end dates. Details are listed under the Important Academic Dates by visiting http:www.unb.ca/academics/calendars.html. All course offered by the University are referred to as term courses or full-year courses.

Full-Year Courses: Those courses that are normally completed over the two terms associated with regular academic session year.

Term Courses: Those courses that are normally completed in one term during the regular academic session.

Competence in English Courses

The University places great importance on its students achieving competence in English. To this end, students are required to complete successfully with a mark of C or above a minimum of 12 ch of courses that contain a significant amount of writing in English. Students should consult their Faculty advisors to determine which courses satisfy this requirement. The courses which satisfy this re requirement are identified by [W].

Credit Hours

1. Each Faculty is responsible for assigning credit values to courses within jurisdiction. These credit values are approved by the appropriate University Senate. Credit hour values may range from 1-8 although the typical term course has a 3 credit hour weight and a typical full-year course has a 6 credit hour weight.

Students should consult the Financial Information Section of this calendar for information on tuition charges and full-time/part-time status based on the credit value of courses taken.

2. Most Faculties, in their own regulation, state the minimum number of credit hours which must be successfully completed for graduation in each degree program. Credit hour requirements for degree programs in Saint John are given in Section E, and in Fredericton are given in Section G.

3. Students accumulate credit hours, as assigned, for courses completed with a grade of D or better (see below).

4. Faculties may consider courses offered by other Faculties to have satisfied a half-course (normally 3 credit hours) or a full course (normally 6 credit hours) regardless of credit hours attached to the course in the calendar and recorded on the student's transcript of record. Students should consult the relevant sections of this calendar for Faculty policies.

Grades

With the exception of the School of Graduate Studies and Faculty of Law, a candidate's final standing in a course is indicated by the following letter grades:

A+ 4.3 grade points
A excellent performance 4.0 grade points
A- 3.7 grade points
B+ 3.3 grade points
B good performance 3.0 grade points
B- 2.7 grade points
C+ grade 2.3 grade points
C satisfactory performance 2.0 grade points
D less than satisfactory performance 1.0 grade points
F failure 0.0 grade points
WF failure 0.0 grade points

A grade of "D" will be considered for program credit only in certain circumstances. See Faculty regulations and refer to program descriptions in this Calendar.

Departments have the right to decide whether or not a "D" meets prerequisite or Major requirements. See appropriate degree and departmental listings.

Credit hours for courses with an "F" or "WF" grade may not be counted towards graduation, but will be used as credit hours attempted in assessing grade point average.

Courses taken at St. Thomas University as part of a student's regular course load in which the final grade is "C-" will normally not be accepted for credit if a grade off at least "C" in the course in question is required in the student's program of study.

Notations

1. INC (Incomplete)

Issued on the recommendation of the instructor and approved by the Registrar, in situations where students present written evidence of medical or extenuating circumstances which prevent completion of the work within the stated time period. It is expected that the work will be completed within two months after the final date for classes in the course. A grade of F will normally be assigned if the work is not completed. The period for completion may be extended upon recommendation of the instructor and with the approval of the Registrar. It is the responsibility of the student to seek such an extension before the expiration of the two month period. Evidence of

medical or compassionate grounds to substantiate such a request must be submitted to the Registrar.

The designation incomplete(INC) is recorded for courses in which deferred examinations are to be written.

2. Aegrotat (AEG) Standing

Used rarely. The student has been unable to complete the course because of a serious illness or compassionate situation but has been given pass standing on the basis of previous work. Requests should be addressed to the Registrar.

3. AUD (Audit)

A student wishing to attend classes in a given degree credit course without being assigned a grade may register to "audit" the course, subject to the following regulations:

a. Registration for audit will not be accepted without permission of the course instructor.
b. The degree of class participation allowed to an auditor is at the discretion of course instructor. No grade is assigned for each course and such a course is not a credit.
c. The normal regulations and deadlines regarding course adds and drops apply.
d. A 'credit registration' in a course may not normally be changed to an 'audit' after the first two weeks of the term. Similarly a registration for 'audit' may be changed to a 'credit registration' only with the support of the faculty, and with the permission of the Registrar.
e. In courses with enrollment requirements and/or restrictions, priority for registration will be given to individuals taking the courses as full fee-paying registrants.
f. For a part-time student the audit fee will be one-half of the regular course fee (see Fees, Section C).

The following actions may also appear on the student transcript in lieu of or adjacent to the grade.

4. CR (credit) NCR (no credit)

5. X. (Extra)
Extra course, not credited to the program the student is enrolled in during that session and the grade is not include in the calculation of grade point averages. Such a notation must be requested by the mid-point of the term.

6. # On the basis of an appeal, the grade shown but not included in grade point average calculations.

7. W (Withdraw without academic penalty)

8. CTN (Course continues next term)

H. Calculation of Grade Point Averages

Grade point averages are calculated by dividing the total number of grade points obtained (credit hours X grade point weight) by the number of credit hours attempted during the period in question in the program. Grade point averages are shown to one decimal place. The University calculates two grade point averages, which form part of the student's official record: the Assessment Grade Point Average; and the Cumulative Grade Point Average.

With the approval of their faculty advisor, a student may specify that a course is "extra" to the program and should not be included in their grade point average. Such a notation must be requested by the mid point of the term.

Assessment GPA: For all students, the assessment GPA is calculated at the end of the assessment period, May - April, provided that 24 credit hours or more have been attempted in the program since the last assessment in that program. All work attempted toward the current program of study (including the no degree program) is included in the assessment with the exception of courses designated with the "W", "#", or "X" notation.

Cumulative GPA: Is based on all work taken toward a degree program. The cumulative grade point average is used to determine the student's divisional standing algorithm at graduation.

Scholarship GPA: In addition, for the purpose of awarding scholarships, a Scholarship GPA is calculated at the end of the assessment year (May to April) provided that 24 credit hours or more have been attempted, regardless of program. For students involved in work placement programs such as Co-op or PEP, the scholarship average is calculated using Dean's List criteria. This GPA is held internally and is not displayed on the student's transcript of record.

I. Standing and Promotion Requirements

1. In order to continue in good academic standing, a student must achieve an assessment g.p.a of at least 2.0 for the assessment period. A transcript notation "In good academic standing", appears at the end of the term record.

a. A student whose assessment g.p.a falls below 2.0 but above 1.0 in an assessment period is placed on academic probation. A student is allowed to go on academic probation only once in a program.

b. Academic probation constitutes a notice of unsatisfactory performance and is a warning that the student must improve to meet the grade point average requirements of the program in order to avoid being required to withdraw from the University.

c. A student who has previously been placed on academic probation and whose g.p.a in any subsequent assessment period falls below 2.0 is, subject to review by the Faculty concerned, required to withdraw from the University for at least 12 months. If such a student is readmitted, it is normally on academic probation.

d. A student whose g.p.a falls to 1.0 or below in any assessment period is required to withdraw from the University for at least 12 months. If such a student is readmitted, it is normally on academic probation.

Note: No credit is granted for courses taken during the 12 month period during which a student is required to withdraw.

2. Students whose g.p.a on assessment is such that they would normally be placed on academic probation, or be required to withdraw from the University, will be allowed to graduate if all other requirements of the program have been completed at that time. Law students should refer to the Faculty regulation in the Faculty of Law Calendar.

3. If, at the end of the term in which a student has completed all the other requirements of the program, the student has not reached the end of an assessment interval, the student will be allowed to graduate without reference to the g.p.a in that session.

J. Dean's List Criteria

The Faculties of the University publicly recognize superior academic performance for their students by publishing Dean's lists. Such distinction is also noted on the transcript of record. Criteria for inclusion on a Dean's list are as follows:

1. Decisions for full-time and part-time students are based on assessment grade point average which are calculated in May of each year provided at least 24 credit hours have been attempted since the last assessment grade point average was recorded.

2. In all Faculties an assessment grade point average of 3.7 or higher must be achieved, except in the Faculty of Law where the minimum assessment grade point average for inclusion on the Dean's list is 3.3 and the students stands among the top 10 percent of his or her class.

3. Courses, including practicum courses, with final evaluation of credit/no credit rather than a letter grade will be included as part of the 24 credit hours required in the grade point average assessment.

4. Students who in their final year of study do not have any assessment grade point calculation will be included on a Dean's list provided such a distinction was earned on the last assessment and provided a letter grade of "B" or higher was achieved in all courses taken. At least 12 credit hours of work must have been undertaken to have Dean's list status under this provision.

5. Co-op students will be subject to these regulations:
a. one work term in the assessment period - at least 24 credit hours required.
b. two work terms in the assessment period - at least 15 credit hours required.
c. December program completion - at least 15 credit hours from September 1 - December 31.
d. Second year co-op students with a January work term - at least 15 credit hours required.

6. Students on a professional experience program (PEP) must have successfully completed the work term and have completed at least 15 credit hours in one term during the assessment grade point average period.

7. Course work done off-campus with permission will not form part of the assessment grade point average and subsequent decision concerning inclusion on a Dean's list. The Dean has the right to add such students to the Dean's List where deemed appropriate.

8. Students must be enrolled in a degree, diploma or certificate program to be included on a Dean's List.

9. Students enrolled in a concurrent or joint degree program will be considered for the Dean's List in both Faculties represented.

K. Submission of Final Course Grades

1. The work term in a course (excluding any work given in lieu of a final examination, see Examination, Standing and Promotion regulations, item A [6]) must be submitted by the last day of lectures or earlier as required by the instructor. The instructor must submit a final grade based on the work submitted by the student, including term work and examination, as determined by the instructor.

2. Once a grade has been submitted a student is not permitted to do extra work or additional to that required of other students in a course in order to gain a better grade in the course.

3. A request to change a recorded grade in a course is to be made to the Registrar via the instructor's secure web grade change form. An explanation of the reason(s) for the change must be included at the time of the submission.

L. Review of Grades

1. *Review of Grades on an Individual Piece of Work*

a. Students may discuss with the course instructor the grade on any piece of work regardless of its value. For a course that is not the responsibility of a single academic unit, the coordinator of the course will replace the Department Chair in the review process.

b. For purposes of the formal review process, individual pieces of work may include: Term tests, computerized tests, examinations other than final examinations, term papers, essays, reports, group projects and oral tests/examinations worth at least 20 percent in the calculation of the final grade in the course.

c. Students have the right to request a formal review of graded assignments such as those listed above. The grounds are restricted to: the overall assessment of the evaluation is demonstrably unfair; the evaluation was not consistent within the class; there was a miscalculation of the grade.

d. There are two steps to follow for the formal review process:
i. The student must discuss the piece of work with the instructor involved within two weeks of the receipt of the grade for the individual item.
ii. After the first step and if requested by the student in writing or by e-mail to the Chair of the Department, or Dean of the Faculty if there is no Department or Chair, a review will be conducted with such Chair, the instructor and the student. If desired, a student has the right to meet with the Chair without the instructor present prior to this review. The review must be conducted within 7 days after the review with the instructor. The decision of this review is final and the reasons for this decision will be provided to the student in writing by the Chair.

A student who has not requested a grade review of an individual piece of work that is reviewable, or who has requested a grade review of an individual piece of work and is not satisfied with the result, may not ask for a review of a final grade on the basis of that individual piece of work.

2. General Information

a. In all reviews, it is expected that the process will be carried out expeditiously by the reviewer(s).

b. Graded materials held by the instructor must be retained for twelve months after the end of the term.

c. Students requesting a review are expected to provide reviewers with original graded assignments returned to them by the instructor. Such assignments must not have been altered (please refer to the section on university regulations governing academic offences).

d. Work will be reviewed, as requested, in a manner that ensures that all concerns raised by the student have been properly addressed, taking into account the course outline and that the totaling of the grades and other items contributing to the grade were done accurately. In instances when consistency in grading is being considered, a minimum of three other pieces of class work completed by other students will be examined by the reviewer(s). Graded materials in the custody of the instructor will be provided to the reviewers by the instructor in a manner that ensures identifying information has been removed. Where the graded work has been returned to students, the student requesting the review must provide graded work for comparison.

e. The grade originally assigned may be raised, remain the same or be lowered as a result of the review.

3. Review of the Final Course Grade

a. Prior to requesting a formal review of a final grade, students will discuss the grade with the instructor. For a team-taught course the coordinator of the course will replace the instructor in the review

process. Where no course coordinator exists, the Dean of the Faculty or Chair of the Department will designate one of the course instructors as course coordinator.

b. Students who are not satisfied with the decision of the instructor or course coordinator have the right to request a review of the official final grade received in a course on the proper form (available in the Office of the Registrar). Such requests must be received by the Registrar, in writing, within 90 days after the end of the course or examination period, where applicable. A fee of $15.00 must accompany the request. The fee will be refunded if the grade is subsequently raised.

c. Students should clearly outline the grounds for the request to review the final grade. Normally the grounds are restricted to one or more of the following:

i. the final grade of is demonstrably unfair;
ii. the calculation of the final grade was not consistent with the class;
iii. the calculation of the final grade was not based on all the work completed; or
iv. there was miscalculation of the final grade;

d. The Registrar shall refer the request for formal review to a committee consisting of:

i. one member who is selected by the student and who is a member of the Department or Faculty involved;
ii. one member who is selected by the instructor and who is a member of the Department of the Faculty involved; and
iii. the Chair of the Department or Dean of the Faculty or a designate selected by the Chair or Dean, provided that the Chair, Dean or designate shall be a member of the Faculty or Department. In the event that the student or instructor is unable to select a member for the review committee, the Dean or Chair will select.

e. If the review is a class action involving two or more students enrolled in a course:

i. the students who are in the course requesting the review will collectively select one member of the Committee; and
ii. if more than one instructor, the instructors involved in the teaching of the course will collectively select one member of the Committee.

The criteria for a grade review for a class action are as follows:

i. the grade of all class members requesting the review must be at issue;
ii. the grounds for the review must be the same for all class members requesting the review; and
iii. the requested outcome of the review must produce a consistent result for all class members.

f. Grades assigned in practicum courses, in co-op courses, or final examinations in any course shall be subject to review only under the final course grade review process.

g. Students who intend to appeal the results of a review of final course grade must do so within 4 weeks after the date of notification by the Registrar's Office. The procedures for filling an appeal must be followed and reasons for appeal are to be clearly outlined.

IV. Right of Appeal - Standing and Promotion Decisions

Students on the Fredericton Campus will submit appeals to the Senate Student Standings and Promotions Committee; on the Saint John Campus, appeals will be submitted to the Student Appeals Committee. The term 'appeals committee' as used in this section refers to both of these committees. Appeals are to be submitted via the Office of the Registrar on the respective campus.

1. Entitlement and Jurisdiction

1. If one year or more has elapsed since the academic decision in question was made, student appeals will be considered by the appropriate campus Senate Appeals Committee only in exceptional circumstances.

2. Student appeals on the Fredericton Campus are considered by the Senate Committee on Student Standings and Promotions, and on the Saint John Campus by the Senate Student Appeals Committee. Appeals pertaining to admissions are heard on the Fredericton Campus by the Senate Admissions Committee and on the Saint John Campus by the Senate Student Appeals Committee. Appeals are submitted via the Office of the Registrar on the respective campus.

3. The University reserves the right to withhold notification of an academic decision if a student has not satisfied his or her financial obligations to the University. The Senate Student Standings and Promotions Committee in Fredericton, or the Senate Student Appeals Committee in Saint John, may refuse to hear appeals submitted after the deadline because the notification of an academic decision was withheld for failure to satisfy financial obligations or because notification of an academic decision was not received as a result of a failure to provide the University with an accurate mailing address.

4. Subject to the following regulations, students may appeal academic decisions.

NOTE: Most reviews concerning grades assigned for individual pieces of work or final grades are subject to the Grade Review Process. An appeal to the appropriate appeals committee is permissible only if the review was conducted without due regard to proper procedure or in a manner which is not fair in all of the circumstances. Students may appeal final grades only after all steps of the grade review process have been completed.

2. Grounds for Appeal

1. The appropriate appeals committee may grant an exemption from the application of a University Regulation or from the effect of an academic decision, on the grounds of compassion, health, or other extenuating circumstances beyond the control of the student. A student requesting such an exemption must state the grounds on which the request is based and provide pertinent documentation.

2. The Committee may grant relief on the grounds that an academic decision has been made without due regard to proper procedure, or in such a manner which is unfair in all of the circumstances. A student requesting such relief on appeal must state the ground on which the request is based and provide pertinent documentation.

3. Appeals Procedure

1. A student is entitled to seek the advice of the Executive Director of Student Affairs and Services or designate (for Fredericton appeals) or the Director of Student Services (for Saint John appeals) concerning the right of appeal.

2. Where so requested in writing by a student, the Executive Director of Student Affairs and Services (for Fredericton appeals) or the Director of Student Services (for Saint John appeals), shall act on behalf of the student.

3. Appeals are to be made in writing, addressed to the appropriate committee by way of letter to the campus registrar.

4. Appeals pertaining to academic status at the end of an assessment period must be filed on or before July 15 of that year. Where

circumstances warrant, the Committee may consider student appeals which do not meet the normal deadline requirement.

5. Appeals shall state the grounds on which the appeal is based, provide supporting documentary evidence and state whether the student will attend the hearing and whether the Executive Director of Student Affairs and Services (Fredericton appeals) or the Director of Student Services (Saint John appeals) will represent the student at the hearing.

6. The Committee may receive documentation in support of an appeal after the July 15th deadline set for the filing of appeal itself. The late filing of such supporting documentation may result in delay in the determination of the case.

7. After receiving an appeal, the Secretary of the Committee shall:

a. make a reasonable attempt to give notice to the student, or the person acting on the student's behalf, of the time, place and manner in which the Committee will proceed, and further shall give access to the student or the person acting on the student's behalf to the materials relevant to the appeal;
b. give notice to the instructor, Chair of the Department and Dean of the Faculty concerned of the time, place and manner in which the Committee will proceed, and request that any written materials relevant to the appeal be filed with the Committee in such a manner that the right of access provided in a.) is observed.

8. The Committee hears and determines the matter. The decision of the Committee, which is provided to the student in writing, is final (see below). No re-appeal of the decision will be heard by the Committee unless new evidence is presented and deemed by the Committee to be of sufficient importance to justify clearly the reopening of the case.

4. Senate Review

A student may request that the relevant Senate review a decision of the appropriate appeals committee.

The only grounds for such a request are:

a. the decision was made without due regard to proper procedures, with the result that the student was materially disadvantaged; and/or
b. the decision was made in a manner which is not fair in any of the circumstances.

Advice and Assistance
A student is entitled to seek the advice of the Director of Student Affairs and Services (Fredericton appeals) or the Director of Student Services (Saint John appeals) with respect to an application for Senate review.

Where so requested in writing by a student, the Director of Student Affairs and Services (Fredericton) or the Director of Student Services (Saint John) shall act on behalf of the student to the extent requested in application for Review.

Procedures

1. An application for Senate Review shall:

a. be filed in the Office of the Secretary of Senate within thirty (30) days of the date of the letter of notification of the decision of the appeals committee made under provisions of the Appeal Procedures.
b. made in writing, addressed to the Secretary of the Senate, and state the grounds on which the application is based.

2. On receiving of an Application for Senate Review, the Secretary of Senate shall:

a. notify the student or person acting on the student's behalf of the time, place and manner in which the Review will proceed, and further shall ensure access by the student, or the person acting on the student's behalf, to the materials relevant to application;

b. give notice to the appropriate appeals committee of the time, place and manner in which the Review will proceed and request that any written material relevant to the application be filed with Senate in such a manner as that the right of access stipulated in 2a) is observed.

c. ask the Senate Nominating Committee and the President to establish a Review Committee.

V. Minor Programs
The University offers students an opportunity to broaden and complement their programs of study by completing the requirements for a Minor. A complete list of approved Minor Programs is available in the Registrar's Office. A Minor program can be a University interdisciplinary Minor or one offered through a faculty or department.

1. Students interested in pursuing a Minor Program should consult with their program advisor to determine if a Minor will be permitted and to discuss its relation to their program of study. Advice and course approval must then be obtained from the coordinator, committee or individual responsible for the Minor. Normally, a student must declare a Minor on or before registration for final year. A student may declare a Minor after this date only with the approval of the Registrar, with the concurrence of the Department(s) concerned.

2. A Minor can be taken only in conjunction with a degree program and must be completed while the student is qualifying for the degree. Successful completion of the Minor will be recorded on the student's transcript of record. The same procedure must be followed for each successive Minor.

3. A Minor shall consist of eight term courses or the equivalent (a minimum of 24 credit hours) and shall be selected to form a coherent set or sequence of courses. The student must achieve a grade of "C" or better in each course for it to be counted as part of the Minor. Compulsory or required courses in a student's degree program normally may not form part of the Minor.

4. A student who has completed a Minor located in one degree program may apply to and, if admitted, enter a second degree program to obtain a second bachelor's degree. Such a student could obtain the Majors or Honours designation in the same field as the Minor if the requirements for are completed successfully under the regulations governing a "Second Undergraduate Bachelor's Degree".

5. Students interested in pursuing more than one minor program must have permission from their faculty advisor. All above regulations apply.

VI. Application To Graduate and Listing of Graduates

A. APPLICATION TO GRADUATE

1. Students must make application to graduate by 1 March, for May graduation and 1 September for October graduation. Such application is done either by submitting an electronic "Application to Graduate" form available from the UNB Homepage (www.unb.ca) or by completing an "Application to Graduate" card available from the Registrar's Office.

2. Courses that are attached to a distinct session that ends after the January - April session are not counted in the assessment for May graduation eligibility.

B. Candidates for all undergraduate degrees, except candidates for the degree Bachelor of Laws, shall be listed in the graduation program alphabetically by First Division, and General Standing, based on the cumulative grade point average of all UNB courses (including certain approved St. Thomas courses) attempted in the program. Candidates with Honours and Distinction standing will be listed separately.

Candidates for the degree of Bachelor of Laws are listed alphabetically without divisions.

C. Divisional standing will be recorded in the student's transcript based on the cumulative grade point average as follows:

First Division: 3.5 or better
Second Division: 2.5 or better but less than 3.5
Third Division: Less than 2.5

D. A student who has received a bachelor's degree from UNB may return and complete the requirements of the honours program in the same field as in the original degree or the requirements in another major or honours field in the same degree. Such a student will not receive the degree again but a record of the completion of the second requirements will be carried on the student's transcript. A second same degree is permitted in limited cases. Refer to Section Q, Requirements for a Second Undergraduate Bachelor Degree in the Admissions section of this Calendar.

E. Students are not permitted to graduate at a ceremony during a spring Encaenia other than the one for which they are scheduled, except in special circumstances at the discretion of the Registrar.

VII. Requirements For A Second Undergraduate Degree
Second Different Undergraduate Bachelor Degree

1. The general regulations of the University and the regulations of the degree program concerned must be satisfied. Refer to the appropriate section of this calendar for the regulations of the degree program.

2. Degree and departmental regulations concerning option, concentration, Major or Honours must be satisfied.*

*Throughout these regulations, the use of terms "option", "concentration", "major", and "honours" vary by faculty. All of these terms denote some degree of specialization.

3. The minimum number of credit hours, or courses, which must be successfully completed beyond the work required for the previous degree must not be less than the normal load of the final academic year in the degree program concerned. More than the minimum number of credit hours, or courses, may be required.

4. The courses taken must be approved by the Dean and the Department, or Departments, under which the option, concentration, Major, or Honours, falls.

5. In Faculties where the credit system is used, at least half the credits for a degree, diploma or certificate must be taken at the University; in Faculties where the year-system is used, two years must be taken at this University. It is normally expected that the final year of study be completed at this University.

6. Candidates for a second different degree may not normally choose the same major, honours, option or concentration as in the first undergraduate degree.

7. Students must make specific application to the Associate Registrar/Admissions for entry to the second different degree program.

8. Only in special circumstances will students be admitted to a third different undergraduate degree program.

9. The final decision on the course work requirements for a second different undergraduate bachelor degree shall be a matter of agreement between the Registrar and the Dean, after consultation with the Chairs of Departments concerned.

Second Same Undergraduate Bachelor Degree

1. A second same degree is permitted in limited cases. The general regulations of the University and the regulations of the degree program concerned must be satisfied. Refer to appropriate section of this calendar for the regulations of the degree.

a. On the Fredericton Campus, the Faculty of Arts and the Faculty of Science permit in a second same undergraduate Bachelor degree.

b. On the Saint John Campus, the Faculty of Arts and the Faculty of Science, Applied Science and Engineering permit a second same undergraduate Bachelor degree.

2. Degree and Departmental regulations concerning option, concentration, Major or Honours must be satisfied.*

*Throughout these regulations, the use of terms "option", "concentration", "major", and "honours" vary by faculty. All these terms denote some degree of specialization.

3. The minimum number of credit hours, or courses, which must be successfully completed beyond the work required for the previous degree must not be less than the normal load of the final academic year of the degree in the program concerned. More than the minimum number of credit hours, or courses may be required.

4. The courses taken must be approved by the Dean and the Department, or Departments, under which the option, concentration, Major, or Honours, falls.

5. In Faculties where the credit system is used, at least half of the credits for a degree, diploma or certificate must be taken at this University; in Faculties where the year-system is used, two years must be taken at this University. It is normally expected that the final year of study be completed at this University.

6. Candidates for a second degree may not normally choose the same major, honours, option or concentration as in the first undergraduate degree.

Students may be permitted to upgrade a Minor or a Major from the first degree under the following conditions:

c. A minor from the first degree may be upgraded to a Major or Honours after completion of the first degree.

d. A Major from the first degree may be upgraded to an Honours after completion of the first degree.

e. In either case, a notation only will be included on the student record and a second degree will not be awarded.

Students will not be permitted to include a Minor in the second degree.

7. Students must make specific application to the Associate Registrar (Admissions) for entry to the second degree program.

8. Only in special circumstances will students be admitted to a third undergraduate degree program.

9. The final decision on the course work requirements for a second different undergraduate bachelor degree shall be a matter of agreement between the Registrar and the Dean, after consultation with the Chairs of the Departments concerned.

Graduates of other Universities are not eligible to apply under these regulations. Applications from such candidates will be considered for possible acceptance and advance standing on receipt of official transcripts submitted to the Associate Registrar (Admissions).

Students who desire to complete requirements for two different Bachelor Degrees at the same time will be granted such permission provided approval from both Faculties concerned has been granted. If permission is granted, students must be admitted to the second program by the Admissions Office. Requirements for each degree program are determined by each Faculty. This arrangement is separate from the Concurrent Degree Programs offered by the University.

VIII. Academic Offences

Note: Consideration of a request to withdraw from a course or courses involved in an academic offence will not be given until the case is resolved.

Academic offences include, but are not limited to, the following:

A. PLAGIARISM

Plagiarism includes:

1. quoting verbatim or almost verbatim from any source, regardless of format, without acknowledgement;

2. adopting someone else's line of thought; argument, arrangement, or supporting evidence (such as, statistics, bibliographies, etc.) without indicating such dependence;

3. submitting someone else's work, in whatever form (essay, film, workbook, artwork, computer materials, etc.) without acknowledgement;

4. knowingly representing as one's own work any idea of another.

NOTE: In courses which include group work, a penalty may be imposed on all members of the group unless an act of plagiarism is identified clearly with an individual student or students.

Procedures

In the case of plagiarism, the instructor must make every reasonable effort to discuss the case with student or group and follow one of two courses of action:

1. If the instructor is satisfied that the plagiarism was the result of a genuine misunderstanding, the instructor shall complete an academic offence incident report in a form approved by the Registrar's Office, containing the student's name and the particulars of the incident, and submit to the Registrar who shall advise the appropriate Dean, and the Chair of the student's program or Department where applicable. The Registrar shall notify the student by registered letter and/or electronic mail of the regulations governing plagiarism, the possible consequences, the student's right to appeal, the right to appear before the appropriate appeals committee (Student Standing and Promotions Committee on the Fredericton campus and Senate Student Appeals Committee on the Saint John campus), and the procedures involved. The Registrar shall make available to the student a copy of the academic offence incident report and supporting documentation. While a case of plagiarism resulting from a genuine misunderstanding will not be considered a student's first offence, a

second plea of ignorance by the same student in response to a subsequent allegation of plagiarism will not be accepted; similarly, a subsequent incident report indicating that the alleged plagiarism is a result of genuine misunderstanding responding will be treated as an allegation of deliberate plagiarism. A student responding to the instructor's allegation must do so in writing within three weeks of the date of the Registrar's notification. The student is urged to submit to the appropriate appeals committee a written statement regarding the case.

In a first incident of plagiarism resulting from genuine misunderstanding, the instructor may permit the student to submit a genuine piece of work to be graded in place of the one plagiarized. If the student does not appeal, the time allowed for submission of work is three weeks from the date of the Registrar's letter of notification. In the case of an appeal, where the instructor's allegation is upheld, the period of time allowed for submission is as determined by the appropriate appeals committee.

2. If, in the view of the instructor the plagiarism was deliberate, the instructor shall complete an incident report in a form approved by the Office of the Registrar, containing the student's name and the particulars of the incident, and shall submit to the Registrar who will advise the Dean of the Faculty concerned and the Chair of the student's program or Department where applicable. The Registrar shall notify the student by registered letter and/or electronic mail of the regulations governing plagiarism, the possible consequences, the student's right to appeal, the right to appear before the appropriate appeals committee, and the procedures involved. A student appealing the charge of an academic offence must do so in writing within three weeks of the date of the Registrar's letter of notification. On receiving an incident report alleging an act of deliberate plagiarism, or on receiving an incident report alleging a second commission of plagiarism by the student which is determined viewed by the instructor to be as a result of genuine misunderstanding, the Registrar shall refer the matter for a hearing to the appropriate appeals committee. A student who wishes to respond to this allegation is urged to submit to the appeals committee a written statement regarding the case, within three weeks of the date of the Registrar's letter of notification. The Registrar shall inform the student by registered letter or electronic mail of the referral to the appeals committee, and the wish of the Committee that the student be present when the case is heard.

3. The appropriate appeals committee, upon the conclusion of a hearing into the case, or following the review of the written materials if the student does not appear, must make one or more of the following findings prior to proceeding to an assessment of a penalty for deliberate plagiarism.

i. On hearing a case involving a first incident report alleging that a student has committed an act of deliberate plagiarism, the appeals committee must first decide whether an act of plagiarism has occurred. If the Committee so finds, the Committee must then determine whether the plagiarism was deliberate, or an act of genuine misunderstanding. If the former, the appeals committee will proceed to assess penalties in accordance with this Regulation, if the latter, the appeals committee will assess no penalty, but will direct the Registrar to note in the student's academic file that the students has had one finding of genuine misunderstanding.

ii. If the case before the appeals committee (i) follows a prior finding of plagiarism, or (ii) is a second allegation of plagiarism as a result of genuine misunderstanding, the appeals committee may not make a further finding of genuine misunderstanding in disposing of the case. The appeals committee may only make a finding that the alleged act of plagiarism was deliberate plagiarism or that the alleged act of plagiarism was not an act of plagiarism.

Penalties for Deliberate Plagiarism

In case of deliberate plagiarism, the penalties are:

First Offence: If the student does not appeal or if, on appeal, the Committee upholds the instructor's allegation:

1. A notation will be placed on the student's transcript of academic record concerning the academic offence. The length of time of the notation appears on the student's transcript of academic record is to be decided when the penalty is imposed and will depend on the severity of the offence.

2. The student may be required to submit a satisfactory and genuine piece of work to replace the one involving plagiarism. If the assignment is not resubmitted or is unsatisfactory, the student will receive a grade of F (zero) in the course. **Note:** If this penalty is assessed, the period of time allowed for the submission of the work will be determined by the Registrar in consultation with the faculty member making the charge and, where appropriate, the Committee.

3. The student will receive a grade of F (zero) for the piece of work and, depending on the severity of the offence, may receive a grade of F for the course.

4. Other penalties as outlined in penalties for Other Academic Offences may be imposed.

Subsequent Offence: In cases where the Committee considers that the student has plagiarized again:

1. The student will receive a grade of F (zero) for the course, and a notation of the academic offence will appear on the student's transcript of record. The length of time the notation appears on the student's transcript of academic record is to be decided when the penalty is imposed.

2. Other penalties as outlined in penalties for Other Academic Offences may be imposed.

B. OTHER ACADEMIC OFFENCES

1. Cheating on examination, tests, assignments or reports, including but not limited to:

Impersonating a candidate at an examination or test or in connection with any assignment in a course or availing oneself of the results of impersonation.

Obtaining, through theft, bribery, collusion, purchase, or other improper manner,
1. an examination or test paper prior to the date and time for writing the examination or test;
2. academic materials belonging to another person, e.g. laboratory reports, assignments, papers, computer materials, datasets.

2. Falsifying or knowingly submitting false assignments or credentials, records, transcripts, or other academic documents.

3. Submitting a false health or other certificate.

4. Submitting identical or substantially similar work for one course or program of study, which has been or is being submitted for another course or program of study, without the prior express knowledge and approval of the instructors.

5. Interfering with the right of other students to pursue their studies.

6. Knowingly aiding or abetting any of the above offences.

7. Tampering with, or altering, in any deceptive way, work subsequently presented for a review of the grade awarded.

Procedures

The instructor and, where applicable, the invigilator or other appropriate person shall, where practical, discuss the matter with the student concerned.

The instructor or the instructor's representatives, if satisfied that an academic offence has been committed, shall complete an academic offence incident report and shall submit it, together with attached information, to the Registrar. The Registrar shall report it to the Chair of the Department (where applicable) and the Dean of the Faculty concerned. Each case will be referred by the Registrar to the appropriate Committee for review and appropriate action. The Registrar shall inform the student by registered letter and/or electronic mail of the referral to the Committee, the student's right to respond , the wish of the Committee that the student be present when the case is heard, and the procedures involved. A copy if the academic offence report and attached information will be provided to the student in a timely manner. The student is urged to submit to the Committee a written statement regarding the case. A student responding to the decision, shall do so in writing within three weeks of the date of the Registrar's letter of notification.

Penalties

A student who is found guilty of an academic offence will have two penalties imposed:

1. A notation on the student's transcript of academic record concerning the academic offence. The length of time the notation appears on the student's transcript of academic record is to be decided when the penalty is imposed.

2. A grade of F (zero) in an examination, test or course.

One of the following penalties may also be imposed.

3. A recommendation to the President for suspension for a specified period. The recommendation is to include the length of time the notation is to appear on the student's transcript of academic record.

4. A recommendation to the President for expulsion from the University. If the student is expelled, a permanent notation will appear on the student's transcript of academic record.

C. GENERAL

1. Consideration of a request to withdraw from a course or courses involved in an academic offence will not be given until the case is resolved.

2. Students on the Fredericton Campus will submit appeals to the Senate Student Standings and Promotions Committee; on the Saint John Campus , appeals will be submitted to the Students Appeals Committee.

IX. Official Withdrawal (Voluntary) From University

A student who is considering withdrawing from study is strongly advised to consult with his or her faculty advisor. If the student decides to withdraw from University, the Registrar's Office must be notified in writing and the necessary process on the computerized registration system must be completed to avoid failing grades. The official date of withdrawal will be the date written communication is received in the Registrar's Office or the date recorded on the computerized system. Notifying instructors or ceasing to attend lectures does not constitute official withdrawal.

X. Confidentiality, Security and Release of Student Academic Records

The term "official academic record" when used in these policies means the information concerning admission and academic performance of students as it is contained in any record of information however recorded or stored.

A. The official records of students are the property of the University.

B. The Registrars and any designated officer, where applicable, shall retain custody of the official student academic records, however recorded or stored, in the Office of the Registrar, the School of Graduate Studies, and the Faculty of Law, all of the University of New Brunswick Fredericton and Saint John ("the University") , and shall be responsible for the security and maintenance of all such records. The security and maintenance of the electronic and student information system used to retain student records shall be the responsibility of the Department of Information Technology Services.

C. Students desiring to have their names changed on their official student record be it by means of alteration, deletion, substitution or addition must submit appropriate supporting documentation to the Office of the Registrar.

D. RELEASE OF INFORMATION

1. Except as provided herein, official academic records are confidential and shall not be divulged to any third party, including parents or guardians, except as noted in this statement, without the written consent of the student concerned.

2. Students have the right to official copies of their University of New Brunswick transcripts of record. Official transcripts issued to students are identified as such on the transcript. Any requests should be submitted to the appropriate Registrar's office with the required fee. Transcripts and degree parchments will be withheld for students, including former students, who have failed to meet their financial obligations to the University. Students have the right to access their transcripts of record as held in the computerized filed and to print unofficial copies of their transcripts of record.

3. Partial transcripts will not be issued.

4. Transcripts and personal information contained in the official student records shall be released only in accordance with University policy:

a. Where the person to whom the information relates has identified that information in particular and has consented to its disclosure;
b. For the purpose for which it was obtained or compiled or for a purpose consistent therewith;
c. To an officer or employee of the University who needs the record in the performance of his or her duties;
d. For the purpose of complying with a requirement to provide information lawfully imposed upon the University by a federal/provincial government authority;
e. Where the disclosure is necessary to aid in the investigation of allegations that individuals have made false statements or engaged in other misleading conduct concerning their attendance or performance or status within or completion of an academic program of the University;
f. In compelling circumstances affecting the health or safety of an individual, if upon disclosure, notification thereof is mailed to the last known address of the individual to whom the information relates;
g. In compassionate circumstances, to facilitate contact with the next of kin or a friend of an individual who is injured, ill or deceased; or
h. To a person who has been authorized by the individual to whom the information is related to make an enquiry on that individual's behalf or, where that individual is incapacitated, has been authorized by the next of kin or legal representative of that individual.

5. The Campus Registrar may authorize access to academic records for the purpose of research. Students of the University may examine their personal official academic records held in paper files, with the exception of letters of reference provided to the University in confidence. A member of the Registrar's Office or a designated officer on the campus where the record is held will be present during such an inspection. Students may examine letters of reference or other information provided to the University in confidence only with the written permission of the referee or writer being the first requested and received by the appropriate Registrar or designated officer holding the file.

6. The Office of the Registrar will not normally provide students or third parties, except as noted below, with copies of documents on file, such as transcripts from other institutions, or correspondence provided to the University in confidence. In the case of a request for copies of documents made to a Campus Registrar's Office, an exception may be made in severe situations such as where an international student is unable to obtain copies of original documents. If the request is approved, the Registrar will authorize copies of such documents to be forwarded to another institution marked "copy of the original documents on file".

7. The University considers certain information, that is, a student's name, dates of university attendance, verification of degrees obtained, to be public information. Such information may be disclosed by the Campus Registrar or designated officer without the consent of the student. Students who object to the release of such information shall notify the Registrar of the campus where the information is held, in writing, giving the specific objection or objections. The Registrar shall then determine what action, if any, will be taken and advise the student and the designated Officer where necessary.

8. The University routinely releases student e-mail identifiers while the student is enrolled at the University. Students who object to such release must notify the Campus Registrar.

9. The University routinely provides, through secure on-line access a digitized image of the student identification photograph to individual instructors during the period the student is registered in the instructor's course. The Deans or their designates, Associates and Assistant Deans where specifically authorized by the Dean, the Director of the College of Extended Learning, Directors of Student Services, the Student Advocate, the Director, Associate and Assistant Directors of Residential Life, and the University's security personnel also will have access to such images. Residence Coordinators, House Dons and Associate Dons of the residence administrative team on the Fredericton campus and the Residence Academic Leader, Residence Life Coordinator and Manager of Residence and Conference Services on the Saint John campus will have access to such images during the period when a student is living within a house or residence for which the persons holding these positions are responsible. Students who object to such access to their student identification photograph should notify the Campus Registrar.

10. a. Deans, Associate/Assistant Deans, faculty Student Advisors and the Director of College of Extended Learning shall have unrestricted electronic access to academic student records.

b. i. Full-time faculty members shall have electronic access to academic student records of students registered or formally seeking registration in their courses as may be required in the performance of the faculty members' duties.
ii. Contract Academic Instructors may be granted electronic access to academic student records of students registered or formally seeking registration in their courses if such access is required in the performance of the Instructor's duties as authorized by the Dean or Director of College of Extended Learning.
iii. Normally, Contract Academic Instructors who are students at UNB should not have access to student academic records. Access is

provided during the period the student is registered or formally seeking registration in the Instructor's course and for 45 days following the end of term in which the course is scheduled.

11. Other Faculty and College personnel may be granted electronic access to academic student records required in the performance of their duties as authorized by the Dean or Director of the College of Extended Learning on such specific terms as the Dean or Director shall determine.

12. Members of administrative and other academic units may be granted electronic access to academic student records required in the performance of their duties upon a request to and as authorized by the Campus Registrar or designate on such specific terms as the Registrar or designate shall determine.

Access is provided on the explicit condition that such information in the electronic academic student records shall not be released to others except as may be permitted in accordance with these regulations.

XI. Procedure for Dealing with Student Gifts

As a matter of principle, the University discourages the practice of students giving gifts to faculty members. However, from time-to-time faculty members may be presented with a gift from one or more students or an entire class that expresses appreciation. Such gifts may range from flowers to items of considerable value. In some cases the offering of a gift may reflect a cultural custom on the part of the student(s) concerned. Faculty members should use their professional judgement to decide whether or not to accept such gifts from students, and may wish to consider the following alternatives, especially when only one or two gift givers are involved:

a. Students offering gifts of money could be encourage to make a donation to a University scholarship, bursary or prize fund, or some other University purpose. The gift could be designated "in appreciation of Professor xxxx", and sent directly, or through the faculty member's Dean, to the Development Office on the Fredericton Campus, or the Office of Advancement, Communications, and Recognition on the Saint John campus (the student would receive a tax receipt for a charitable donation).

b. Students offering gifts "in kind" which are inappropriate or have a significant monetary value could be referred to the faculty member's Dean, the Development Office on the Fredericton Campus, or the Office of Advancement, Communications, and Recognition on the Saint John campus.

c. In lieu of gifts of money or "in kind," students who wish to express thanks or appreciation to a faculty member could be encouraged to:
i. Nominate the faculty member for a Faculty or University teaching award.
ii. Write a letter of appreciation to the faculty member's Dean or the Vice-President.
iii. Send a card or note of thanks to the faculty member.

Under any circumstances, faculty members should avoid accepting gifts from students prior to submission of final grades of those student's, or completion of supervision.

XII. Academic Dress
A. GOWNS

Undergraduate Plain black stuff material, sleeveless.
Bachelors Black stuff gown falling below the knee, with full sleeves reaching to the wrist and terminating in a point.
Masters Black silk or stuff gown, falling below the knees, with long sleeve with semi-circular cut bottom.
Doctors A scarlet cloth robe, faced with silk of the same color as the lining of the hood worn.

B. UNB ACADEMIC HOODS

Each degree has its distinctive hood as follows:

Degree	Hood
BA	Black stuff bordered with white fur
BASc	Black stuff bordered with white fur and scarlet braid
BAA	Black stuff lined with ivory bordered with white fur
BAM	Black stuff lined with gold silk bordered with white fur
BPhil	Black stuff lined with dark blue bordered with white fur
JD	Pale blue bordered with white fur
BSc	Black stuff lined with scarlet bordered with white fur
BMLS and BHS	Black stuff lined with teal bordered white fur
BScEng, BScF, BScFE, BScCs, BCS, BSSwE	Black stuff lined with green bordered with white fur
BBA	Black stuff lined with light brown bordered with white fur
BPE and BKin	Black stuff lined with claret bordered with white fur
BScKin	Black stuff lined with claret bordered with white fur and dark green braid
BRLS and BRSS	Black stuff lined with claret bordered with white fur and navy braid
BN	Black stuff lined with peach bordered with white fur
BEd	Black stuff lined with grey bordered with white fur
BOM	Black stuff lined with pale yellow

	bordered with white fur
BIS	Black stuff lined with gold bordered with white fur
MA	Black silk lined with crimson
MPhil	Black silk lined with white bordered with light blue
MSc	Black silk lined with white bordered with scarlet
MScEng, MEng, MScF, MF, MScFE, MFE, MCS	Black silk lined with white bordered with green
MEd	Black silk lined with blue grey bordered with crimson
MPE, MASRA, MASRS, MScExSS	Black silk lined with white bordered with claret
MBA	Black silk lined with white bordered with light brown
MN	Black silk lined with white bordered with peach
MAHSR	Black silk lined with white bordered with powder blue
MIdSt	Black silk lined with white bordered with gold
PhD	Scarlet cloth with dark blue silk lining
LLD	Scarlet cloth with pale pink silk lining
DSc	Scarlet cloth with white corded silk lining
DCL	Scarlet cloth with pale blue silk lining
DLitt	Scarlet cloth with grey silk lining

General Regulations on Student Non-Academic Conduct

The following general regulations have been approved by the Board of Governors of the University and are now in effect until such time as they may be revised by the Board.

A. The University of New Brunswick is a community of faculty, staff, students and administrators involved in teaching, learning, research and related activities. The University assumes that students come to the University for a serious purpose and accept responsibilities as members of the University community.

B. In accordance with the commitment set out in the University's Mission Statement to provide an environment conducive to the development of the whole person, all members of the University community - staff, faculty, students and administrators - have the right to work and/or study in an environment which affords them respect and dignity, and is free from danger, discrimination, harassment, intimidation, and behaviour which is destructive, disruptive or unlawful.

C. The University recognizes students' freedom to manage their personal lives, behaviour and interpersonal relations in a manner consistent with the above principles, with the laws of Canada and New Brunswick, and with University regulations. In exercising their entitlement to participate in University programs and activities, students are expected to:

1. abide by University regulations;
2. respect the integrity of University programs and activities;
3. acknowledge the diversity of the University community and freedom of all members to participate in University programs and activities;
4. promote the peaceful and safe enjoyment of the University facilities by other members of the University and public;
5. conduct themselves at all times in a manner that will reflect credit on themselves and the University.

D. The University has defined standards of student behaviour and made provisions for student discipline when they engage in conduct that is inconsistent with the foregoing principles. It shall be deemed, and the Board considers, that each of the following types of conduct is breach of University regulations, and is grounds for consideration of discipline up to and including suspension or expulsion. As the types of misconduct are stated in general terms, students are advised to familiarize themselves in greater depth with University regulations, and to consult with University officials where they have any doubt about the propriety of an intended action or behaviour.

Unacceptable types of behaviour include, but are not limited to:

1. violence, harm or threat of harm to any person or the person's property;
2. unnecessarily endangering the health or safety of other persons;
3. possession of a firearm or other weapon on University premises without specific University permission;
4. acting or speaking in a disruptive, disorderly, indecent or offensive manner, or in a way that might reasonably cause fear;
5. unauthorized infringement or prevention of access by others to University classes, services, events, facilities, and property;
6. disruption or obstruction of any authorized activity, event, class or service of the University, or interference with any person's rights to carry out legitimate activities, speak or associate with others;
7. refusal to comply with a reasonable request by authorized University officials including Security and the Student Campus Police.
8. failure to provide identification to authorized University officials when asked, or providing false identification or information;
9. obstruction of Security or Student Campus Police in the performance of their duties;
10. unauthorized use or occupation of any University property;
11. conduct that results directly or indirectly in damage, misuse, defacing, or theft of University property;
12. improper use or consumption of alcoholic beverages, restricted drugs, or intoxication or impairment in a public place;
13. other conduct that is prohibited or proscribed by University rule, regulation or policy;
14. contravention of any provision of any federal, provincial or municipal, statute on University premises or while engaged in University authorized events or activities.

E. The University of New Brunswick Act provides broad authority for dealing with non-academic student conduct. For example:

1. the President has broad discretionary disciplinary powers including suspension for dealing with academic and non-academic disciplinary matters;
2. the Board of Deans has jurisdiction for matters of student discipline;
3. the Board of Governors may approve the expulsion of a student from the University;
4. the Board of Governors may make rules and regulations for the discipline of students and the imposition of fines and other penalties and sanctions; the Student Disciplinary Code and the Internal Residence Discipline Policy are examples.

F. As a general principle, the various authorities for dealing with student discipline shall be exercised so as to avoid the imposition of punishment by more than one authority for the same or an included offence.

This principle shall not preclude University authority being exercised to suspend a student from the University, or to suspend or evict a student from a University residence, pending or following the imposition of discipline, where such action is deemed to be in the best interests of the University community.

This principle is not intended to preclude a student organization from taking action against a student in accordance with its constitution and bylaws on the same facts giving rise to disciplinary action under University authority.

G. Information regarding University disciplinary regulations and procedures is available from the offices of the Director of Student Affairs and Services, the Director of Security and Traffic, the Chief of Student Campus Police, and the Commissioner of Student Discipline on the UNBF campus and from the Director of Student Services and the Manager of Safety and Security on the UNBSJ Campus.

When students believe that a member of the University community has violated the principles stated in B above in relation to them, or where students are uncertain about whether behaviour they are contemplating may violate University regulations, they should consult the Chair of their Department, or the Dean of their Faculty, or the Director of Student Affairs and Services (UNBF), or the Director of Student Services (UNBSJ), or the Director of Security and Traffic (UNBF), or the Manager of Safety and Security (UNBSJ), or the Chief of Student Campus Police, or the Commissioner of Student Discipline, as appropriate.

UNDERGRADUATE FEES AND FINANCIAL INFORMATION

The University reserves the right to make changes, without notice, in its published rates of tuition, residence and other fees including regulations for the payment thereof.

Please Note:

Complete 2015-2016 tuition, residence and other fees are available online at: www.unb.ca/services/financialservices/students/

Fees are applicable to both Fredericton and Saint John Campuses.

The University will waive tuition fees only for both full and part time students that are considered by the CNIB as legally blind, upon presentation of proof to the Financial Services Office.

For graduate fees, see School of Graduate Studies Calendar, or the Graduate School website at http://www.unb.ca/gradschl

FEE PAYMENT OPTIONS FOR UNB STUDENTS

WHEN CAN FEES BE PAID?

Payment of fees can be made at any time during the months of May, June, July, August and until September 15, 2015 for Fall term and January 12 , 2016 for Winter term. Students who have not paid or made satisfactory arrangements with Financial Services by the due date will be charged a Late Payment Fee of $50 and may have their course selections and IT services cancelled. Such students will be required to register again once fees have been paid. There is a $100 re registration fee to have you added back into your courses after payment has been made. To avoid line ups you are encouraged to settle your account as early as possible using one of the options below.

For All Students:

Credit Card:

The University of New Brunswick has partnered with Plastiq to allow you to make tuition and other payments with credit card through their online system, effective August 1, 2013. Please click **here** for details.

Online/Telephone Banking Through Your Financial Institution:

1. You may pay your student tuition through Online or Telephone Banking as if you are paying a utility bill:

   Contact your bank to ensure you are set up for online/telephone banking if you are not currently using the service

   Add **'University of New Brunswick as a Payee'** on your payment profile

   Use your Student ID Number as your account number

   Enter the amount to be paid and the date on which you would like to pay

   Complete the transaction as if you are paying a utility bill

2. You must post date your payment to the tuition payment deadline. Most financial institutions will accept post dated online/telephone banking payments. Keep in mind that it may take 2-3 business days for UNB to receive your payment from the financial institution.

3. If you do not pay your tuition by the deadline, your student account will be assessed a Late Payment Fee of $50 as well as an interest charge of 12% per annum.

4. Online banking is available at the following institutions: Royal Bank, BMO, CIBC, Scotia, TD/Canada Trust, HSBC, Capital Credit Union, and others.

5. If you are having difficulties setting up your payee account, your bank will be able to assist you.

6. If you currently use a bank and University of New Brunswick is not set up as a payee, please advise us (506) 453-4624 or stufees@unb.ca. We will contact the bank for you and arrange to have UNB set up as a payee where possible.

International Payments (RECOMMENDED for International Students):

1. International students can now pay using Global Pay for Students.

2. This is a fast, safe and easy way to pay.

3. To use this option, visit the following website at: http://www.unb.ca/financialservices/students/paymentoptions/internationalpayments.html

Cheque / Money Order / Bank Draft:

1. Please make all payments payable to "University of New Brunswick". You **must** include student name and student number with your payment.

2. Please complete the Fee Payment form if you are mailing in a payment. This form is located at:

   http://www.unb.ca/financialservices/_resources/pdf/student-accounts/fee_payment_form.pdf

3. To send payment through regular mail to the campus where you are registered:

Fredericton

University of New Brunswick
c/o Student Accounts & Receivable Services
Financial Services
PO Box 4400
Fredericton, NB, E3B 5A3

Saint John

University of New Brunswick
c/o Financial Services/Student Accounts
PO Box 5050
Saint John, NB, E2L 4L5

4. **To make a payment in person:**

Fredericton

Student Accounts & Receivable Services
IUC Building, 8 Bailey Drive
Fredericton, NB

Hours:

Mon - Fri 9:30 - 4:15 (Sept 2-May 15)
Mon - Fri 9:30 - 3:45 (May 19-Sept 4)

Saint John

Financial Services/Student Accounts
Oland Hall, Room 137
Saint John, NB

Hours:

Mon - Fri 9:00 - 4:30 (Sept 2-May 15)
Mon - Fri 9:00 - 4:00 (May 19-Sept 4)

5. Payment is due in our office no later than the payment deadline.

6. Any cheque returned by the bank must be replaced by cash, certified cheque or money order and must include payment of a $25.00 NSF charge that will be placed on the account.

In Person Debit Card/Cash:

1. If you prefer to pay in person with a debit card or cash, visit our cashiers at the above locations. Please have your student ID card with you.

2. For debit card payments, be sure to check with your bank to ensure your card has the appropriate limit in order to pay your fees. Most Financial Institutions are able to increase your daily limit temporarily.

Federal and Provincial Student Loans:

Students who apply for and are granted federal or provincial student loans can use these funds to pay their tuition and fees. For Information on how to apply for student loans, please visit the following website: http://www.canlearn.ca/eng/index.shtml

Most Provincial and Federal loans are now being processed on-line. This allows the University to electronically deduct the amount owing to the University from your loan as long as your course registration is complete. Fees will be deducted based on your course registration at the time your loan is electronically received.

If you are aware that your loan is going to be delayed for any reason, and that you may not make the payment deadline, it is your responsibility to provide a proof of assessment notice confirming your funding or a down payment to the appropriate campus to avoid applicable late fees and/or penalties

Payment Arrangements:

1. UNB offers down payment and monthly payment arrangements.

2. All payment plans MUST be arranged by the fee payment deadlines.

3. Please visit Financial Services on either campus and speak to a cashier about making an arrangement. At that point, you may be referred to see one of the Supervisors or Financial Aid.

4. You will be required to make a down payment and sign a payment plan agreement at that time.

5. Monthly Interest is charged on outstanding balances.

6. Failure to comply with payment arrangements made above will result in late fees being charged to the account and can result in cancellation of IT services without notice and subsequent deletion of courses.

Contacts for Questions about Fees or Payments:

Fredericton

Tel: (506) 453-4624
Fax: (506) 453-4572
Email: stufees@unb.ca

Saint John

Tel: (506) 648-5543
Fax: (506) 648-5514
Email: sjbusoff@unbsj.ca

Contacts for Financial Aid:

Fredericton

Tel: (506) 453-4796
Fax: (506) 453-5020
Email: finaid@unb.ca
Website: www.unbf.ca/financialaid/

Saint John

Tel: (506) 648-5765
Fax: (506) 648-5816
Email: rsleep@unbsj.ca
Website: www.unbsj.ca/prospective/finances.html

UNB FREDERICTON

Undergraduate Tuition & Student Fees

PLEASE NOTE: All tuition, residence and other fees contained in this section are based on 2015-2016

Tuition & Residence Fees Must Be Paid By September 15, 2015 to avoid the Late Payment Fee charge, cancellation of IT services and subsequent deletion of courses. Course charges will be incurred up to the official withdrawal date. Please see Section C of the calendar for the UNB Refund Policy.

All Full Time Undergraduates attending Fall and Winter terms registered in the equivalent of 4 courses(or more) per term.			
	FALL Due Sept 15, 2015	WINTER Due Jan12, 2016	TOTAL
Tuition	$3093.50	$3,093.50	$6,187.00
Student Union Fee	$57.50	$57.50	$115.00
"The Brunswickan"	$6.50	$6.50	$13.00
CHSR Radio	$7.50	$7.50	$15.00
Health Fee	$26.00	$26.00	$52.00
Student Health Insurance (single rate-see notes* for family rates)	$142.00	$0	$142.00
Student Dental Insurance (single rate-see notes* for family rates)	$118.00	$0	$118.00
Technology Fee - to find out more see http://www.unbf.ca/its/students/techfee/	$26.00	$26.00	$52.00
Facilities Improvement Fee	$92.75	$92.75	$185.50
Facility Access Fee	$78.00	$78.00	$156..00
Installment Fee	$30.00	0	$30.00
TOTAL FOR CANADIAN STUDENTS	$3667.75	$3377.75	$7045.50
INTERNATIONAL STUDENTS ADD			
International Differential Fee	$3746.50	$3746.50	$7493.00
International Health**	$966.00	0	$966.00
TOTAL FOR INTERNATIONAL STUDENTS	$8380.25	$7124.25	$15504.50
ADDITIONAL FEES THAT MAY APPLY TO ALL STUDENTS			
Software Eng., Geological Eng. & Foest Eng. Program Fee	$250.00	$250.00	$500.00
All other Engineering Program Fees	$500.00	$500.00	
Faculty of Law	$1,825.00	$1,825.00	$3,650.00
BBA Program Fee	$50.00	$50.00	$100.00
First Year Orientation Fee	$65.00		$65.00
	$500.00	$500.00	$500.00
	$100.00	$100.00	$100.00
	$50.00	$50.00	$50.00

BED Practicum Fee (Only applies to one term)
Online Fee per course

Tele Distance Fee (per course)

* Additional Family Health and Family Dental can be arranged by contacting the Student Union. Health and Dental Insurance opt- outs must be done online at http://www.wespeakstudent.com/. For more information please visit their website or contact the Student Union Office at (506) 453-4955. Opt-outs must be completed **by September 18, 2015** for the fall term or **January 22, 2016** for the winter term.

** Health insurance rates for international students are based on the 12 month single rate of $906.00. Please refer to the International Health Insurance Table for family and other rate options. An International Health Application form must be completed each year and forwarded to Financial Services, Fredericton, IUC Physics & Administration Building, 8 Bailey Drive, Room 001.

2015-2016 INTERNATIONAL HEALTH INSURANCE			
	12 Months	8 Months	4 Months
Registered Student (Mandatory)	$966	$644	$322
Registered Student +1 Family (optional)	$1,932	$1,288	$644
Registered Student +2 Family (optional)	$2,898	$1,932	$966
Registered Student +3 Family (optional)	$3,864	$2,576	$1,288
Registered Student +4 Family (optional)	$4,830	$3,220	$1,610
Registered Student + 5 Family Members	$5,796	$3,864	$1,932
It is mandatory for International Students to participate in the UNB offered International Student plan. Only students who are accepted into the NB Medicare program, can ask for an exemption.			

NURSING PROGRAM (Bathurst and Moncton campuses) - attending both Fall and Winter terms.			
	FALL Due Sept 15, 2015	WINTER Due Jan 16, 2015	TOTAL
Tuition	$3,093.50	$3,093.50	$6,187.00
Student Union Fee	$23.75	$23.75	$47.50
Student Health Insurance (*see notes below for opt out provision)	$142.00	$0	$142.00
Student Dental Insurance (*see notes below for opt out provision)	$118.00	$0	$118.00
Technology Fee- to find out more see http://www.unbf.ca/its/students/techfee/	$26.00	$26.00	$52.00
Instalment Fee (deducted if both fall and winter paid by Sept 13, 2013	$30.00		$30.00
TOTAL FEES	$3,3433.25	$3,143.25	$6,576.50
Supplemental Fees			
International Health Insurance**	$966.00		$966.00

CO-OP or PEP Work Term (EITHER Fall or Winter term)		
	FALL	WINTER
Tuition	$730.00	$730.00
Student Health Insurance (*see note below for opt out provision and family rates)	$142.00	$0
Student Dental Insurance (*see note below for opt out provision and family rates)	$118.00	$0
TOTAL CO-OP or PEP FEES	$990.00	$730.00
Supplemental Fees		
International Health Insurance**	$966.00	$966.00

PART TIME STUDENTS (The equivalent of 3.5 courses or less per term)		
	Per Term Course (0-5 credit hours)	Per Year Course (6-11 credit hours)
Tuition	$619.00	$1238.00
ALPS	$10.00	$20.00
CHSR	$1.50	$3.00
Technology Fee	$5.00	$10.00
Brunswickan	$1.00	$2.00
Facilities Improvement Fee	$17.75	$35.50
TOTAL COURSE FEE	$654.25	$1308.50
Supplemental Fees		
International Differential Fee	$749.00	$1498.00
International Health Insurance**	$966.00	$966.00
Software Eng., Geological Eng & Forest Eng Program Fee	$50.00	$100.00
All Other Engineering Program Fees	$100.00	$200.00
Law Program Fee	$365.00	$730.00
BBA Program Fee	$10.00	$20.00
Online fee per course	$100.00	$100.00
Teledistance Fee (per course)	$50.00	$100.00
PART TIME STUDENTS MUST PAY FEES IN FULL BY THE TUITION FEE DUE DATES BY: CASH, CHEQUE, MONEY ORDER, DEBIT CARD, ON-LINE BANKING, or STUDENT LOAN.		
*one time fee only; not per course		

CANADA STUDENT LOANS FOR NEW BRUNSWICK STUDENTS

Canada Student Loans for New Brunswick students will be processed online mid August. Course registration process MUST be
completed. **If a loan has not been electronically received by the payment due date, the student must provide an assessment notice and/or a down payment to avoid the Late Payment Fee charge and/or losing IT Access and course deletion.**

SCHOLARSHIPS

Scholarships, awarded by the University, will be applied to the student's account as a credit, in equal amounts, by the term. Any student paying fees
by the term should reduce the amount paid at Registration by half the amount of the scholarship.

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2015-2016 FREDERICTON RESIDENCE FEES

FREDERICTON RESIDENCE FEES
FOR A SIGNED DOUBLE TERM AGREEMENT

Applies to:	Aitken, Bridges, Harrison, Jones, McLeod, Neill, Neville, Lady Dunn, Kidd, and Tibbits				
	Room Type	Room Deposit Due May 15/14	Due Sept 15/15	Due Jan 12/16	Total
Infinite Meal Plan** (with $100 cash)	Suite + Special Single* Single Special Double^ Double	$300	$7,089 $7,045 $6,539 $5,813 $5,391	$4,392 $4,469 $4,096 $3,706 $3,479	$11,781 $11,714 $10,935 $9,819 $9,170
200 Meal Plan ** (with $300 cash)	Suite + Special Single* Single Special Double^ Double	$300	$7,179 $7,135 $6,629 $5,903 $5,481	$4,302 $4,279 $4,006 $3,616 $3,389	$11,781 $11,714 $10,935 $9,819 $9,170
Applies to:	Maggie Jean				
Without Meals	Single Special Double^ Double	$300	$3,886 $3,179 $2,947	$2,270 $1,890 $1,765	$6,456 $5,369 $5,012

For LBR - Deduct $10 for September and $5 for January payments as there is RESNET and Cable in rooms but no RESNET lab. At houses request.

* Special rate applies to a single room with bath and single occupancy of a double room.
^ Double room with bathroom
** Meal cards do not include Christmas and March breaks.

Deposits				
Proctors	Due May 15/14	Due Sept 13/14	Due Jan 16/15	Total
Infinite Meal Plan 200 Meal Plan	$300 $300	$2,420 $2,510	$1,850 $1,760	$4,570 $4,570

Proctors are exempt from the "Room Charge" portion of the Residence fees, but are required to pay all applicable house fees, including meals, house dues, resnet, damage and key deposit. The $300 Room Deposit paid, is deducted from the fall portion of the meal charges.
All houses except LBR have Full RESNET
For LBR - Deduct $10 from September and $5 from January payments as RESNET and Cable in rooms but no RESNET Lab at houses request

FREDERICTON RESIDENCE FEES
FOR A SIGNED SINGLE TERM AGREEMENT FOR FALL 2015

		Deposits		
	Room Type	Due May 15/15	Due Sept 15/15	Total
Applies to:				
Infinitie Meal Plan** (with $100 cash)	Suite + Special Single* Single Special Double^ Double	$300 $300 $300 $300 $300	$7,039 $6,995 $6,489 $5,673 $5,341	$7,339 $7,295 $6,789 $6,063 $5,641
200 Meal Plan** (with $150 cash)	Suite + Special Single* Single Special Double^ Double	$300 $300 $300 $300 $300	$7,029 $6,985 $6,479 $5,753 $5,331	$7,329 $7,285 $6,779 $6,053 $5,631
Applies to: Maggie Jean				
Without Meals	Single Special Double^ Double	$300 $300 $300	$3,886 $3,179 $2,947	$4,186 $3,479 $3,247

For LBR - Deduct $10 for September payment as there is RESNET and Cable but no RESNET Labs.
For MacKenzie - Deduct $33 for September payment as there is no cable TV in ro

+ Double sized single room with bathroom.   * Special rate applies to a single room with bath and single occupancy of a double room.

^ Double room with bathroom   ** Meal cards do not include Christmas and March breaks.

Deposits			
Proctors	Room Due May 15/15	Due Sept 15/15	Total
Infinite Meal Plan	$300	$2,564	$2,864
200 Meal Plan	$300	$2,654	$2,954

FREDERICTON RESIDENCE FEES
FOR A SIGNED SINGLE TERM AGREEMENT FOR WINTER 2016

		Deposits		
	Room	Due Nov 15/15	Due Jan 12/16	Total
Applies to:				
Infinite Meal Plan** (with $50 cash)	Suite +	$300	$4,841	$5,141
	Special Single*	$300	$4,818	$5,118
	Single	$300	$4,545	$4,845
	Special Double^	$300	$4,155	$4,455
	Double	$300	$3,928	$4,228
200 Meal Plan** (with $150 cash)	Suite +	$300	$4,831	$5,131
	Special Single*	$300	$4,808	$5,108
	Single	$300	$4,535	$4, 835
	Special Double^	$300	$4,145	$4, 445
	Double	$300	$3,918	$4,218
Applies to:				
Without Meals	Single	$300	$2,270	$2,570
	Special Double^	$300	$1,890	$2,190
	Double	$300	$1,765	$2,065

For LBR - Deduct $5 for January payment as there is RESNET and Cable but no RESNET Labs.
For MacKenzie - Deduct $17 for January payment as there is no cable TV in rooms.

+ Double sized single room with bathroom.   * Special rate applies to a single room with bath and single occupancy of a double room.

^ Double room with bathroom   * Meal cards do not include Christmas and March breaks.

Deposits			
Room			
Proctors	Due Nov 30/14	Due Jan 16/15	Total
Infinite Meal Plan	$300	$2,420	$2,720
200 Meal Plan	$300	$2,510	$2,810

FREDERICTON SUITE RESIDENCE
Each 12 month agreement includes $400 Meal Cash

Deposits				
Room				Total
Room Type	Due May 15/15	Due Sep 15/15	Due Jan 12/16	
Single	$300	$4,845	$2,609	$7,754
2 Bedroom	$300	$4,170	$2,246	$6,716
3 Bedroom	$300	$3, 759	$2, 024	$6,083

UNB SAINT JOHN
2015-2016 Undergraduate Tuition & Student Fees

All dates below are the appropriate dates for the Academic year of 2015-2016. The University reserves the right to make changes, without notice, in its published rates of tuition, residence and other fees including regulations for the payment thereof.

Please Note:

Complete 2015-2016 tuition, residence and other fees are available online at: www.unb.ca/services/financialservices/students/
Fees are applicable to both Fredericton and Saint John Campuses.
The University will waive tuition fees only for both full and part time students that are considered by the CNIB as legally blind, upon presentation of proof to the Financial Services Office.

Tuition & Residence Fees Must Be Paid By September 15, 2015 to avoid the Late Payment Fee charge, cancellation of IT services and subsequent deletion of courses. Course charges will be incurred up to the official withdrawal date. Please see Section C of the calendar for the UNB Refund Policy.

All Full Time Undergraduates attending Fall and Winter terms registered in the equivalent of 4 courses (or more) per term			
	FALL Due Sept 15, 2015	WINTER Due Jan 12, 2016	TOTAL
Tuition	$3,093.50	$3,093.50	$6,187.00
Student Representative Council Fee	$70.00	$70.00	$140.00
"The Baron"	$10.00	$10.00	$20.00
CFMH Radio	$10.00	$10.00	$20.00
Student Health Insurance (*see note below opt out provision and family rates)	$142.00	$0	$142.00
Student Dental Insurance (*see note below opt out provision and family rates)	$118.00	$0	$118.00
Health Fee	$26.00	$26.00	$52.00
Technology Fee - to find out more see http://www.unbf.ca/its/students/techfee/	$26.00	$26.00	$52.00
Facilities Improvement Fee	$92.75	$92.75	$185.50
Instalment Fee (deducted if both fall and winter paid by Sept 13, 2013)	$30.00		
TOTAL FEES	$3,620.75	$3,330.75	$6,951.50
INTERNATIONAL STUDENTS ADD			
International Differential Fee	$3859.00	$3859.00	$7,718.00
International Health Insurance**	*966.00	$0	$966.00
TOTAL FOR INTERNATIONAL STUDENTS	$8,445.75	7189.75	$15,635.50
ADDITIONAL FEES THAT MAY APPLY TO ALL STUDENTS			
Software Eng, Geological Eng & Forest Eng. Program Fee	$250.00	$250.00	$500.00
All other Engineering Program Fees	$500.00	$500.00	$1000.00
First Year Orientation Fee	$40.00		$40.00
Online Fee (per course)	$100.00	$100.00	$100.00
Teledistance Fee (per course)	$50.00	$50.00	$50.00

* Additional Family Health and Family Dental can be arranged by contacting the SRC Office. Health and Dental Insurance opt-outs must be done online at http://www.wespeakstudent.com/. For more information please visit their web site or contact the Students' Representative Council at (506) 648-5684. Opt-outs must be completed by **September 18, 2015** for fall term or **January 22, 2016** for the winter.

* *Health insurance rates for international students are based on a 12 month single rate of $906.00. Please refer to the International Health Insurance Table for family and other rate options. An opt-out must be completed at Financial Services by **September 18, 2015** for Fall term or **January 22, 2016** for Winter term.

CO-OP Work Term (EITHER Fall or Winter term)		
	FALL	WINTER
Tuition	$730.00	$730.00
Student Health Insurance (single rate-see notes * for family rates)	$142.00	$0
Optional Dental Insurance (single rate-see notes* for family rates)	$118.00	$0
TOTAL CO-OP FEES	$990.00	$730.00
Supplemental Fees		
International Health Insurance**	$966.00	$0

PART TIME STUDENTS (The equivalent of 3.5 courses or less per term)		
	Per Term Course (0-5 credit hours)	Per Year Course (6-11 credit hours)
Tuition	$619.00	$1238.00
Student Rep Coucil	$13.50	$27.00
CFMH	$2.00	$4.00
Baron	$2.00	$4.00
Technology Fee	$5.00	$10.00
Facilities Improvement Fee	$17.75	$35.50
TOTAL COURSE FEE	$659.25	$1,318.50
Supplemental Fees		
International Differential Fee	$771.00	$1,542.00
International Health Insurance**	$966.00	$966.00
Software Eng., Geological Eng & Forest Eng Program Fee	$ 50.00	$100.00
All other Engineering Program Fees	$100.00	$200.00
Online Fee (per course)	$100.00	$100.00
Teledistance Fee (per course)	$50.00	$100.00

2015-2016 INTERNATIONAL STUDENT HEALTH INSURANCE			
	12 Months	8 Months	4 Months
Registered Student (Mandatory)	$966	$644	$322
Registered Student +1 Family (Optional)	$1,932	$1,288	$644
Registered Student + 2 Family (Optional)	$2,898	$1,932	$966
Registered Student + 3 (optional)	$3,864	$2,576	$1,288
Registered Student + 4 Family (optional)	$4,830	$3,220	$1,610
Registered Student + 5 Family	$5,796	$3,864	$1,932

It is mandatory for International Students to participate in the UNB offered International Student plan. Only students who are accepted into the NB Medicare program, can ask for an exemption.
http://www.unb.ca/services/financialservices/students/interhealthinfo.htm

CANADA STUDENT LOANS FOR NEW BRUNSWICK STUDENTS

Canada Student Loans for New Brunswick students will be processed online mid August. Course registration process MUST be completed. **If a loan has not been electronically received by the payment due date, the student must provide an assessment notice and/or a down payment to avoid the Late Payment Fee charge and/or losing IT Access and course deletion.**

SCHOLARSHIPS

Scholarships, awarded by the University, will be applied to the student's account as a credit, in equal amounts, by the term. Any student paying fees by the term should reduce the amount paid at Registration by half the amount of the scholarship

SAINT JOHN RESIDENCE FEES

PLEASE NOTE: SEPTEMBER & JANUARY PAYMENTS INCLUDE $25 HOUSE DUES.

Sir James Dunn Residence				
ROOM TYPE	DEPOSIT DUE MAY 15/215	DUE SEPT 15/2015	DUE JAN 12/2016	TOTAL
Super Single	$300	$3,685.00	$3,985.00	$7,970.00
Large-Single	$300	$3,624.00	$3,924.00	$7,848.00
Single	$300	$3,458.00	$3,758.00	$7,516.00
Double	$300	$3,197.00	$3,497.00	$6,994.00
Dr. Colin B. MacKay Residence				
Option 1	2 Bedroom Suite	$300	$2,603.00	$2,903.00	$5,806.00
Option 2	2 Bedroom Suite	$300	$2,853.00	$3,153.00	$6,306.00

*NOTE:

Additional buy-ins to meal cards are available at any time, at a minimum level of $25.00.

Students entering residence in January 2016 must pay fees by January 12, 2016.

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NOTES TO FEES TABLES

All dates below are the appropriate dates for the Academic year of 2015-2016. The University reserves the right to make changes, without notice, in its published rates of tuition, residence and other fees including regulations for the payment thereof.

OTHER ACADEMIC FEES

Application Fee (all faculties) - non- refundable	$ 55.00
Admission Deposit - non-refundable	$ 100.00
Late Payment Fee	$50.00
Re Registration Fee	$ 100.00
Fredericton Orientation Fee (first year out of High School students)	$ 65.00
Saint John Orientation Fee (first year out of High School students)	$ 40.00
Challenge for Credit Examinations	25% of normal course fees
Review of Final Course Grade	$ 15.00
Transcript Fee	$ 10.00
Graduation Fee	$ 35.00

(Note: A deposit of $60 is required for the use of graduation regalia.
Upon return of the regalia, $25 is refunded.)

Tuition Fees cover all the normal costs of the University for registration, libraries, creative arts, athletics and regular examinations during a full academic year. Part-time students may pay fees by the course, to a maximum of three courses per term. (see Definition of Full-time and Part-time Student below)

Definition of Full-time and Part-time Student. Determination of a student's status as full-time in a term will be based on the following criteria:
1. A student carrying the equivalent of four or more courses in a term is a full-time student:
2. A student carrying less than the equivalent of four courses in a term is a part-time student:

The "equivalent number of courses" carried by a student in a term is determined as follows:
a. a term course, weighted at 0-5 credit hours, is the equivalent of one course;
b. a term course, weighted at 6-11 credit hours, is the equivalent of two courses;
c. a term course, weighted at 12 or more credit hours, is the equivalent of four courses;
d. a full-year course, weighted at 0-5 credit hours, is the equivalent of one-half course in each of the two terms;
e. a full-year course, weighted at 6-11 credit hours, is the equivalent of one course in each of the two terms;
f. a full-year course, weighted at 12-17 credit hours, is the equivalent of two courses in each of the two terms;
g. a full-year course, weighted at 18 or more credit hours, is the equivalent of three courses in each of the two terms;
h. an audited course is one-half the course equivalent of the same course taken for credit.

Audit. Part-time students may audit courses with registration and payment of 50% of the undergraduate tuition fees unless auditing with enrolment restrictions. (Where priority is given to the student wanting to take the course for credit.)

Differential Fees. Full-time students who are not Canadian citizens or landed immigrants will be required to pay a fee differential of $7,275.00. Part-time non-Canadian or non-resident students must pay a fee of $728.00 per term course payable in full at registration. Students who receive landed immigrant status will have their differential fees adjusted for the term in which the landed status occurs.

Work Term Fees . Students participating in a Co-op Program or Professional Experience Program (Engineering) will be required to register and pay work term fees. Participants will be required to pay the student health insurance fee ($260.00) at the time of registration. The PEP work term fee and Co-op work term fee are due at the end of the second month. Payments for both work terms received after the applicable date will be subject to late fees and interest charges.

Faculty of Education Out-of-Province Internship. The Faculty of Education may make arrangements for students seeking out-of-province Field Studies practicums. Students undertaking out-of-province placements will be assessed an out-of-province intern differential fee of $500.00. Further information is available from the Chair of Student Teaching.

Application Fee. An application fee of $55 must accompany all applications. This fee is non-refundable.

Admission Deposit. A non-refundable confirmation deposit of ($100) in the form of a certified cheque, money order, Visa, Master Card, or American Express is payable to Admission Office, UNB, as a confirmation of acceptance. The first term tuition payment can be reduced as a result of this advance payment. Effective 2009-2010, the admission deposit for the Nursing Program is $250. The deposit will be forfeited if the student decides not to attend UNB, but it would be reimbursed if proof is provided that a student visa could not be obtained.

Late Payment Fee . A Late Payment Fee of $50 will be charged to all students who fail to pay fees or to negotiate their student loan by the published payment due dates.

Re Registration Fee. Course registrations may be cancelled if a student fails to negotiate his/her student loan or make payment arrangements by the required payment due dates. A Re Registration Fee of $100 will be applied to the student's account when the student's course registrations have been deleted and the student requires re-registration into their courses.

Non Sufficient Funds (NSF) Fee. An NSF fee of $25 will apply to any cheque or financial transaction which is returned by the bank (for any reason).

Health and Accident Insurance. Students should refer to "Section D - Accomodation and Services" of this calendar for details of available health and dental coverage.

Student Organization Fees. Full-time undergraduate students in Fredericton and Saint John will pay student association fees for 2014-2015, in the amounts of $47.50 per term and $70.00 per term respectively. Part-time students in Fredericton will be represented by ALPS (Adult Learners and Part-time Students). The compulsory fee for all Fredertion part-time students will be $10 per term course. The compulsory fee for all Saint John part-time students will be $13.00 per term course.

Residence Fees - Fredericton The Fredericton Residence Fees include both room and dining (various dining plans including structured meals and some discretionary dining cash) and cover a period from the day the residences open in the fall (date differs for new and returning students) until the day after the student's last regularly scheduled examination in December, and from the day before classes start in January until the day after the student's last regularly scheduled examination in the spring. Residential meals are served (in one dining hall only) during Thanksgiving Weekend in the first term or during the March Break in the second term. A limited number of rooms are available off campus. (rooms only, no meals)

The University has a limited number of 1, 2 and 3 bedroom apartments restricted to full-time UNB and St. Thomas students. All tenants are required to sign a lease, pay a damage deposit, and issue post-dated cheques for the monthly rent. Interested persons should contact the Residential Life & Conference Services, UNB, P.O. Box 4400, 20 Bailey Dr., Fredericton, N.B., E3B 5A3.

Residence Fees - Saint John The Saint John Residence fees includes a declining balance food plan and covers the period from Labour Day until the day after the students last examination in December, and the day before classes start in January until the day after the students last regularly scheduled examination in the Spring. All holidays during each term will follow the weekend hourly meal schedule. There is no meal plan food service over the Christmas Break. During March Break the students who remain in residence may continue to use their meal card during the operational hours of food service.

REGULATIONS FOR PAYMENT OF UNIVERSITY FEES

Payment of Fees: Tuition, residence and all applicable fees, are payable on Sept 12/14 in the Fall term and on Jan 17/14 in the winter term for all Fredericton and Saint John Undergraduate Students. Full Time students may pay in two instalments. When such option is exercised, a $30 instalment fee will be charged in the Fall term. The balance will be payable January 16, 2015.
Refer to http://www.unb.ca/financialservices/students/index.html .

Late Payment Fee: A Late Payment Fee of $50 will be charged to all students who fail to pay fees or to negotiate their student loan by the published payment due dates.

Re Registration Fee: Course registrations may be cancelled if a student fails to negotiate his/her student loan or make payment arrangements by the required payment due dates. A Re Registration Fee of $100 will be applied to the student's account when the student's course registrations have been deleted and the student requires re-registration into their courses.

Cancellation of IT Services & Courses: Registration is not complete until all fees have been paid or satisfactory arrangements have been made with Financial Services. Any student who fails to pay the required fees or to make satisfactory arrangements by the payment due dates will have his/her IT Access frozen and course selections cancelled; such students will be required to register again once fees have been paid. The Re Registrarion fee of $100 will apply.

Interest on Student Accounts: Interest is calculated at an annual rate of 12.0%. Interest may be incurred anytime after the due date. Interest is calculated based on the daily account balance and charged monthly.

Delinquent Account: Degrees, grades and transcripts will be withheld for students and former students who have failed to meet their financial obligations. Such students will not be permitted to register again until all overdue accounts have been paid. At the discretion of Financial Services, delinquent student accounts will be referred to a collection agency.

Scholarships: University awards and scholarships will be applied to the student's account as a credit, in equal amounts, by the term. The full dollar value of awards and scholarships may be used by students paying the entire year's fees in the first term. Any scholarship amount greater than the fees due will be refunded upon request.

Government Student Loans:

Most Provincial and Federal loans are now being processed on-line. This allows the University to electronically deduct the amount owing to the University from your loan as your

course registration is complete. Fees will be deducted based on your course registration at the time your loan is electronically received.

1. If you are aware that your loan is going to be delayed for any reason, and that you may not make the payment deadline, it is your responsibility to provide proof of assessment notice or a down payment to the appropriate campus to avoid applicable late fees and/or penalties.
    *   In Fredericton, advise Financial Services in person or call (506) 453-4624
    *   In Saint John, advise Financial Services or Financial Aid at (506) 648-5501

Students are encouraged to check their UNB student web statements regularly in order to monitor that tuition is paid.

If a loan has not been electronically received by the fee payment due date, the student must provide an assessment notice and/or a down payment to avoid applicable late fees and/or losing IT access and course deletion.

Tax Receipts : For tax purposes, Revenue Canada Tuition and Education Credit Certificates (T2202A) will be available through the student web portal before the end of February. T2202As will only be mailed to those students who do not have an active PIN. IT access remains active for a period of one year after the last term of attended courses.

UNIVERSITY REFUND POLICY

A student who wishes to withdraw from a course(s) must do so on-line or notify the Registrar in writing. Ceasing to attend lectures or notifying the instructor does not constitute official withdrawal. The effective date will be the on-line withdrawal date or the approved date as indicated by the Registrar. Students will be charged the appropriate pro-rated fee up to the drop date as outlined below.

Students may drop and add courses up to the last day to add for the term without being charged a pro-rated fee. Courses dropped after the last day to add will be subject to pro-rated tuition fees from the first week of classes up to the withdrawal date shown on the student academic record. The Technology Fee, Facility Improvement fee and Health fee are pro rated. All other compulsory fees are not pro-rated and are non-refundable.

For students enrolled in online courses, please be aware that refund rules vary from regular term courses due to the extra timeframe allowed to complete. For more information on OALP refunds, please visit the College of Extended Learning website at: http://extend.unb.ca/oalp/oalp_gen_info.php

The minimum administrative charge for all refunds will be $25 for full-time students and $10 per three-credit hour course, to a maximum of $25 for part-time students.

Students who are funded by government student loans should be aware that dropping courses may impact loan funding. Students are advised to check with the Provincial Student Aid Office, UNB Financial Aid Office or UNB Financial Services for more information.

Refunds will not be issued if the effective withdrawal date is after:
October 17, 2014 for Fall term courses
February 13, 2015 for Winter term courses

Requests for adjustments or refunds for a previous term will not be considered after September 1 of the following year.

Refunds are processed by request ONLY. To receive a refund please call (506) 453-4624 or email: finserv@unb.ca . Processing time for refunds is 2-3 weeks.

Refunds are issued in the student's name regardless of who made the original payment except for where Government Student Loans are involved.

There is a $50.00 Administrative charge for wiring International refunds.

Note: Please refer to Summer Session calendar for relevant add/drop dates.

REGULATIONS FOR THE PAYMENT OF RESIDENCE FEES

FREDERICTON

1. To reserve a room, all students will be required to pay a $300.00 room deposit by May 15th, by cheque, money order, MasterCard, American Express or VISA. Students who have paid a room deposit but send written notice of cancellation to Residential Life & Conference Services receive refunds as follows:

   · a refund of $150 if the written notice is received on or before July 31. The balance of $150 is not refundable.

   · a refund of $50 if the written notice is received after July 31 but on or before August 20. The balance of $250 is not refundable.

   · no refund if the written notice is received after August 20. The entire deposit is forfeited if the student cancels after August 21, fails to take up the reserved accommodation or enters and then subsequently withdraws from residence.

2. Any student who occupies their room late for any reason, with a room reservation and the deposits paid, will be responsible for full Fall Term payment.

3. Except as in 2 above, residence fees for students moving into residence 10 or more days after the beginning of the Fall Term will be the advance deposit plus the amount due on September 12, 2014, less the appropriate per diem from the 1st day to the date of occupancy. This is due in full before moving into residence.

4. Residence fees for students who enter residence in the Fall Term and are permitted to withdraw from residence before the end of the Fall Term will be the advance deposit plus the residence charges resulting from the Residence Refund Policy being applied as of the date of withdrawal.

5. Residence fees for students who enter residence in the Fall Term and are permitted to withdraw from residence during the Winter Term will be the advance deposit plus the amount due September 12, 2014, plus the Winter Term residence charges resulting from the Residence Refund Policy being applied as of the date of withdrawal.

6. Residence fees for students who enter residence in the Fall Term who request and are granted permission to leave residence at Christmas will be the advance deposit plus the amount due September 13, 2013. Students wanting such permission should apply in writing no later than December 2, 2014 and, if their request is approved, leave residence no later than December 20, 2014. Failure to do so will result in residence fees being charged based upon a Winter Term withdrawal (Section 6 above).

7. Students who leave residence during either term, but who continue as students at the University, may be liable for the room rent portion of the residence fees for the remainder of their residence agreement.

8. The full Residence Refund Policy may be seen at UNB Financial Services or Residential Life & Conference Services but some approximate examples are shown below for a full year residence agreement. Please note that refunds are applied to fees exclusive of the forfeited $300 residence room deposit.

Date Leaving	Sep.30	Oct.31	End of Fall Term	Jan.01	Jan.31	Feb.28	End of Winter Term
Refund (% of Full Year Fees)	75%	50%	After Nov.15: 35%	30%	15%	5%	After Mar.15: 0%

SAINT JOHN

1. To reserve a room, all students will be required to pay a non-refundable deposit of $300, in the form of a certified cheque, money order, MasterCard, American Express or Visa.

2. On or before the 1st day of classes in September all students in residence will be required to pay their first term fees plus $300 advance deposit. The balance will be payable by January 16, 2015. Interest will be added to overdue accounts at the rate of 12.0% per annum or 1.00% per month.

3. The date of occupancy will normally be Labour Day. There will be no residence fee adjustments for late arrivals.

4. For students without a room reservation and advance deposit prepaid, there will be no adjustments of fees for arrivals up to 10 days after Labour Day. Residence fees for students moving into residence 11 days or more after Labour Day will be the advance deposit plus the appropriate per diem from the date of occupancy. This is due in full and payable at Financial Services/Student Accounts.

5. Residence fees for students who enter residence in the fall term and withdraw from university before the end of the fall term will be the advance deposit plus the appropriate per diem rate from the date of occupancy to the date of withdrawal.

6. Residence fees for students who enter residence in the fall term and withdraw from university during the winter term will be the advance deposit plus the amount due in September, plus the appropriate per diem rate room the beginning of the winter term to the date of withdrawal.

7. Residence fees for students who enter residence in the fall term who request and are granted permission to leave residence at Christmas will be the advance deposit plus the amount due in September. No adjustment to the residence fee will be made. Students wanting such permission should apply in writing no later than December 1, 2014. Failure to do so will result in a $100 surcharge in addition to the above described Fall Term Residence fees if student is given permission to leave residence. Permission is usually granted if the student is required to be away from campus for a co-op work term outside the city limits, or they complete their academic program and leave the university, or they withdraw from university as well as residence.

8. Students who leave residence during either term, but who continue as students at the University, may be liable for the room rent portion of the residence fees for the remainder of the term.

GOVERNMENTAL STUDENT LOANS

Applications, for the current academic year, are available through most Provincial Student Loan Departments anytime after March/April.
For information on Government Student Loans please visit the following website: http://www.canlearn.ca.

For information on Government Loan Assistance for the Province of New Brunswick, please contact Student Financial Services, Department of Post-Secondary Education, Training and Labour, P.O. Box 6000, 5th Floor, TD Tower, 77 Westmorland Street, Fredericton, New Brunswick, E3B 5H1, Toll-Free: 1-800-667-5626/Fax (506) 444-4333, Web site: http://www.studentaid.gnb.ca

Please contact the Fredericton Financial Aid Office by telephone at (506) 453-4796 or link to the Office website at: http://www.unbf.ca/financialaid/ to review resources and services. For Saint John, by telephone at (506) 648-5765 or link to the website at http://www.unbsj.ca/prospective/finances.html, to review resources and services.

Regulations and General Information

All medals, prizes, scholarships and bursaries that are awarded by the University are approved by both Senates. Unless otherwise specified, awards are tenable at the Fredericton and Saint John campuses of the University of New Brunswick.

The University reserves the right not to make an award should there be no suitable candidate.

The University assumes liability for the payment of scholarships, bursaries and prizes only to the extent that gifts from **donors**, or returns from particular investments for these purposes, will permit. Thus, the stated **values** and numbers of certain awards may vary.

Since the Calendar is published a considerable time before the opening of the academic session, the University reserves the right to make whatever changes circumstances may require, including the cancellation of awards.

The Undergraduate Awards Office administers scholarships and bursaries for students enrolled in a minimum of 12 credit hours or 4 courses of undergraduate courses each study term.

Limited scholarship support is available from the College of Extended Learning for Fredericton campus students who attend Summer Term or who attend UNB on a part-time basis. For Saint John campus students, who attend Summer Term, or who attend UNB on a part-time basis, Student Services can provide limited scholarship support.

Scholarships are awarded by the Undergraduate Awards Office to students attending UNB to help them with the financial costs of attending university. The scholarship is paid to the recipient in the form of a credit against the student's UNB tuition and other compulsory fees. Normally, one-half of the scholarship's annual **value** is credited to the student's UNB fees for the Fall and Winter terms, to a maximum of two terms per year (May to April). Students enrolled in the third year of the Bachelor of Nursing Advanced Standing Program may receive the full **value** of their scholarship in one term.

Normally, a student can hold an undergraduate scholarship or bursary as long as s/he is registered in and has paid for four courses, or at least 12 credit hours, during each of the Fall and Winter terms at UNB and has given satisfactory evidence of merit. Scholarship recipients with a documented disability who are registered in a reduced course load may be considered on the recommendation of a UNB Accessibility Counsellor; such students are encouraged to contact the Undergraduate Awards Office to discuss their situation. Since the **value** of the scholarship is based on a minimum of 24 credit hours completed each year, however, the **value** may be prorated for scholarship recipients with a documented disability who are taking fewer than 24 credit hours per year. Students may receive scholarship support from the undergraduate scholarship program for full-time students or the program for part-time students but not from both programs during the same term.

If a scholarship recipient attends only one term during the year (May to April), s/he will receive half the annual **value** of the scholarship as long as s/he has enrolled in 12 credit hours or 4 courses during the one term.

Scholarships are awarded to international students entering UNB on the basis of a recommendation from the Registrar's Office for the admitting campus. Students who must undertake English language training before beginning their academic program may retain their scholarship while studying full-time in the English language training program.

International students who arrive at UNB in the Winter term will have the full **value** of their scholarship applied to that term.

Co-op and PEP work terms qualify as eligible terms for scholarship support.

Normally, a scholarship recipient pursuing academic studies through UNB in the year (May 1 - April 30) in which s/he expects to complete the requirements for an undergraduate degree, and who will not be registered full time in each of the Fall and Winter terms of that year, may be able to retain eligibility for the full amount of the scholarship if s/he meets all of the following **conditions**: a) s/he is registered at UNB in at least four courses (a minimum of 12 credit hours) in either Fall or Winter term and at least one course (a minimum of 3 credit hours) in the other of these two terms; and ,b) the Faculty awarding the degree confirms that the student will qualify for the degree upon successful completion of the courses in which s/he is registered in that year.

In the event that the award exceeds the compulsory fees for the study term, the recipient can request a refund cheque from Financial Services.

To determine whether or not a student is in financial need, consideration is given to family income, number of dependents supported by the family income, number of dependents attending university in the upcoming year, spouse's income, number of student's dependents, student loan and/or other pertinent financial details provided by the student.

Students studying at another institution on a Letter of Permission from UNB normally are not permitted to retain their scholarship.

Students who withdraw from UNB after the refund date will retain their scholarship for the term in question, up to the tuition and compulsory fees owed by the student.

Each recipient will be notified of the terms and **conditions** of the award. If additional information is required, recipients are encouraged to contact the Associate Registrar, Undergraduate Awards, University of New Brunswick, at (506) 453-4894 or email: awards@unb.ca.

Scholarships Open to High School Students

The University of New Brunswick provides scholarships to high school students with superior academic standings who are admitted to a UNB undergraduate degree program on the basis of their high school marks and who have not attended another post-secondary institution prior to coming to UNB.

High school students with high averages who would like to be considered for scholarship support should submit their scholarship application by March 1st. **The one application form covers the majority of UNB scholarships on both campuses for students applying to UNB directly from high school.**

High school students will find the general scholarship application form online at http://www.unb.ca/scholarships/. On the same webpage, special application forms can be found for the **Currie Undergraduate Scholarships** and the **H. Harrison McCain Bursaries,** as well as additional information on external scholarships.

All students who have been admitted to a UNB degree program on the basis of their high school marks are considered for scholarship support ranging from $500 to $80,000. For more information please visit: http://www.unb.ca/scholarships/

UNB calculates a Scholarship Average which is the Admission Average plus bonus points for Grade 11 and 12 enriched courses. Bonus points are added directly to the Scholarship Average, as long as a mark of 75% or higher is achieved in the course.

- one bonus point for 1 to 3 enriched courses;
- a maximum of two bonus points for 4 to 6 enriched courses;
- a maximum of three bonus points for 7 to 9 enriched courses, and
- a maximum of four bonus points for 10 or more enriched courses.

The Scholarship Average is not rounded. The Scholarship Average may be recalculated using Grade 12 final marks, upon request.

Renewable Scholarships

Students holding renewable awards are expected to maintain the academic standing specified in the recipient's original awarding notification. Normally, a 3.7 scholarship grade point average is required for renewal. Failure to maintain the required grade point average will normally result in the loss of the scholarship. In exceptional circumstances, the Senate Undergraduate Scholarship Committee may consider an exemption from the academic requirement to renew the scholarship on the grounds of compassion, health or other extenuating circumstances beyond the control of the student. A student requesting such an exemption must state the grounds on which the request is based and provide documentation to support the grounds cited. A scholarship GPA is defined in the calendar under Section H. Calculation of Grade Point Averages as follows: "…for the purpose of awarding scholarships a Scholarship GPA is calculated at the end of the assessment year (May to April) provided that 24 credit hours or more have been attempted, regardless of program. For students involved in work placement programs such as Co-op or PEP, the scholarship average is calculated using the Dean's List criteria. This GPA is held internally and is not displayed on the student's transcript of record."

If an international student is enrolled full-time in English language training in the first year, s/he will have their scholarship renewed in the second year, as long as s/he enrolls in at least one academic course in the second year.

For international students who are enrolled in English language training and academic courses but have less than 24 credit hours of academic courses in one year, the scholarship grade point average will be the average of the academic courses completed in that year.

One year of a renewable scholarship may be postponed while the recipient is studying at another post-secondary institution, as long as the recipient returns to UNB as a student in an undergraduate degree program. Unless otherwise stated, renewable scholarships are awarded for a maximum of eight terms. Requests for the renewal or deferral of a renewable scholarship under other circumstances may be considered on an individual basis.

Scholarships Open to Second Entry Students

Students transferring to UNB from another post-secondary institution to complete their first undergraduate degree as well as students beginning the Bachelor of Education program on the Fredericton campus may be considered for scholarship support on the basis of their recent academic achievement. The scholarship application is found online at www.unb.ca/scholarships

Students who are admitted to UNB on a basis OTHER THAN their high school marks (such as degree holders, mature students, adult learners, etc.) may be considered for scholarship support when they have completed 24 credit hours at UNB, unless otherwise specified in the scholarship description.

Scholarships Open to Continuing UNB Students
The University of New Brunswick provides scholarships to continuing UNB students who have completed at least 24 credit hours of undergraduate courses at UNB in the previous year and are planning to return to full-time study at UNB.

Preference is given to Dean's List students, or students who have at least a 3.7 Scholarship GPA, enrolled in an undergraduate degree program. Part-time students who plan to attend on a full-time basis and students with a documented disability who are taking a reduced course load recommended by a UNB Accessibility Counsellor are encouraged to contact the Undergraduate Awards Office for consideration for scholarship support since they may be considered if they have achieved at least a 3.7 GPA on their last 24 credit hours of UNB courses and plan to return to UNB in the Fall.

For the purposes of awarding scholarships, a Scholarship GPA is calculated at the end of the assessment year (May to April) provided that 24 credit hours or more have been attempted, regardless of program. For students involved in work placement programs, such as Co-op or PEP, the scholarship GPA is calculated using the Dean's List criteria. For PEP, Articulated Degree students or students on an official exchange program, or letter of permission who have been away from UNB from May to April in the previous year as part of their degree program, the Scholarship GPA will be based on their most recent work at UNB. This GPA is held internally and is not displayed on the student's transcript of record.

Students currently enrolled at UNB in an undergraduate degree program are encouraged to apply for scholarship support each year between January 15th and April 15th, using the application form found on the UNB website, through My UNB E-Services, under the Academic tab.

Unless otherwise specified, the online scholarship application covers all scholarships open to continuing UNB students on both campuses awarded by the University. Successful recipients are notified during the summer.

Students Enrolled in Articulated Degree Programs
Students who begin an articulated degree program at UNB directly from high school are considered for Scholarships Open to High School Students. Students who are enrolled in articulated degree programs at UNB and attend the partnering institution (and not enrolled in 12 ch or 4 courses at UNB) may be considered for scholarships as follows –

Eligibility
• The student must begin the programme of study at UNB.
• The student must have completed at least 24 credit hours at UNB (for assessment purposes).
• The student attending the partnering institution for one year of full-time study will be eligible for scholarship support based on the previous year's work at UNB.
• If the program requires a second year of study at a partnering institution, consideration for scholarship will be given on the basis of a recommendation from the Faculty.
• Upon the student's return to UNB, consideration for scholarship will be given on the basis of a recommendation from the Faculty.
• Consideration will be given to the level of support by the partnering institution in the final decision of UNB scholarship support provided to the student.

Funding
• These students will not be eligible to retain **donor**-funded scholarships for the year that they are at the partnering institution, unless the scholarship is open to the articulated degree program.
• Scholarships for students who are enrolled in articulated degree programs, but attending the partnering institution (and not enrolled in at least 12 ch or 4 courses at UNB) will be available using scholarship funds budgeted by the University, awarded using the scale approved by the Scholarship Committee each year and prorated according to the tuition paid by the student.
• **Donor**-funded scholarships for these specific programs will be established using new monies. The scholarship description will contain a sentence indicating that, "The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution."

Students must apply to be considered for scholarship support.

Scholarships for Part-Time Students
Part-time students are encouraged to contact the College of Extended Learning UNB Fredericton or Student Services, UNB Saint John, for scholarship applications.

Prizes and Awards
Prizes are awarded for specific academic achievement. Normally, they are awarded by the Registrars' Offices on behalf of the University and are based on the recommendation of the appropriate Department or Faculty.
A selected group of University-level and Faculty-level prizes are presented to the recipients at Encaenia or Convocation, as appropriate. These include:
• Lieutenant-Governor's Medals
• Governor General's Academic Medal
• Governor General's Gold Medal
• Douglas Gold Medal

The presentation of the remaining prizes is at the discretion of the Faculties involved. Many Faculties organize award ceremonies to make these presentations. However, if the Faculty does not choose to present the prize at an award ceremony, the prize is sent to the recipient along with a congratulatory letter. All prizes are listed in the appropriate prize ceremony bulletins. All graduation prizes are listed in the appropriate programs at either Convocation or Encaenia

Off-Campus Study Awards
The University of New Brunswick encourages international experiences for our students and provides limited support for full-time UNB students while they are studying elsewhere, within an approved program.

To be eligible for an Off-Campus Study Award, a student must be a Canadian citizen or landed immigrant who is in good academic standing at UNB. The recipient must be accepted to another university which has established a formal exchange agreement with UNB or is involved in an approved off-campus study program.

The Off-Campus Study Award is paid to the recipient in the form of a credit against the student's full-time UNB tuition and other compulsory fees for the term that the student is studying elsewhere. Once UNB tuition and compulsory fees have been paid and a balance remains available, the recipient can request a refund from Financial Services on their respective campus.

A student can retain an Off-Campus Study Award as long as s/he completes the off-campus study and shows satisfactory evidence of merit. In the event that a student returns before the completion of the term, the Off-Campus Study Award is removed from the student's account. The Off-Campus Study Award does not appear on the student's transcript.

The RHB McLaughlin Trust
Established through the generosity of Robert H.B. McLaughlin, long-time professor of Civil Engineering, former President of the UNB Associated Alumni and graduate of the Class of 1943, this Trust annually supports the R.H.B. McLaughlin Prize in Civil Engineering, the R.H.B. McLaughlin Graduate Fellowship in Civil Engineering, the Beaverbrook Scholars Award, and the R.H.B. McLaughlin Athletic Recognition Fund.

High School Students

ARTS
Dr. Charles K. and Mickie Bowman Scholarship
field: Arts. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Arts degree on the Fredericton campus directly from Minto High School, Chipman Forest Avenue School, or Oromocto High School. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines.Selection will be based on academic achievement and financial need. **donor**: Mickie Bowman, the late Dr. Charles (Chad) Bowman, former professor of sociology at UNB, and the New Brunswick University Opportunities Fund.

Jayanti Datta Memorial Scholarship
field: Arts. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded to a beginning undergraduate student enrolled in the Faculty of Arts program on the Fredericton campus. Selection is made primarily on the basis of scholastic attainment. **donor**: Professor Arun Datta, friends and family of Jayanti Datta.

Catherine Earle and her parents Dr. Thomas and his wife Mary (West) Earle Scholarship for Full-time Students
field: Arts and Science. **value**: Variable. number 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick high school and is beginning an undergraduate degree program on the Fredericton campus. Selection is made on the basis of scholastic attainment and financial need. The profile of the recipient must indicate that the recipient is hard working, and consideration may be given to the recipient's participation in extracurricular activities. **donor**: Friend of Catherine Earle and the New Brunswick University Opportunities Fund.

Faculty of Arts Entrance Scholarship
field: Arts. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students who are entering the Bachelor of Arts degree program on the Fredericton campus. Selections are made on the basis of scholastic attainment; financial need and/or extracurricular activities may be taken into consideration. awarding agency: The University, on the recommendation of the Faculty of Arts. **donor**: Proceeds from UNB Faculty-Staff Campaign.

Lester Hoar Memorial Scholarship in Arts
field: Arts. **value**: $3,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Arts undergraduate degree program upon graduation from a Saint John high school. Selection is based on academic achievement. Preference will be given to a student who has been actively involved in writing or editing for his or her school newspaper. **donor**: The late Lester Hoar.

Dr. W. Allan G. And Constance Young McAndrew Scholarship
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a Gloucester County high school and is beginning an Arts degree program at UNB. Preference may be given to a student who has demonstrated scholastic achievement in French. **donor**: Mrs. Constance Young McAndrew in memory of her husband, Dr. W. Allan G. McAndrew.

McLean Budden Entrance Scholarship
field: Arts. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student entering the Bachelor of Arts degree program on the Fredericton campus. Selection will be made on the basis of scholastic attainment and financial need.**donor**: McLean Budden Investment Managers.

G. Wayne Squibb Scholarship
field: Arts. **value**: $10,000. **number**: 1. **duration**: Up to 4 years. **conditions**: Awarded to a student beginning the Bachelor of Arts degree program directly from high school. Selection is made on the basis of academic achievement and financial need with consideration given to involvement in extracurricular activities. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. **donor**: G. Wayne Squibb and the New Brunswick University Opportunities Fund.

Steeves Albert County Scholarship
field: Arts. **value**: $2,000 per annum. **number**: 1. **duration**: 4 years. **conditions**: Male student from the County of Albert taking the BA course at the University, who received high academic standing. One scholarship awarded every 4 years.**donor**: The late Dr. Charles Peck Steeves.

Ashoki Sujanani Scholarship
field: Arts. **value**: $4,500. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Arts degree on the Fredericton campus. Selection is based on academic achievement and financial need. Consideration will be given to community involvement. One scholarship is awarded every 4 years. **donor**: The friends and family of Ashoki Sujanani, BScEngSE 1978.

BUSINESS ADMINISTRATION

Arthur D. Ganong Scholarship
field: Business Administration. **value**: $2,000 per year. **number**: 1. **duration**: 4 years. **conditions**: Awarded to an outstanding graduate of a New Brunswick high school who is beginning an undergraduate Business Administration degree program at UNB. Preference will be given to students who graduate from a Charlotte County high school. Selection is made on the basis of academic performance and financial need. The applicants must compose a short essay on Arthur D. Ganong to accompany the application. One scholarship awarded every 4 years. **donor**: Arthur D. Ganong Foundation and the New Brunswick University Opportunities Fund.

Leadership Development Award
field: Business. **value**: Approximately $450. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student entering the Business Administration degree program. Selection will be based on academic achievement and significant involvement in extra-curricular activities at high school and/or in the community. This award is to be given to a student who will continue to make a positive contribution to the life and spirit of the university and community. **donor**:Faculty, staff and friends of the Faculty of Business.

Robert and Susan Little Scholarship
field: Business Administration. **value**: $1,900. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is beginning the Bachelor Business Administration degree program directly from high school. Selection is based on academic achievement and financial need. **donor**: Robert and Susan Little - Class of 1966.

J. Stephen MacLellan Scholarship
field: Business Administration preferred. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to a student who is a graduate of Riverview High School and is entering the Business Administration degree program at UNB. Should no candidate of this description exist in any given year, the Scholarship may be awarded to a graduate of Riverview High School who is entering any degree program at UNB, or failing that, a graduate of other New Brunswick high schools, with preference to Moncton area schools. **donor**: Mr. J. Stephen MacLellan and the New Brunswick University Opportunities Fund.

Maureen McCarthy Memorial Bursary
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student from Westmorland County who is beginning the Bachelor of Business Administration degree program. The recipient must demonstrate successful academic performance. **donor**: Family and friends of Maureen McCarthy and the New Brunswick University Opportunities Fund.

Merrithew - de Grandpré Bursary
field: Business Administration. **value**: $1,000. **number**: 1. **duration**: 4 year. **conditions**: Awarded on the basis of financial need to a student beginning the Bachelor of Business Administration degree program directly from high school. The recipient must be a Canadian citizen or permanent resident and demonstrate successful academic performance. One bursary will be awarded every 4 years. **donor**: Michael Merrithew (BBA '80) and Louise de Grandpré (BPE '79, BBA '80).

Michael J. Millie Scholarship
field: Business Administration. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student entering the Bachelor of Business Administration degree program on the Fredericton campus. Preference will be given to students from Carleton County, NB. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection will be based on academic achievement and financial need. **donor**: Michael Millie, BBA 1996 and the New Brunswick University Opportunities Fund.

Clifford G. Warner Scholarship
field: Business. **value**: Variable. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Saint John campus student who has been accepted to a degree program in the Faculty of Business. Selection is based on academic achievement, financial need and substantial involvement in community activities. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. Transfer students are eligible to be considered. The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. **donor**: Family and friends of Clifford G. Warner, a distinguished citizen of Saint John who died in 2010. A contribution was also received from the New Brunswick University Opportunities Fund.

COMPUTER SCIENCE

Accreon Entrance Scholarship
field: Computer Science. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student beginning an undergraduate degree program in the Faculty of Computer Science. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. Selection will be based on academic achievement and financial need. Preference is given to a student who does not hold other scholarships. **donor**: Accreon and the New Brunswick University Opportunities Fund.

Eldon and Maxine Clair Faculty of Computer Science Scholarship
field: Computer Science. **value**: $5,000. **number**: 1 or more. **duration**: 4 years. **conditions**: Awarded to Fredericton campus students beginning an undergraduate degree program in the Faculty of Computer Science directly from high school. Selection is based on academic achievement. Consideration may be given to financial need and/or extra-curricular activities. awarding agency: The University on the recommendation of the Faculty of Computer Science. **donor**: The estate of Eldon and Maxine Clair.

Computer Science Alumni Entrance Scholarship
field: Computer Science. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to full-time students who are entering an undergraduate degree program in the Faculty of Computer Science on the Fredericton campus. Selections are made on the basis of scholastic attainment; financial need may be taken into consideration. awarding agency: The University, on the recommendation of the Faculty of Computer Science. **donor**: Computer Science Alumni.

Rodney Cooper Bursary in Computer Science
field: Computer Science. **value**: Approximately $1,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is a graduate of a New Brunswick high school and is beginning an undergraduate degree program in the Faculty of Computer Science. The student must demonstrate successful academic performance and be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services Guidelines. **donor**: Prof. Rodney Cooper, former students of Prof. Cooper and the New Brunswick Universities Opportunity Fund.

Mahin and Ali Ghorbani Scholarship
field: Computer Science. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from New Brunswick or an international student who is beginning the first year of undergraduate degree program in the Faculty of Computer Science on the Fredericton campus. Selection will be based on academic achievement and financial need. Preference will be given to a student from a Third World or developing country. awarding agency: The University, on the recommendation from the Faculty of Computer Science. **donor**: Mahim and Ali Ghorbani.

Alastair & Jennifer Grant Scholarship in Computer Science
field: Computer Science. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student beginning a degree in the Faculty of Computer Science directly after graduating from a New Brunswick high school. Selection is based on academic achievement. **donor**: Alastair Grant (BCS 2005) and Jennifer Grant (BEd 2006).

Uday Gujar Scholarship for Excellence in Computer Science
field: Computer Science. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is beginning the Bachelor of Computer Science degree program directly from a New Brunswick high school. Selection will be based on scholastic attainment and financial need. **donor**: Established by Sarita Gujar for her husband Uday Gujar, Professor, Faculty of Computer Science.

MacLauchlan McKenzie Scholarship in Computer Science
field: Computer Science. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Computer Science degree program. Selection is made on the basis of scholastic attainment and financial need. awarding agency: The University on the recommendation of the Faculty of Computer Science. **donor**: Julia MacLauchlan and Warren McKenzie.

Professional Quality Assurance Scholarship
field: Computer Science. **value**: $2,250 for Yr1; $750 for Yr 2. **number**: 3. **duration**: 2 years. **conditions**: Awarded to students beginning an undergraduate degree program in the **field** of Computer Science directly from high school. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines and may also be offered summer employment with Professional Quality Assurance after their first year at UNB. Selection will be based on scholastic achievement and financial need as well as suitability for employment with Professional Quality Assurance. A shortlist of candidates will be reviewed by Professional Quality Assurance. The scholarship will be renewed for Year 2 as long as the recipient demonstrates successful academic achievement and remains in a degree program in the **field** of Computer Science. **donor**: Professional Quality Assurance and the New Brunswick University Opportunities Fund.

Blackberry Scholarship in the Faculty of Computer Science
field: Computer Science. **value**: $2,250 for Year 1; $750 for Year 2. **number**: 1. **duration**: 2 years. **conditions**: Awarded to a Fredericton campus student beginning an undergraduate degree program in the Faculty of Computer Science directly from high school. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Blackberry.

ENGINEERING

APEGNB Entrance Scholarship
field: Engineering. **value**: $5,000. **number**: 2 **duration**: 1 year. **conditions**: Open to students entering the Engineering or Geoscience degree program directly from a New Brunswick high school. Selections are made on the basis of scholastic attainment and financial need. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: The Association of Professional Engineers and Geoscientists of New Brunswick Foundation for Education.

APEGNB Saint John Branch Scholarship
field: Engineering. **value**: $500. **number**: 9. **duration**: 1 year. **conditions**: Open to Saint John campus students entering the Engineering degree program directly from a high school within in the APEGNB Saint John Branch district, who has not received another major award. Selections are made on the basis of scholastic attainment and financial need. **donor**: The Association of Professional Engineers and Geoscientists of New Brunswick - Saint John Branch and the New Brunswick University Opportunities Fund.

Bishop Family Scholarship
field: Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from Queen's County who has graduated from a New Brunswick high school, is beginning the Bachelor of Science in Engineering degree program and does not hold any major scholarships. Selection is based on academic achievement with consideration given to extracurricular activities. **donor**: Darrell Bishop (BSE 1970) and family.

P. William Bishop Memorial Scholarship
field: Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to a student who has graduated from a high school in Canada, and is entering the Engineering degree program. **donor**: Mrs. Bethia G. Bishop and family in memory of her husband and their father, Mr. P. William Bishop, BSc.Eng.CE 1942, recipient of the Ketchum Medal 1942.

Class of 1966 Engineering Scholarship
field: Engineering. **value**: Variable. **number**: 1. **duration**: 4 years. **conditions**: Awarded to students entering the Bachelor of Science in Engineering degree program directly from high school. Selection is made on the basis of academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Class of 1966 Engineering and the New Brunswick University Opportunities Fund.

Currie Undergraduate Scholarship in Engineering
field: Engineering. **value**: Total - $65,000 (**Value**: $20,000 in year 1; $20,000, $15,000, and $10,000 in each succeeding year.) **number**: Up to 4. **duration**: 4 years. **conditions**: Awarded to students beginning a Bachelor of Engineering degree program upon graduation from a high school in any of the four Atlantic Provinces. The scholarships are intended to support the education of future leaders. The applicants are therefore asked to submit an essay (not less than 250 words) giving the Selection Committee an indication of their leadership capabilities to date, including (but not limited to) school and extra-curricular activities. Required in the essay is evidence of overcoming barriers or difficult situations. Financial need is an important consideration. Recipients are required to live in residence for the first year of their degree program. apply: http://www.unb.ca/scholarships/ awarding agency: The University, on the recommendations of the Currie Scholarship Selection Committee.**donor**: Richard James Currie, O.C., C.B.H.F.,M.B.A, L.L.D., P.Eng. installed as Chancellor of the University of New Brunswick in May 2003. deadline: March 1.

John R. Dean Scholarship
field: Engineering. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student, who has graduated from a New Brunswick high school, and is beginning an undergraduate degree program in Engineering on the Fredericton campus. Selection is made with consideration to scholastic attainment and financial need. **donor**: The family of the late John R. Dean, B.Sc., M.Sc., D.Sc., P.Eng. and the New Brunswick University Opportunities Fund.

Eric C. Garland Scholarship
field: Civil Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Canadian student beginning the Bachelor of Science in Engineering (Civil) degree program. Selection will be made primarily on the basis of the student's demonstrated leadership and community involvement during high school and secondarily on the basis of the student's scholastic achievement and financial need. **donor**: Marilyn Garland, widow of Dr. Eric Garland.

Geodesy and Geomatics Engineering Scholarship
field: Geodesy and Geomatics Engineering. **value**: $3,500. **number**: 1. **duration**: 2 years. **conditions**: Awarded to a Fredericton campus student who is beginning the Bachelor of Science in Engineering (Geomatics) degree program upon graduation from high school. Selection will be based on academic achievement. Preference will be given to students who are involved in extracurricular activities and/or have a demonstrated interest in science and engineering. One scholarship will be awarded every two years. awarding agency: The University, on the recommendation of the Department of Geodesy and Geomatics Engineering. **donor**: Department of Geodesy and Geomatics Engineering, UNB Fredericton.

M. Patrick Gillin Ottawa Engineering Scholarships
field: Engineering. **value**: $4,000 for year one; $3,000 for year two, $2000 for year three; $1,000 for year 4; to be reviewed in year 5. **number**: 5. **duration**: Up to 5 years. **conditions**: Awarded to students enrolled in the Engineering degree program who have graduated from an Ottawa-area high school. Selection will be made on the basis of scholastic achievement. Financial need may be taken into consideration. **donor**: The Gillin Family.

Hamilton-Roberts Entrance Scholarship in Geomatics Engineering
field: Geomatics Engineering. **value**: Approximately $3,250. **number**: 1. **duration**: 1 year. **conditions**: Open to a Fredericton campus student from the Maritime provinces entering Geomatics Engineering. Selection is made on the basis of scholastic attainment and financial need. awarding agency: The University on the recommendation of the Department of Geodesy and Geomatics Engineering. **donor**: The Hamilton-Roberts Scholarship Fund and members of the Department of Geodesy and Geomatics Engineering.

Pius King Memorial Scholarship in Engineering
field: Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Science in Engineering program on the Saint John Campus upon graduating from a Saint John area high school, with preference given to the graduates of Kennebecasis Valley High School. Selection is made on the basis of academic achievement, financial need and volunteer activities. **donor**: The family of the late Pius King.

Kirkpatrick Scholarship
field: Engineering. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student who is graduating from a Saint John area high school and beginning the Bachelor of Science in Engineering degree program. Selection will be based on academic achievement and extracurricular involvement. **donor**: Leah Kirkpatrick, BScChE 2000.

exp Ottis Logue Scholarship
field: Civil Engineering. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from the Atlantic Provinces who is beginning the Bachelor of Science in Engineering (Civil) degree program. Selection will be based on scholastic attainment and financial need. **donor**: exp Services Inc.

A.W. McLaughlin Entrance Scholarship in Geomatics Engineering
field: Geomatics Engineering. **value**: $4,000. **number**: 1. **duration**: 1 year. **conditions**: Open to a Fredericton campus student entering the Geomatics Engineering program, who is a graduate of a New Brunswick high school. Selection is made on the basis of scholastic attainment, professional promise and financial need. awarding agency: The University on the recommendation of the Department of Geodesy and Geomatics Engineering. **donor**: Family, friends and professional colleagues of the late A.W. McLaughlin and the New Brunswick University Opportunities Fund.

W. Frederick Merrithew, BSE(CE) 1961, Memorial Scholarship
field: Engineering. **value**: $3,000 per year. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a student beginning the Bachelor of Science in Engineering degree program (any discipline) directly from high school. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selections are made on the basis of scholastic attainment, financial need and extracurricular involvement. One scholarship will be awarded every 4 years. **donor**: The family and friends of the late W. Frederick Merrithew, BSE(CE) 1961, and the New Brunswick University Opportunities Fund.

Simon Newby Geomatics Scholarship
field: Geodesy and Geomatics Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Science in Engineering (Geodesy and Geomatics) degree program directly from high school. Selection is based primarily upon the demonstration of leadership/entrepreneurial qualities, and/or demonstrable special needs, and/or demonstrable financial need. In all instances, excellent academic performance is a requirement. awarding agency: The University, on the recommendation of the Department of Geodesy and Geomatics. **donor**: Simon Newby.

Norval Hallett Otty Scholarship
field: Civil Engineering or Forestry. **value**: $400. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a young man having highest standing on entering UNB from the County of Kings. Should there be no candidate in any given year, the interest shall accumulate from year to year until the next Kings County man enters the University. **donor**: The late Marianne Grey Otty.

Gordon S. Robinson Scholarship
field: Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Science in Engineering (any discipline) directly upon graduation from Sussex High School. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Donald Robinson, BSc EE 1984 and the New Brunswick University Opportunities Fund.

Ivan F. Ronalds Engineering Scholarship
field: Engineering. **value**: Minimum $535. **number**: 1. **duration**: 1 year. **conditions**: To be awarded annually to a graduate of Bathurst High School who is beginning an engineering undergraduate degree program. Selection is made on the basis of scholastic attainment and financial need. Consideration will be given to participation in extracurricular activities. **donor**: Mr. Ivan F. Ronalds in memory of his mother.

FORESTRY

75th Anniversary Scholarship in Forestry
field: Forestry or Forest Engineering. **value**: Approximately $2,200. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning an undergraduate degree program in Forestry or Forest Engineering who has graduated from high school with a high academic standing and who has demonstrated scholastic achievement in math and science. **donor**: Alumni of the Faculty of Forestry and Environmental Management.

Dr. Ivan H. Crowell Scholarship in Forestry
field: Forestry. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and is beginning a Forestry degree program at UNB. Selection is based on scholastic attainment and financial need. **donor**: The estate of the late Dr. Ivan H. Crowell and Mrs. Mildred A. Crowell and the New Brunswick University Opportunities Fund.

Ian MacKay Anderson & Family Scholarship
field: Forestry. **value**: $3,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student who is beginning an undergraduate degree program in the Faculty of Forestry directly upon graduation from a high school. Preference will be given to a student who is a graduate of a high school in Northumberland County, New Brunswick. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. **donor**: Stephanie Anderson (BSC 1984), in honour of her father, and the New Brunswick University Opportunities Fund.

William MacNeill Scholarship
field: Forestry or Forest Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: A student with high academic standing who is beginning a program leading either to the degree of Bachelor of Science in Forestry or Bachelor of Science in Forest Engineering. **donor**: The late William MacNeill.

Hon C.D. Richards Scholarship
field: Forestry or Forest Engineering. **value**: Approximately $900. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a needy and deserving student beginning a program leading either to the degree of Bachelor of Science in Forestry or the degree of Bachelor of Science in Forest Engineering. **donor**: The late Hon. C.D. Richards.

Mark Way Memorial Scholarship in Forestry & Environmental Management
field: Forestry and Environmental Management. **value**: Variable. **number**: 1. **duration**: 5 years. **conditions**: Awarded every five years, on the basis of scholastic attainment and financial need, to a student on the Fredericton campus in the faculty of Forestry and Environmental Management . **donor**: The late Mark Way, BA, UNB 1972.

Nelson Bertram Welling Undergraduate Entrance Scholarship
field: Forestry and Environmental Management. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to undergraduate students in the Faculty of Forestry and Environmental Management. Selection is based on academic achievement. Consideration may also be given to financial need and/or involvement in extracurricular activities. Open to incoming high-school, transfer, and visiting students. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Nelson Bertram Welling.

MULTIPLE PROGRAMS

Joseph G. Azar Scholarship
field: Engineering or Computer Science. **value**: Approximately $4,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a student who would otherwise not be able to attend UNB without this financial assistance. The recipient must be graduating from a high school in the Maritime Provinces and beginning the Bachelor of Science in Engineering or the Bachelor of Computer Science degree program on the Fredericton campus. Consideration will be given to scholastic attainment as well as the student's involvement in extracurricular activities. The recipient may retain this scholarship for the **duration** of the undergraduate degree program as long as s/he maintains Dean's List status and full-time enrolment, and demonstrates continuing financial need for this award. One scholarship will be awarded every 4 years. **donor**: In memory of his father by J. Gordon Azar, BSc Engineering 1960; his wife Renee Azar; and his sons Gregory Azar, BCS 2001, and Sebastien Azar, BCS 2005.

Cherrington Family Scholarship
field: Science or Nursing. **value**: $6,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a student beginning a Bachelor of Science or Bachelor of Nursing degree program directly from high school. Selection will be based on scholastic achievement and financial need. One scholarship is awarded every four years. **donor**: Alan and Debbie Cherrington and Alan's parents, Jeanne and Horace Cherrington.

Catherine Earle and her parents Dr. Thomas and his wife Mary (West) Earle Scholarship for Full-time Students
field: Arts and Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick high school. Selection is made on the basis of scholastic attainment and financial need. The profile of the recipient must indicate that the recipient is hard working, and consideration may be given to the recipient's participation in extracurricular activities. **donor**: Friend of Catherine Earle and the New Brunswick University Opportunities Fund.

Gordon J. Glencross Scholarship
field: Generally unrestricted, but preference may be given to Science and Engineering. **value**: $500. **number**: Minimum 1. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance and financial need, to a student beginning an undergraduate degree program, who is a graduate of Bonar Law Memorial High School, Rexton, NB. **donor**: Mr. Gordon J. Glencross, BScCE, UNB 1950, Clairville, Kent County. NB.

JDI NB Scholarship
Field: Business, Computer Science, Engineering, Forestry. **Value**: $8,000. **Number**: 2 or more. **Duration**: Up to 4 years. **Conditions**: Awarded to students who are enrolled in an undergraduate degree program in the **field** of Business, Computer Science, Engineering or Forestry. A list of eligible degree programs can be found at www.unb.ca/scholarships. Selection is made on the basis of academic achievement, self-motivation, contribution to community/extra-curricular activities and financial need. A shortlist of candidates will be interviewed by representatives of J.D. Irving Limited. The recipients must be New Brunswick residents, according to the definition of the Provincial Government´s Student Financial Services guidelines, and may also be offered employment opportunities with J.D. Irving Limited throughout their degree program and/or upon graduation. Awarding Agency: The University, on the recommendation of J.D. Irving Limited. **Donor**: J.D. Irving, Limited.

Fletcher Peacock Memorial Scholarship
field: Preference to those enrolling or enrolled in Business Administration, Engineering or Forestry. **value**: Approximately $650. **number**: 1. **duration**: 1 year. **conditions**: Tenable at UNBSJ. Awarded on the basis of financial need to students whose record shows they may benefit from a university education. Open to any New Brunswick student. **donor**: Dr. G. Forbes Elliot, Former Vice-President, UNBSJ.

Marlene Perkins Memorial Scholarship
field: Engineering or Science. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student beginning the Bachelor of Science in Engineering or the Bachelor of Science degree program. Preference will be given to a student beginning the Bachelor of Engineering degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Malcolm Perkins BScEE 1958 and family, and the New Brunswick University Opportunities Fund.

Robin Rocca Scholarship
field: Science, Engineering or Computer Science. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student graduating from a Saint John area high school who is a Canadian citizen or permanent resident and is beginning the Bachelor of Science, Bachelor of Science in Computer Science, Bachelor of Computer Science or Bachelor of Science in Engineering degree program. Selection is based on academic achievement and financial need. In keeping with the character of Robin Rocca, BSE(EE) 2003, the recipient would demonstrate athletic ability, leadership skills and commitment to family and the community. **donor**: Family and friends of Robin Rocca, BSE(EE) 2003 and the New Brunswick University Opportunities Fund.

Schulich Leader Scholarship

field: Science, Technology, Engineering or Mathematics. **value**: $20,000 or $15,000. **number**: 2. **duration**: 4 years. **conditions**: Awarded to a student beginning an undergraduate degree program in the STEM areas (Science, Technology, Engineering or Mathematics) who has been nominated from a high school, secondary school or CEGEP in Canada and is a Canadian citizen or permanent resident of Canada. Only Schulich Leader Nominees who complete and submit the Schulich Leader Scholarships online application form to UNB are eligible. Recipients must possess two of the following attributes: (a) academic excellence; (b) involvement in extracurricular activity where there is a demonstration of leadership in his or her school-life or community-life or has provided evidence of entrepreneurial talent; (c) financial need. One scholarship **valued** at $20,000 per year for four years will be awarded to a student enrolled in the Bachelor of Science in Engineering and one scholarship **valued** at $15,000 per year for four years will be awarded to a student enrolled in an undergraduate degree program in the remaining STEM areas of Science, Technology or Mathematics. A complete listing of eligible UNB programs is found on the Schulich Leaders website at www.schulichleaders.com **donor**: Seymour Schulich.

NURSING

Lynda Doiron Memorial Scholarship

field: Nursing. **value**: $1,000. **number**: 1 or more. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student who is entering their first year of the Bachelor of Nursing degree program. Selection will be based on academic achievement and financial need. Preference will be given to a single mother or mature student. This award is also open to transfer students. One scholarship to be awarded every four years. **donor**: Charles Doiron (BSc 1977, MSc 1979).

Dr. Everett Chalmers Hospital Auxiliary Entrance Bursaries

field: Nursing. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students who are graduates of a high school in York, Victoria, Carleton or Sunbury Counties and are beginning the Bachelor of Nursing degree program. **donor**: Dr. Everett Chalmers Hospital Auxiliary and the New Brunswick University Opportunities Fund.

Lorna (Belyea) Glencross Scholarship

field: Unrestricted, but preference to Education or Nursing. **value**: $500. **number**: Minimum 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need, to a student beginning an undergraduate degree program, who is a graduate of Saint John High School. **donor**: Mrs. Lorna (Belyea) Glencross, Saint John High School 1941 and Mr. Gordon J. Glencross, BScCE, UNB, 1950.

Pius King Memorial Scholarship in Nursing

field: Nursing. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning the Bachelor of Nursing Program on the Saint John Campus upon graduating from a Saint John area high school, with preference given to graduates of Kennebecasis Valley High School. Selection is made on the basis of academic achievement, financial need and volunteer activities. **donor**: The family of the late Pius King.

Ruth Laurie Nursing Bursary

field: Nursing. **value**: $3,500. **number**: 2. **duration**: 4 years. **conditions**: Awarded on the basis of financial need to students who are beginning the Bachelor of Nursing degree program directly from high school. The recipient must demonstrate successful academic performance. **awarding agency**: The University, in consultation with the Laurie Trust. **donor**: Ms. Laurie.

Peter Maynes Memorial Scholarship

field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning an undergraduate degree program in the Faculty of Nursing, who is a graduate of a New Brunswick high school. **donor**: Mrs. Elizabeth Maynes in memory of her late husband, Mr. Peter Maynes.

Ross Memorial Scholarship

field: Nursing. **value**: $5,000. **number**: 1. **duration**: Up to 4 years. **conditions**: Awarded to a Fredericton campus student who is beginning the Bachelor of Nursing degree program. Preference will be given to students from Kings County, N.B. In the event that there are no eligible candidates from Kings County, students from New Brunswick will be considered. Selection will be based on scholastic attainment, financial need and involvement in extra-curricular activities. The recipient must maintain a 3.0 grade point average in order to renew this scholarship each year. **donor**: Dr. James Ross in honour of his mother, Etta L. Ross, R.N., and his sisters, Audrey Ross Cummings, R.N. and Dorothy Ross Friars, R.N. and the New Brunswick University Opportunities Fund.

Mary Anne Thomas Scholarship in Nursing

field: Nursing. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and is beginning a Nursing degree program at UNB. Selection is based on scholastic attainment and financial need. **donor**: The estate of the late Dr. Ivan H. Crowell and Mrs. Mildred A. Crowell and the New Brunswick University Opportunities Fund.

Irene Weaver Memorial Entrance Scholarship

field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a deserving student entering the Nursing Program on the Saint John campus. Selection is made on the basis of financial need and scholastic attainment. **donor**: The late Irene Weaver.

SCIENCE

Otty L. Barbour Memorial Scholarship

Stephanie Anderson Scholarship

field: Science. **value**: $2,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a student who is a graduate of Miramichi Valley High School and is beginning the Bachelor of Science degree program on the Fredericton campus. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. One scholarship to be awarded every four years. **donor**: Stephanie Anderson, BSc 1984, and the New Brunswick University Opportunities Fund.

Dr. Douglas G. Baird Scholarship

field: Science. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is beginning the Bachelor of Science undergraduate degree program directly from high school. Selection is based on academic achievement and financial need. **donor**: Dr. Douglas G. Baird, BA'64.

Randolph E. Cox Scholarship

field: Science. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Worthy student beginning the undergraduate program leading to a Bachelor of Science degree. Academic merit and need will be considered. **donor**: The late Randolph E. Cox.

Science Discovery Scholarship

field: Science. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to students who are entering the Bachelor of Science degree program on the Fredericton campus. Selections are made on the basis of scholastic attainment; financial need may be taken into consideration. **awarding agency**: The University, on the recommendation of the Faculty of Science. **donor**: Alumni, friends, faculty and staff of the Faculty of Science, UNB Fredericton.

Nina Fairchild Simon Memorial Scholarship

field: Preference may be given to students entering Science. **value**: Variable. **number**: Variable. **duration**: Up to 4 years. **conditions**: Selections are made on the basis of scholastic attainment and financial need. The Scholarship is restricted to students attending UNB Saint John. **donor**: The late William John Simon.

Mary Eileen Washburn Memorial Scholarship

field: Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning a Bachelor of Science degree program on the Fredericton campus, who is a graduate of a Fredericton high school. Selection is made on the basis of scholastic attainment and financial need. **donor**: Family and friends of the late Mary Eileen Washburn, B.Sc., UNB 1989 and the New Brunswick University Opportunities Fund.

SCIENCE, APPLIED SCIENCE & ENGINEERING

Centre for Marine Biodiversity Essay Scholarship

field: Science. **value**: $2,000, $1,000 or $500. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who placed first, second or third place in the Centre for Marine Biodiversity Essay contest and is beginning the Bachelor of Science degree program the following Fall. The scholarship will be awarded as follows: $2000 will be awarded for first place; $1000 for second place and $500 for third place. **donor**: UNB Saint John.

UNRESTRICTED

2002 Graduating Class Scholarship

field: Unrestricted. **value**: $400. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student entering an undergraduate degree program directly from high school. Selection is made on the basis of scholastic attainment, financial need and involvement in extracurricular activities. **donor**: Class of 2002.

Alumnae Entrance Scholarship

field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Women students beginning an undergraduate degree program. Selections are made on the basis of scholastic attainment and financial need. **donor**: Associated Alumnae.

Alumni Entrance Scholarship

field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Students beginning an undergraduate degree program. Awarded primarily on the basis of scholastic attainment. Financial need may be considered. **donor**: Associated Alumni.

Richard Bagley Memorial Bursary

field: Unrestricted. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a graduate of Fredericton High School, Oromocto High School, Leo Hayes High School, or Ecole Sainte-Anne, beginning an undergraduate degree program at UNB. Selection is made on the basis of financial need to students who have demonstrated successful academic performance. **donor**: Friends and family of Richard Bagley, BA'72, MA '79 and the New Brunswick University Opportunities Fund.

Otty L. Barbour Memorial Scholarship

field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: Up to 4 years. **conditions**: Residents of New Brunswick who have shown marked promise in their high school course and who need financial assistance. **donor**: The late Otty L. Barbour.

Beaverbrook Scholars Award
field: Unrestricted. **value**: $12,000 per annum. **number**: 3. **duration**: 4 years. **conditions**: Awarded to an outstanding graduate of a New Brunswick high school who is beginning an undergraduate degree program at UNB. Selections are made on the basis of scholastic attainment and financial need. Consideration may be given to participation in extra-curricular activities. apply: http://www.unb.ca/scholarships/ awarding agency: The University with the approval of the Beaverbrook Scholar's Award Committee. **donor**: Lord Beaverbrook Scholars.

Lord Beaverbrook Scholarship
field: Unrestricted. **value**: $10,000. **number**: 6. **duration**: 4 years. **conditions**: Open to men and women residents of New Brunswick and tenable at UNB. Selections are made on basis of scholastic attainment, moral character, industrious habits and financial need. **donor**: The University.

Bicentennial Entrance Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment to students beginning an undergraduate degree program. **donor**: The University.

Bliss - Trzop Athletic Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and is enrolled in an undergraduate degree program at UNB. The recipient must have significant athletic skill and involvement in either high school or community sport. Selection is based on athletic ability, academic achievement and financial need. Preference will be given to a student beginning an undergraduate degree program directly from high school. **donor**: Iris Bliss and Stanley Trzop in honour of their mothers, Gladys E. C. Bliss & Zelia Trzop. A contribution was made by the New Brunswick University Opportunities Fund.

Boys in Red Scholarship
field: Unrestricted. **value**: $1,000. **number**: 2. **duration**: 1 year. **conditions**: Open to students who have graduated from a high school in the Bathurst area. One scholarship will be awarded to a female student and one scholarship to a male student. Selection is based on scholastic achievement, financial need and demonstrated involvement in the community. Preference will be given to students who were Bathurst High School Basketball players. **donor**: Initial funds raised from 'UNB for the Boys in Red' - a 24-hour basketball event held at UNB on Feb. 2, 2008 as a tribute to the BHS Boys in Red and the Bathurst teacher who died tragically in an accident January 2008. A donation was also received from the New Brunswick University Opportunities Fund.

H. S. Bridges Memorial Scholarship
field: Unrestricted. **value**: Approximately $1,600. **number**: 1. **duration**: 1 year. **conditions**: To a graduate of Saint John High School, who has high academic qualifications and is in need of financial assistance. **donor**: Dr. Colin B. Mackay, Rothesay, N.B. and the New Brunswick University Opportunities Fund.

Doris A. Campbell Memorial Scholarship
field: Unrestricted. **value**: $400. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student entering UNB from Chipman High School. Selection is made on the basis of scholastic attainment with particular emphasis on English and financial need. **donor**: Mr. James S. Campbell.

Campbellton New Brunswick Scholarship
field: Unrestricted. **value**: $5,000. **number**: 4 or more. **duration**: 4 years. **conditions**: Awarded to female students beginning an undergraduate degree program directly from high school. Selection is based on academic achievement with consideration given to financial need and involvement in extracurricular activities. The recipients must be New Brunswick residents, according to the definition of the Provincial Government´s Student Financial Services guidelines, with preference being given to female students from the Campbellton area.

Carleton & York Regimental Association Memorial Scholarship
field: Unrestricted. **value**: $2,500. **number**: 2. **duration**: 1 year. **conditions**: Preference to children or grandchildren of an overseas veteran of the Carleton and York Regiment in World War II irrespective of residence, and secondly to children or grandchildren of any overseas veteran of World War II, the said veteran being or having been a resident of New Brunswick and irrespective of where the child or grandchild resides. Failing to find a suitable candidate, the scholarship shall be open to any child or grandchild of any other veteran, being or having been a resident of New Brunswick and irrespective of where the child or grandchild currently resides. Failing a suitable applicant or candidate in this third class, the Scholarship shall be open to any applicant residing in New Brunswick. Under this final class of suitability consideration shall be given to those who have served or are serving or whose parents served in the Land Reserve and particularly First Battalion Royal New Brunswick Regiment. **donor**: The Carleton and York Regiment Association of Saint John.

Governor Thomas Carleton Scholarship
field: Unrestricted. **value**: $1,000. **number**: Variable. **duration**: Up to 4 years. **conditions**: Awarded on the basis of academic achievement to students entering a degree program at UNB. **donor**: The University.

Ward Chipman Founder's Scholarship
field: Unrestricted. **value**: $500. **number**: Variable. **duration**: Up to 4 years. **conditions**: Awarded on the basis of academic achievement to students entering a degree program at UNB. **donor**: The University.

Eldon and Maxine Clair Scholarship
field: Unrestricted. **value**: $5,000 for first year; $4,000 for 3 subsequent years. number: 1. **duration**: Up to 4 years. **conditions**: Awarded to a student who has graduated from a Carleton County High School, with preference given to a graduate of Carleton North High School, and is beginning an undergraduate degree. Selection will be based on scholastic attainment and financial need. **donor**: Eldon and Maxine Clair and the New Brunswick University Opportunities Fund.

Class of 1941 Scholarship
field: Unrestricted. **value**: $4,100 per year. **number**: 2. **duration**: 4 years. **conditions**: Awarded to a student beginning an undergraduate degree program on the Fredericton campus. The recipient must be a Canadian citizen or a Landed Immigrant. Selection is made on the basis of financial need and academic performance. There will be two active scholarships. **donor**: UNB Class of 1941.

Julia Buchanan Coburn Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: At least 1. **duration**: 1 year. **conditions**: Awarded to a student from York County, with preference given to students who attended Keswick Ridge School. Selections are made on the basis of scholastic attainment and financial need. **donor**: Friends of the late Mrs. Julia Buchanan Coburn and the New Brunswick University Opportunities Fund.

James M. Cotter Scholarship
field: Unrestricted. **value**: $1000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student enrolled in an undergraduate degree program. Selection is based on academic achievement. Consideration may be given to financial need. One scholarship is to be awarded every four years. **donor**: Dr. Donald Church, BScEE'79.

Currie Undergraduate Scholarship
field: Unrestricted (not Engineering). **value**: Total - $65,000 (**Value**: $20,000 in year 1; $20,000, $15,000, and $10,000 in each succeeding year.) number: Up to 4. **duration**: 4 years. **conditions**: Awarded to students beginning a degree program other than Engineering upon graduation from a high school in any of the four Atlantic Provinces. The scholarships are intended to support the education of future leaders. The applicants are therefore asked to submit an essay (not less than 250 words) giving the Selection Committee an indication of their leadership capabilities to date, including (but not limited to) school and extra-curricular activities. Required in the essay is evidence of overcoming barriers or difficult situations. Financial need is an important consideration. Students in articulated degree programs are not eligible to receive this scholarship. Recipients are required to live in residence for the first year of their degree program. apply: http://www.unb.ca/scholarships/ awarding agency: The University, on the recommendations of the Currie Scholarship Selection Committee. **donor**: Richard James Currie, O.C., C.B.H.F., M.B.A, L.L.D, P.Eng. installed as Chancellor of the University of New Brunswick in May 2003. deadline: March 1.

Allan Donaldson Scholarship
field: Unrestricted. **value**: $10,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student who is beginning an undergraduate degree program directly upon graduation from Woodstock High School. Selection is made on the basis of academic achievement and financial need. In the event that there is no eligible candidate from Woodstock High School, a candidate may be chosen from Carleton County or failing that from Victoria County. **donor**: Allan Donaldson, Class of 1950 and the New Brunswick University Opportunities Fund.

Catherine Dryden Scholarship
field: Unrestricted. **value**: $700. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of Moncton High School and is beginning an undergraduate degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Family of the late Catherine Tuck (Dryden) (BA '72) and the New Brunswick University Opportunities Fund.

Mary Lou Duff Memorial Scholarship
field: Unrestricted. **value**: $250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a deserving student entering university on the Saint John campus. Selection is made on the basis of financial need and scholastic attainment. **donor**: Friends of the late Mary Lou Duff.

James F. and Gertrude L. (Currie) Edwards Memorial Bursary
field: Unrestricted. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student beginning an undergraduate degree program who has attended either Nackawic High School or Keswick Ridge School and has demonstrated successful academic performance. **donor**: Joan Edwards and the New Brunswick University Opportunities Fund.

J.K. Flemming Scholarship
field: Unrestricted. **value**: Approximately $350. **number**: 1. **duration**: 1 year. **conditions**: Student from the County of Carleton or the County of Victoria. Award is made on the basis of academic performance and financial need. **donor**: The late Hon. J.K. Flemming.

Foley - Woodroffe Scholarship
field: Unrestricted. **value**: $10,000. **number**: 5. **duration**: 4 years. **conditions**: Awarded to Saint John campus students who are enrolled in an undergraduate degree program. Selection is based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. The **value** of this scholarship is to be increased each year by the same percentage increase in tuition. Five scholarships to be awarded every 4 years. **donor**: The Estate of Violet E. Woodroffe.

Fredericton Community Foundation Scholarship
field: Unrestricted. **value**: $2,000 over life of award; Year 1-$1,000, Year 2-$600, Year 3 - $300, Year 4 - $100. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student who is a graduate of Harvey High School, Stanley High School, Oromocto High School, Leo Hayes High School, Fredericton High School or Ecole Ste Anne and is beginning a degree program at UNB. Selections are made primarily on the basis of scholastic attainment and financial need. Consideration will be given to the student's contribution in extra-curricular activities. **donor**: The Fredericton Community Foundation.

Ganong Chocolates Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded to a student who has graduated from St. Stephen High School and is beginning an undergraduate degree program. Selection will be based on scholastic attainment and financial need. **donor**: Ganong Bros. Limited and the New Brunswick University Opportunities Fund.

Hermie and Elsie Godin Memorial Scholarship
field: Unrestricted. **value**: $3,750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from Restigouche County who is enrolled in an undergraduate degree program directly from high school. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: The children of Hermie and Elsie Godin, in their loving memory, and the New Brunswick University Opportunities Fund.

Minto and Greta Harris Memorial Scholarship
field: Unrestricted. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus student who is beginning the first year of an undergraduate degree program and is a graduate of North and South Esk Regional High School, Miramichi Valley High School or James M Hill High School. Preference will be given to a graduate of North and South Esk Regional High School. Selection is based on academic achievement. Consideration may be given to financial need, involvement in the community, athletic leadership, and/or extracurricular activities. door: Kevin Harris Family Trust.

Rolande and Peter Hopkins Bursary
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student beginning an undergraduate degree program on the Fredericton campus, who is a graduate of a high school in New Brunswick, and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Rolande and Peter Hopkins, BScME 1970, MScME 1972, and the New Brunswick University Opportunities Fund.

William Van Horne Family Scholarship
field: Unrestricted. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from Fundy High School and is beginning an undergraduate degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection will be based on academic achievement and financial need. **donor**: William Van Horne, BBA 1999, LLB 2002, Fundy High 1991 and the New Brunswick University Opportunities Fund.

I.O.D.E. Valcartier Chapter of Saint John Bursary
field: Unrestricted. **value**: $300. **number**: 1. **duration**: 1 year (may be renewed). **conditions**: Awarded to a student (from Saint John or Kings Counties) entering UNBSJ who shows academic promise and needs financial assistance. **donor**:I.O.D.E. Valcartier Chapter and the New Brunswick University Opportunities Fund.

Indo-Canadian Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Open to students beginning an undergraduate degree program on the Saint John campus. Selection is based on scholastic attainment and financial need. **donor**: The Indo-Canadian Society of Saint John.

Carrie Ethel Ingersoll Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to graduates of Grand Manan High School. Selections are made on the basis of scholastic attainment. Consideration may be given to financial need. **donor**:The late Mr. John Robertson.

Constable Royce Isenor Memorial Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning an undergraduate degree program on the Saint John campus directly after graduating from a high school in the Saint John area. Selection is based on academic achievement, community leadership and financial need. **donor**: Saint John Community Foundation.

Dave Laughlin Lancaster PC Association Scholarship
field: Unrestricted. **value**: Approx. $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of Harbour View High School, Saint Malachy's High School or Saint John High School and is beginning an undergraduate degree program. Preference will be given to students who reside in west side of Saint John. Selection will be based on scholastic attainment, financial need and involvement in volunteer activities. **donor**: The Lancaster PC Association and the New Brunswick University Opportunities Fund.

Claudine LeBlanc Memorial Bursary
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a graduate of St. Malachy's High School. Preference will be given to a student who is involved in basketball or other sports and who is entering a degree program on the Saint John campus, but a Fredericton campus student may be considered. **donor**: Friends and family of the late Claudine LeBlanc and the New Brunswick University Opportunities Fund.

Jon LeHeup Bursary
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded on the basis of financial need to a student who has graduated from the Central New Brunswick Academy and is beginning an undergraduate degree program. The recipient must demonstrate successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. One scholarship will be awarded every four years. **donor**: Jon LeHeup, BSC 1967 and the New Brunswick University Opportunities Fund.

William H. A. Long Memorial Scholarship
field: Unrestricted. **value**: Up to $1,000 per annum. **number**: 1. **duration**: 4 years. **conditions**: Male student whose home is in the County of York, but not in the City of Fredericton, and who appears most deserving of financial assistance. The student so selected shall be chosen from those beginning an undergraduate degree program. One scholarship awarded every 4 years. **donor**: The late William Henry Allison Long.

Dr. Colin B. Mackay Leadership Award
field: Unrestricted. **value**: $10,000. **number**: 1. **duration**: Up to 4 years. **conditions**: Awarded to Canadian and/or international students who are beginning an undergraduate degree program on the Saint John campus directly from high school. Selection is based on scholastic attainment, the demonstration of leadership qualities, as well as community involvement. **donor**: The estate of Dr. Colin B. Mackay, BA' 42, LLD '55, President of UNB, 1953-1969, President Emeritus 1978-2003.

Allison MacMillan of Black Point NB Scholarship
field: Unrestricted. **value**: $2,000. **number**: 4. **duration**: 1 year. **conditions**: Awarded to students who are from Restigouche or Gloucester County, New Brunswick, and are beginning an undergraduate degree program. Selection will be based on academic achievement and financial need. **donor**: Allison MacMillan and the New Brunswick University Opportunities Fund.

Dr. Bernice L. MacNaughton Memorial Alumnae Scholarship
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Students beginning an undergraduate degree program who have graduated from a high school in Moncton, New Brunswick. Selection is made on the basis of scholastic attainment and financial need. **donor**: The Associated Alumnae.

Jeff Matchett Memorial Scholarship
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a full-time or part-time student beginning their undergraduate degree program at UNB who is a graduate of North and South Esk Regional High School. Preference will be given to a full-time student. Selection will be based upon scholastics attainment and financial need. **donor**: Roussel Toyota and the New Brunswick University Opportunities Fund.

Andrew and Marjorie McCain Scholarship
field: Unrestricted. **value**: $4,000 per year. **number**: 2. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student, with preference to a student who is a graduate of a high school in Carleton County or Victoria County, NB. Selection is made on the basis of scholastic attainment and financial need. **donor**: The family of the late Andrew H. McCain, member of the Class of 1943 and the New Brunswick University Opportunities Fund.

Eugene & Verna McCarthy Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to a student entering an undergraduate degree program at UNB, who has graduated from a New Brunswick high school. **donor**: Mrs. Verna McCarthy.

Dr. Marie M. McKnight, Michael S. Whitford & Family Scholarship
field: Unrestricted. **value**: $2,000. **number**: 1. **duration**: Up to 5 years. **conditions**: Awarded to a student who is beginning a degree program and is a graduate of St. Stephen High School. Selection is based on scholastic achievement and extracurricular involvement in such activities as athletics and drama. There will be one scholarship awarded every 4 or 5 years. The original $2000 scholarship will be renewed as follows: If the recipient achieves between 3.50 and 3.70 scholarship gpa, the **value** will be $1000; if the recipient achieves between 3.71 and 4.00 scholarship gpa, the **value** will be $2000; if the recipient achieves a 4.01 scholarship gpa or higher, the **value** will be $3000; if the recipient achieves less than a 3.50 scholarship gpa, then the scholarship is awarded to a new candidate. **donor**: Dr. Marie M. McKnight and Michael S. Whitford.

Brian McLatchie Bursary
field: Unrestricted. **value**: $2,500. number: 1. **duration**: 4 years. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is a graduate of a New Brunswick high school and is beginning an undergraduate degree program. The recipient must demonstrate successful academic performance. **donor**: Brian McLatchie (BA 1964, MA 1969) and the New Brunswick University Opportunities Fund.

Edith G. McLeod Memorial Scholarship
field: Unrestricted. **value**: Approximately $1,400. number: 1. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance to a student entering first year at UNB, who is a graduate of a Kent County or Saint John County high school. **donor**: Dr. Colin B. Mackay.

W.K. McMenamon Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students who have graduated from a New Brunswick high school and are beginning an undergraduate degree program. **donor**: The late W. K. McMenamon.

Mr. & Mrs. Willard McMulkin Memorial Bursary
field: Unrestricted. **value**: Approximately $700. number: 1. **duration**: 1 year. **conditions**: Awarded to a student entering the University from either Queens or Sunbury Counties with the preference given to a student from the Gagetown area. Selection made on the basis of financial need and scholastic attainment. **donor**: Family of the late Mr. & Mrs. Willard McMulkin.

TD Insurance Meloche Monnex Entrance Scholarship
field: Unrestricted. **value**: $1,000. number: 2. **duration**: 1 year. **conditions**: Awarded to students beginning their first undergraduate degree program. Selections are made on the basis of scholastic attainment. **donor**: TD Insurance Meloche Monnex.

Donald P. Mersereau Memorial Scholarship
field: Unrestricted. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to a student beginning an undergraduate degree program at UNB. **donor**: The family of the late Mr. Donald P. Mersereau, a former UNB employee.

Carolyn Crawford Nagle Memorial Scholarship
field: Unrestricted. **value**: Approximately $300. number: 1. **duration**: 1 year. **conditions**: Awarded to a deserving student entering university on the Saint John campus. Selection is made on the basis of scholastic attainment and financial need.**donor**: Friends of the late Carolyn Nagle.

Nashwaak 1784-1984 Bicentennial Association Scholarship
field: Unrestricted. **value**: Approximately $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student from the Nashwaak Valley region entering either the Fredericton or the Saint John campus of UNB. Selections are made on the basis of scholastic attainment. The scholarship is in memory of the first settlers of the Nashwaak Valley. **donor**: 1784-1984 Nashwaak Bicentennial Association.

New Brunswick Provincial Oratorical Contest Award
field: Unrestricted. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to the New Brunswick High School student achieving 1st place in the Senior Division of the New Brunswick Provincial Oratorical Contest, who enrolls in a degree program at the University of New Brunswick up to two years after achieving first place in the Senior Division. Selection will be made by the New Brunswick Oratorical Organizing Committee. **donor**: UNB Associated Alumni.

New Brunswick Provincial Science Fair Merit Award
field: Unrestricted. **value**: $200. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to outstanding Grade XII participants in the N.B. Provincial Science Fair who register in a degree program at UNB the following fall. awarding agency:The University, in consultation with the New Brunswick Provincial Science Fair Committee. **donor**: UNB Associated Alumni.

New Brunswick Society of Retired Teachers Saint John Branch Scholarship
field: Unrestricted. **value**: Approximately $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is graduating from Saint John High School, Harbour View High School, St. Malachy's Memorial High School or Simonds High School and is beginning an undergraduate degree program on the Saint John campus. Selection is based on academic achievement and financial need. **donor**: New Brunswick Society of Retired Teachers, Saint John Branch and the New Brunswick University Opportunities Fund.

New Brunswick War Brides Association Scholarship
field: Unrestricted. **value**: $750. number: 1. **duration**: 1 year. **conditions**: Awarded to a student beginning an undergraduate degree program directly from high school. Selection is based on academic achievement. Consideration may be given to financial need. Preference will be given to a student who is a descendant of a veteran. **donor**: New Brunswick War Brides Association.

Old North End Bursary
field: Unrestricted. **value**: $1,000. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to part-time or full-time Saint John campus students who reside in the north end of Saint John. Recipients must be graduates of Harbour View High School, Saint Malachy's High School or Saint John High School and must demonstrate successful academic performance. Preference will be given to students who demonstrate community service and good citizenship.awarding agency: The University, on the recommendation of the Director of Student Services UNB Saint John in consultation with a member of the ONE group and the Principal of the Lorne School. **donor**: Citizens of Saint John and the New Brunswick Opportunities Fund.

Charlotte Frances Otty Scholarship
field: Unrestricted. **value**: Approximately $250. number: 1. **duration**: 1 year. **conditions**: Awarded to a young woman having the highest standing on entering the University from the County of Queens. Should there be no candidate in any given year, the interest shall accumulate from year to year until the next Queens County woman enters the University. **donor**: The late Marianne Grey Otty.

William and Lois Paine Founder's Scholarship
field: Unrestricted. **value**: $1,500. number: Variable. **duration**: Up to 4 years. **conditions**: Awarded on the basis of academic achievement to students entering a degree program at UNB. **donor**: The University.

Hazel Birdena Pendleton Scholarship
field: Unrestricted. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to a student from eastern Charlotte County (preference to residents or children of residents of Deer Island) who has graduated from one of the following high schools in this order of preference: Fundy High, Campbello Island Consolidated School, or Grand Manan High School. **donor**: Family of the late Hazel Birdena Pendleton.

W.A. Perkins Scholarship
field: Unrestricted. **value**: $2,100 ($525 per annum). number: 1. **duration**: 4 years. **conditions**: Male high school graduate who is a resident of the City of Fredericton or the County of York. One scholarship awarded every 4 years. **donor**: The late William A. Perkins.

Bea Phillips CFUW Fredericton Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student beginning an undergraduate degree program on the Fredericton campus directly after graduating from a high school in the City of Fredericton. Selection is based on academic achievement and financial need. **donor**: Canadian Federation of University Women (CFUW) Fredericton and the New Brunswick University Opportunities Fund.

Margaret Wallace Porter Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a deserving student beginning an undergraduate degree program. Selection is made mainly on the basis of scholastic attainment. **donor**: The late Margaret Wallace Porter.

PQA Scholarship
field: Unrestricted. **value**: $3,000. number: 1. **duration**: 4 years. **conditions**: Awarded to a Fredericton campus student who is beginning an undergraduate degree program directly from high school. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection is based on academic achievement and financial need. Consideration may be given to extracurricular activities. **donor**: PQA and the New Brunswick University Opportunities Fund.

President's Scholarship
field: Unrestricted. **value**: $8,000. number: Variable. **duration**: 4 years. **conditions**: Open to all students beginning an undergraduate degree program at UNB. Selections will be based on scholastic attainment. **donor**: The University.

Sir Charles G.D. Roberts Scholarship in Literary Excellence
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student graduating from a District 18 high school who is selected as the overall winner for the District 18 Sir Charles G.D. Roberts Medal of Literary Excellence and is beginning an undergraduate degree program at UNB in the fall following receipt of the medal.

Phyllis M. Robinson (nee Brown) Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student beginning an undergraduate degree program directly upon graduation from Miramichi Valley High School. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Donald Robinson, BSc EE 1984 and the New Brunswick University Opportunities Fund.

Florence Ross Memorial Award
field: Unrestricted. **value**: Approx. $150. number: 1. **duration**: Up to 4 years. **conditions**: An award of approximately $150 per year, and renewable for up to three years, to be made on the recommendation of Vice-President (Saint John) to a student of the black race, entering a degree program on the Saint John campus, with the highest admission average from Saint John County. Renewal of the award is contingent upon the student continuing at UNB Saint John. awarding agency:The University, on the recommendation of the Vice-President (Saint John). **donor**: The late Florence Ross.

Dale E. Saunders Scholarship
field: Unrestricted. **value**: $1000. number: 1. **duration**: 4 years. **conditions**: Awarded to a student who is beginning an undergraduate degree program directly from high school. Selection is based on academic achievement. Consideration may be given to financial need and/or involvement in extracurricular activities. **donor**: Dale E. Saunders (BSE.CE 1969).

Michael Shanks Memorial Scholarship
field: Unrestricted. **value**: Approximately $750. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from a New Brunswick high school and is beginning an undergraduate degree program on the Fredericton campus. Selection is made on the basis of scholastic attainment and financial need. **donor**: Colleagues and friends of the late Michael Shanks, former Associate Registrar, UNB Fredericton and the New Brunswick University Opportunities Fund.

Sharpe Family Scholarship
field: Unrestricted. **value**: $12,000 per annum. number: 2. **duration**: 4-5 yrs (degree program). **conditions**: Awarded on the basis of scholastic attainment to a student entering a degree program at UNB on the Fredericton campus. Consideration will be given to the student's involvement in extracurricular activities and to financial need. The scholarship will be awarded every 4 to 5 years. **donor**: Dawn Sharpe (CE'64) and Susan Sharpe of Calgary, Alberta.

Gertrude Winnifred Smith Scholarship
field: Unrestricted. **value**: $6,000 ($1,500 per annum). number: 1. **duration**: 4 years. **conditions**: A woman from Charlotte County of good moral character, who is unable to pay her own expenses. One scholarship awarded every 4 years.**donor**: The late Gertrude Winnifred Smith.

Sobey Scholarship
field: Unrestricted. **value**: $5,000. number: Multiple. **duration**: 1 year. **conditions**: Awarded to students beginning their first undergraduate degree program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. Selections are made on the basis of scholastic attainment and financial need. **donor**: The Sobey Foundation and the New Brunswick University Opportunities Fund.

Catherine & Gerald Sutherland Bursary
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student on the Fredericton campus who is a graduate of a high school in central New Brunswick, and has demonstrated successful academic performance. **donor**: Catherine & Gerald Sutherland and the New Brunswick University Opportunities Fund.

Brock A. Turner Memorial Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of Sussex High School and is beginning an undergraduate degree program at UNB. One scholarship will be awarded every two years. **donor**: Mrs. Brock A. Turner.

UNB - International Baccalaureate Scholarships
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 4 years. **conditions**: Awarded to students who are completing or have completed an International Baccalaureate Diploma and are beginning an undergraduate degree program at UNB. Selection is based on academic achievement.

UNB Ironmen Rugby Football Club Alumni Scholarship
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is beginning an undergraduate degree program. Selection is based on academic attainment and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services Guidelines. Preference will be given to students with prior rugby experience (high School and/or provincial teams). awarding agency: The University, on the recommendation of the award's selection committee. **donor**: UNB Rugby Football Alumni and the New Brunswick University Opportunities Fund.

UNB Fredericton Turnaround Achievement Award
field: Unrestricted. **value**: Up to $5,000. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are recipients of Kingswood's Turnaround Achievement Awards and attend UNB Fredericton on a full-time basis during the following fall term. awarding agency: The University, in consultation with representatives of Kingswood.

UNB Leadership Scholarship
field: Unrestricted. **value**: $2,500. number: 2. **duration**: 1 year. **conditions**: Open to students beginning a degree program directly from high school who have demonstrated successful academic achievement. Candidates must have played a leadership role in extracurricular activities such as community service, student government, athletics or the visual or performing arts. **donor**: The University of New Brunswick.

UNB Loran Award
field: Unrestricted. **value**: Tuition and fees. number: 1 or more. **duration**: 4 years. **conditions**: Awarded to a student who has been selected as a Loran Award recipient by the Canadian Merit Scholarship Foundation and is beginning an undergraduate degree program. awarding agency: The University, in consultation with the Canadian Merit Scholarship Foundation. **donor**: The University.

UNB Recognition Scholarship - (Duke of Edinburgh Award)
field: Unrestricted. **value**: $2,500. number: 6. **duration**: 1 year. **conditions**: Awarded to students beginning a degree program directly from high school who have participated in the Duke of Edinburgh program. Selection will be based on scholastic attainment. **donor**: The University of New Brunswick.

UNB Scholarship for Academic Excellence
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: Up to 4 years. **conditions**: Awarded to international students who are enrolling in an undergraduate degree program at UNB. Selection is based on academic achievement. awarding agency: The University, on the recommendation of the Registrar's Office at the admitting campus.

UNB- Shad Valley Scholarships
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 4 years. **conditions**: Awarded to students who participated in Shad Valley and are beginning an undergraduate degree program at UNB. Selection is based on academic achievement.

University Faculty & Staff Entrance Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Students beginning an undergraduate degree program. Selections are made on the basis of scholastic attainment and financial need. **donor**: Contributors to the University Faculty/Staff Fund.

University of New Brunswick Saint John Primrose Scholarship
field: Unrestricted. **value**: $5,000 or greater. number: 1. **duration**: 1 year. **conditions**: Awarded annually to a first year student on the Saint John campus. Selection is based on academic achievement, and community/athletic leadership. Also, applicants are required to write a 500 word essay on a topic of their choice. apply: The Registrar, UNBSJ. awarding agency: The University on the recommendation of the Vice-President (Saint John). **donor**: Proceeds from the May 4th, 1999 University of New Brunswick Scholarship dinner.

William Webster Scholarship
field: Unrestricted. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from Sussex High School and is beginning an undergraduate degree program on the Fredericton Campus. Selection is based on scholastic achievement and extra-curricular activities. **donor**: William W. D. Webster (BA 1959).

L. A. Wilmot Scholarship
field: Unrestricted. **value**: $375. number: 1. **duration**: 1 year. **conditions**: Male student of exceptional moral character and of good mental ability. His circumstances must be such as to render pecuniary aid necessary towards obtaining a university education. The scholarship has been assigned in competition among pupils in Saint John. **donor**: The late Mrs. L.A. Wilmot.

Beatrice Small Wilson Bursary
field: Any course at UNBSJ. **value**: $1,000. number: 4. **duration**: 1 year. **conditions**: Awarded to students who show academic promise and need financial assistance, from Saint John, Albert, Kings, or Charlotte Counties, and who do not hold any other major bursaries or scholarships. **donor**: The Charles Wilson Charitable Foundation Inc.

High School Students and Continuing UNB Students
A number of scholarships are open to both high school and continuing UNB students. The scholarship application completed by the high school student or continuing UNB student covers these scholarships as well.

ARTS

Chub and Estelle Baxter Scholarship
field: Arts. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student enrolled in an undergraduate degree program in the Faculty of Arts. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Chub & Estelle Baxter and the New Brunswick University Opportunities Fund.

Doxbow Scholarship
field: Arts. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from Tobique Valley High School and is enrolled in an undergraduate degree program in the Faculty of Arts. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Doxbow Inc. and the New Brunswick University Opportunities Fund.

Karl Land Fiddes BA 1962 Memorial Scholarship in Arts
field: Arts. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to students in the undergraduate Bachelor of Arts degree program. **donor**: The late Karl Land Fiddes

Colby H. & Bessie J. Jones Scholarship in Arts
field: Arts. **value**: Minimum $500. **number**: Minimum 1. **duration**: 1 year. **conditions**: Open to students in the Bachelor of Arts degree program at UNB who are graduates of a high school in Kings or Queens Counties, New Brunswick. **donor**: The Late Mrs. Bessie J. Jones.

Alvin Shaw Memorial Scholarship in Theatre
field: Arts. **value**: Variable. **number**: 1 or more. **duration**: Up to 4 years. **conditions**: Awarded to a Fredericton campus student with preference given to a student enrolled in an Arts Faculty degree program who intends to complete a Drama Minor or a Major in English (drama). The recipient must enrol in ENGL/DRAM 1173 (Introduction to Acting and Performance) or 2170 (Principles of Drama Production) during his/her first year at UNB. Theatre experience, grades and awards earned for work in drama will be the primary consideration in the selection of the recipient. The renewal of the scholarship is contingent on satisfactory academic performance and progress through the program. awarding agency: The University, on the recommendation of the Director of Drama. **donor**: Alvin Shaw.

UNB Bachelor of Applied Arts Scholarship
field: Applied Arts. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in the Bachelor of Applied Arts program on the Fredericton campus. Selection is based on academic achievement. Consideration may be given to financial need and/or extra-curricular involvement. The recipient must be enrolled at UNB while holding this scholarship. awarding agency: The University, on the recommendation of the Dean of Arts in consultation with the Director, UNB Art Centre

BUSINESS ADMINISTRATION

Business Administration 25th Anniversary Scholarship
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to Fredericton campus students in the BBA program. **donor**: Contributions by graduates, faculty, staff, business firms and individuals in recognition of the 25th anniversary of the first BBA graduates from UNB.

Dr. Tony and Elizabeth Comper Scholarship
field: Business Administration. **value**: $1,125. **number**: 2. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in the Bachelor of Business Administration degree program and are graduates of a Canadian high school. One scholarship is awarded to a Fredericton campus student and one to a Saint John campus student. Selection is based on academic achievement. **donor**: Dr. Tony Comper, D.Litt. '05, and Elizabeth Comper.

Ganong Bros. Ltd. Scholarship
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to graduates of a New Brunswick high school. Selections are made on the basis of scholastic attainment and financial need. **donor**: Ganong Bros. Limited.

A.C. Garrod Scholarship
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year but renewals will be considered. **conditions**: Awarded to a student who is a resident of Bosnia & Herzegovina. Selection will be based on scholastic attainment and financial need. Transfer students may also be considered. **donor**: John Dowd.

Thomas J. Hammett Memorial Award
field: Business Administration. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded each year to one full-time student in the Business Administration degree program at UNBF, and one in Business Administration at UNBSJ. Recipients should have graduated from a high school in the Atlantic Provinces, have a minimum scholarship admission average of 85% or a minimum Assessment GPA of 3.7, have financial need, and proven athletic ability and current athletic interests. One scholarship is awarded at the entrance level and one at the undergraduate level. **donor**: The Estate of Mr. Thomas J. Hammett.

Welsford R. Jenkins Bursary for Business Administration
field: Business Administration. **value**: Approximately $900. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to a student in the Business Administration degree program on the Saint John campus. **donor**: Mr. Welsford R. Jenkins.

Karnes Scholarship in Business Administration
field: Business Administration. **value**: Variable. (1 or more recipients). **number**: 1 or more. **duration**: 1 year. **conditions**: Open to graduates of a New Brunswick high school. Selections are made on the basis of scholastic attainment and financial need. **donor**: Karnes Kitchen Ltd. and the New Brunswick University Opportunities Fund.

Doug King Scholarship
field: Hospitality & Tourism. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who is enrolled in the Bachelor of Applied Management in Hospitality and Tourism degree program. Selection is based on academic achievement with preference given to a student in financial need. **donor**: Doug King.

Ronald & Joan MacFarlane Bursary
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student enrolled in the Bachelor of Business Administration degree program. The recipient must be a graduate of a New Brunswick high school and must demonstrate successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Sharon MacFarlane, BBA 1979 and the New Brunswick Universities Opportunity Fund.

NOVA Scholarships for Women and/or Aboriginal Students in Business
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded with consideration of scholastic attainment, to female students, as well as to male or female aboriginal students in the Business Administration degree program. **donor**: NOVA Corporation Charitable Foundation

Simms Scholarship
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to graduates of a New Brunswick high school. Selections are made on the basis of scholastic attainment and financial need. **donor**: T.S. Simms & Company Ltd.

Dr. Malcolm M. Somerville Bursaries in Business
field: Business. **value**: $750. **number**: 2. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students, one male, one female, from New Brunswick in the Faculty of Business on the Saint John campus who have demonstrated successful academic performance. **donor**: The family of Malcolm M. Somerville, D.Litt.'96 and the New Brunswick University Opportunities Fund.

COMPUTER SCIENCE

Eldon and Maxine Clair Scholarship in Computer Science
field: Computer Science. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students enrolled in an undergraduate degree program in the Faculty of Computer Science. Selection is based on academic achievement. Consideration may be given to financial need and/or extra-curricular activities. This scholarship is open to transfer students. awarding agency: The University on the recommendation of the Faculty of Computer Science.**donor**: The estate of Eldon and Maxine Clair.

Computer Science 40th Anniversary Scholarship
field: Computer Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in an undergraduate degree program in the Faculty of Computer Science. Selection is based on scholastic achievement. **donor**: Alumni and friends of the Faculty of Computer Science.

Computer Science Faculty and Staff Scholarship
field: Computer Science. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled an undergraduate degree program in the Faculty of Computer Science. Selection is based on academic achievement. **donor**: Faculty and staff of the Faculty of Computer Science, UNB Fredericton.

Dr. Jane Fritz Scholarship
field: Computer Science. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in an undergraduate degree program in the Faculty of Computer Science. Selection is based on academic achievement and financial need. Where qualifications and need are similar, preference will be given to female students. **donor**: Family, friends, colleagues and students of former Dean of Computer Science, Dr. Jane Fritz.

EDUCATION

Florence Swan Memorial Scholarship
field: Education. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a student enrolled in an undergraduate degree program in the Faculty of Education. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. **donor**: The estate of Florence Swan and the New Brunswick University Opportunities Fund.

ENGINEERING

Sydney Acker Scholarship
field: Engineering. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in Bachelor of Science in Engineering degree program (any discipline). Selections are made on the basis of scholastic attainment and financial need. **donor**: The family and friends of Sydney Acker, BScEng (Civil) 1944.

William & Edward Akerley Memorial Scholarship
field: Civil Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment to Fredericton campus Civil Engineering students. **donor**: Mrs. B.E. Akerley and family, in memory of her late husband, William (BScCE'32), and his late brother, Edward (BScCE'23)

Paul Antle Scholarship in Chemical Engineering
field: Chemical Engineering. value: $1,000. number: 1. duration: 1 year. conditions: Awarded to a student enrolled in the Bachelor of Science in Engineering (Chemical) degree program. Selection will be based on scholastic achievement and financial need. Preference will be given to a student from Newfoundland. donor: Paul G. Antle, B.Sc. (Memorial '85), M.Eng.(ChE '87).

Edward Bamford Scholarship in Engineering
field: Engineering. value: Minimum $2,000. number: 1. duration: 1 year (may be renewed.) conditions: Awarded to a student from Northumberland County who is enrolled in the Bachelor of Science in Engineering degree program, with preference given to a student enrolled in Civil Engineering. Selection will be based on scholastic attainment and financial need. donor: Edward Bamford and the New Brunswick University Opportunities Fund.

Alastair D. Cameron Memorial Scholarship
field: Civil Engineering. value: $3,000. number: 1. duration: 1 year. conditions: Awarded to a Fredericton campus student enrolled in the Bachelor of Science in Engineering (Civil) degree program. Selection will be based on scholastic achievement and financial need. donor: Mrs. Audrey Cameron.

George Cedric Ferguson Memorial Engineering Bursary
field: Chemical, Civil, Electrical and Mechanical Engineering. value: Variable. number: Minimum 1. duration: Up to 5 years. conditions: Awarded on the basis of financial need with consideration given to scholastic attainment to students enrolled in the Chemical, Civil, Electrical or Mechanical Engineering degree program. Preference is given to students from the Tracadie-Sheila area. donor: The late George Cedric Ferguson.

Challenger Geomatics Scholarship
field: Geodesy and Geomatics Engineering. value: $2,500. number: 1. duration: 1 year. conditions: Awarded to a student enrolled in the Bachelor of Science in Engineering (Geodesy and Geomatics). Selection will be based on academic attainment. donor: Challenger Geomatics.

William Godfrey Scholarship
field: Engineering. value: Variable. number: 1. duration: 1 year. conditions: Awarded to a student who has graduated from a New Brunswick High School and is enrolled in the Bachelor of Science in Engineering degree program. Selection will be made on the basis of scholastic attainment and financial need. donor: William Godfrey and the New Brunswick University Opportunities Fund.

J. Lloyd Hargrove Memorial Scholarship
field: Electrical Engineering. value: $500. number: 1. duration: 1 year. conditions: Awarded to a Fredericton campus student enrolled in the Bachelor of Science in Engineering (Electrical). Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. donor: Mrs. Beverley E. Hargrove, in memory of her husband, Lloyd (BScEE'46) and the New Brunswick Universities Opportunities Fund.

Colin Jardine Memorial Bursary
field: Mechanical Engineering. value: $2,500. number: 4. duration: 1 year (may be renewed.) conditions: Awarded on the basis of financial need to Fredericton campus students who are Canadian citizens or landed immigrants enrolled in the Bachelor of Science in Engineering (Mechanical) degree program. The recipients must have successful academic performance and, in keeping with the character of Colin Jardine (BSE ME'66), have proven leadership qualities, demonstrated strong ethics and a compassion for others. donor: Lilian Jardine, widow of Colin Jardine.

Richard B. Logie Memorial Scholarship
field: Engineering. value: $2,500. number: 1. duration: 1 year. conditions: Open to a student who is a graduate of a New Brunswick High School who is either entering or has completed at least the normal requirements for the first year of Engineering at UNB, with preference given to an entering student. Selection is made on the basis of scholastic attainment and financial need. donor: William & Marion Logie and the New Brunswick University Opportunities Fund.

Harry M. McCrea Memorial Scholarship
field: Engineering. value: $3,750. number: 1. duration: 1 year. conditions: Awarded to a student who is a graduate of J.M.A Armstrong High School and is enrolled in an undergraduate degree program in the Faculty of Engineering. Selection is based on academic performance and financial need. Preference will be given to the student who demonstrates leadership ability. donor: Armour M. "Ben" McCrea, P.Eng, Class of 1957 and the New Brunswick University Opportunities Fund.

MRDC Athletic Award
field: Engineering. value: $1,250. number: 1 or more. duration: 1 year. conditions: Awarded to Fredericton campus students who are enrolled in the Bachelor of Science in Engineering and have demonstrated talent in the field of varsity athletics. Recipients must have at least an 80% entering average or a 2.5 grade point average in the previous year of study, as per the CIS regulations on athletic awards. Transfer students are eligible. awarding agency: The University, on the recommendation of the Director of Athletics. donor: MRDC Operations Corporation.

Mary Peebles Memorial Scholarship
field: Engineering. value: $2,500. number: 1. duration: Up to 4 years. conditions: Awarded to a Canadian or British student beginning any year of the Bachelor of Science in Engineering degree program (any discipline). Selection is based on academic achievement. Transfer students are eligible to be considered for this scholarship. At least one scholarship will be awarded every 4 years. donor: Ross Peebles.

James M. Saunders Scholarship
field: Engineering. value: $6,000. number: 1. duration: 1 year. conditions: Awarded to a student from Nova Scotia beginning the Bachelor of Science in Engineering (any disipline) degree program directly from high school. Preference will be given to a student from Cape Breton. Selection is based on academic achievement and financial need. donor: James M. Saunders (BSE.CE 1982).

UNB Engineering Alumni Scholarship
field: Engineering. value: $500. number: 1 or more. duration: 1 year. conditions: Awarded to students in the Bachelor of Science in Engineering degree program. Selection will be based on scholastic attainment. Consideration may be given to financial need and/or extracurricular activities. This scholarship may be open to transfer students. donor: UNB Engineering Alumni and Friends

UNB Mechanical Engineering Alumni Scholarship
field: Mechanical Engineering. value: Variable. number: 1 or more. duration: 1 year. conditions: Awarded to students enrolled in the Bachelor of Science in Engineering (Mechanical) degree program. Selection is based on academic achievement and financial need. donor: UNB Mechanical Engineering Alumni.

Ventzek Family Scholarship
field: Chemical Engineering. value: $500. number 1. duration: 1 year. conditions: Awarded to a student in the Bachelor of Science in Engineering (Chemical) degree program. Selection will be based on academic achievement and financial need. Preference will be given to an international student. donor: Dr. Peter Ventzek, BScChE 1986.

Lawrence S. Willett Memorial Scholarship
field: Engineering, value: $5,000. number: 1. duration: 1 year. conditions: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Engineering degree program. Selection will be based on scholastic attainment. donor: The estate of Frances M. Willett, in memory of her husband, Lawrence S. Willett, BScEng(CE) '50.

FORESTRY

George & Elaine Andrews Memorial Scholarship in Forestry
field: Forestry. value: Variable. number: Multiple. duration: 1 year. conditions: Awarded to Fredericton campus students in the Bachelor of Science in Forestry. Selection is based on academic achievement, with preference given to those who best combine academic and athletic achievement. awarding agency: The University. donor: The estate of George (BSF 1950) and Elaine Andrews.

Envirothon Scholarship
field: Forestry, Forest Engineering, or Environment and Natural Resources. value: Up to $500. number: 1 or more. duration: 1 year. conditions: Awarded to Fredericton campus students who have been accepted to an undergraduate degree program in the Faculty of Forestry and Environmental Management and have participated in an Envirothon team in Canada or United States. Envirothon is an environmental competition program for teams from high schools, administered by the Canadian Forestry Association of New Brunswick provincially and sponsored by Canon (at the North American level). Selection is based on academic achievement. Transfer students may be considered. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management.

Forestry Staff & Alumni Scholarship
field: Forestry and Forest Engineering. value: Variable. number: Variable. duration: 1 year. conditions: Awarded primarily on the basis of scholastic attainment to Fredericton campus Forestry or Forest Engineering students. donor: UNB Forestry and Forest Engineering staff and UNB alumni members.

Colby H. & Bessie J. Jones Scholarship in Forestry
field: Forestry. value: Minimum $500. number: Minimum 1. duration: 1 year. conditions: Open to students in the Faculty of Forestry and Environmental Management at UNB who are graduates of a high school in Kings or Queens Counties, New Brunswick. donor: The Late Mrs. Bessie J. Jones.

William and Iris Perrin Scholarship
field: Forestry. value: $500. number: 1. duration: 1 year. conditions: Awarded to a student who is enrolled in an undergraduate degree program in the Faculty of Forestry. Selection is based on academic achievement and financial need. awarding agency: The University. donor: Family of Bill (BScF 1953) and Iris Perrin.

KINESIOLOGY

John Kelly Recreation Bursary
field: Kinesiology. value: $1,000. number: 2. duration: 1 year. conditions: Awarded on the basis of financial need to Fredericton campus students enrolled in an undergraduate degree program in the Faculty of Kinesiology who have demonstrated successful academic performance. One bursary will be awarded to a student beginning the program directly from high school and one bursary will be awarded to a student who has completed at least the minimum requirements for the first year. Consideration will also be given to extracurricular activities, community involvement and/or leadership qualities. donor: The Greater Saint John Community Foundation.

MULTIPLE PROGRAMS

Betts/Wilbur Memorial Scholarship
field: Computer Science, Engineering, Science. **value**: $10,000. number: 1. **duration**: 4 years. **conditions**: Awarded to students who are enrolled in the Bachelor of Computer Science, Bachelor of Science, or Bachelor of Science in Engineering degree programs who are graduates of a New Brunswick high school. Selection is based on academic attainment and financial need. **donor**: David W. and Wendy F. Betts and the New Brunswick University Opportunities Fund.

Iris Bliss Scholarship
field: Kinesiology or Science. **value**: $3,250. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Science in Kinesiology or the Bachelor of Science degree program and is a graduate of Fredericton High School. Selection will be based on academic achievement and financial need with consideration given to participation in sport/dance or involvement in school or local community activities. In the event that there are no Fredericton High School graduates considered as eligible for this scholarship, then Leo Hayes High School graduates will be considered. **donor**: Iris E. C. Bliss and the New Brunswick University Opportunities Fund.

Gerald A. Campbell Memorial Scholarship
field: Science, Engineering, Forestry, and Forest Engineering. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students at UNB on the basis of scholastic attainment and financial need. Preference may be given to graduates of New Brunswick high schools. **donor**: The late Gerald A. Campbell and the New Brunswick University Opportunities Fund.

Maggie Jean Chestnut Scholarship
field: Arts or Science. **value**: Variable. number: 1 or more. **duration**: Up to 4 years. **conditions**: Women students registered in either the Faculty of Arts or the Faculty of Science. Students in Home Economics or similar courses are not eligible. Preference will be given to students in residence at the Maggie Jean Chestnut House. Scholarship is also open to Fredericton women living at home. Selection will be made on the basis of good academic standing with consideration being given to financial need. **donor**: The late Mrs. Annie T. Chestnut.

Ernest deWitt Chipman Memorial Scholarship
field: Bach. of Philosophy in Interdisciplinary Leadership or Bach. of Arts (International Development) **value**: Approximately $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick High School and is enrolled in the Bachelor of Philosophy in Interdisciplinary Leadership or majoring in International Development Studies in the Bachelor of Arts on the Fredericton campus or International Studies on the Saint John campus. Selection will be based on academic attainment and financial need. Preference will be given to a student involved in extra-curricular activities. **donor**: A.M. Chipman, his father; Peter and Patricia Chipman, his brother and wife; family & friends and the New Brunswick University Opportunities Fund.

Howard Copp Memorial Bursary
field: Forestry, Nursing or Education. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is enrolled in the Bachelor of Science in Forestry, Bachelor of Nursing or Bachelor of Education (Concurrent or Consecutive) degree program and has demonstrated successful academic performance. Preference will be given first to graduates of North and South Esk Regional High School, then to graduates of Miramichi Valley High School. **donor**: The late Lillian Copp, in memory of her father, Howard Copp.

Gogii Games Scholarship
field: Software Engineering. **value**: $4,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Science in Software Engineering. Preference will be given to a female student. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. Selection will be based on academic achievement and financial need. **donor**: George Donovan and the New Brunswick University Opportunities Fund.

Grant Science/Engineering Scholarship
field: Science or Engineering. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Science or the Bachelor of Science in Engineering (Mechanical) degree program. Selection will be made on the basis of scholastic achievement. The scholarship will alternate each year between the Bachelor of Science and the Bachelor of Science in Engineering (Mechanical) degree programs. **donor**:Christopher (BSE ME 1981) and Laura Grant.

J. Fraser Gregory Scholarship
field: Preference to Science and Engineering. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance to students on the Saint John campus. **donor**: The late H. Olivia Spurling.

Alleyne Hubbard Memorial Scholarship
field: Science, Engineering, Forestry, Computer Science. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to students who have graduated from an NB high school and have enrolled in the following degree programs: Science, Engineering, Forestry or Computer Science. Selection will be based on academic achievement and financial need. Preference will be given to students involved in extracurricular activities and athletics **donor**: Marion (Hubbard) Logie, Lucy & Frederick Hubbard, in memory of their brother, Alleyne (Al) Russell Hubbard (BScF '37), Lieutenant, killed in action during World War II at Nymegen, Holland on November 20th 1944. He served with Unit No. 15, Canadian Forestry Corps. The New Brunswick University Opportunities Fund also contributes to this scholarship.

Jenkins Family Scholarship
field: Nursing, Science or Education. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the Bachelor of Nursing, Bachelor of Science, or the Bachelor of Education degree program who is from Queens, Kings, or Sunbury Counties, with preference given to a student from Queens County. Selection is based on scholastic achievement. **donor**: The Jenkins family and friends in honour of Dr. Willard Jenkins and Donald and Patricia Jenkins.

E. Jane Leonard Scholarship
field: Business Administration or Science. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Business Administration or Bachelor of Science degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection will be based on academic achievement and financial need. **donor**: E. Jane Leonard, BBA 1981, MSc (Surrey, UK) and the New Brunswick University Opportunities Fund.

Murdock M. & Bessie Mann Memorial Scholarship
field: Engineering and Science. **value**: Variable. number: 2. **duration**: 1 year. **conditions**: Open to Fredericton campus students who are enrolled in the Bachelor of Science in Engineering or the Bachelor of Science degree program. One scholarship will be provided to a student beginning the program directly from high school. The second scholarship will be provided to a student who has completed at least the minimum requirements for the first year of the program. Preference will be given to students from Restigouche and Gloucester counties. The recipients must be New Brunswick residents, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection will be based on academic achievement and financial need. **donors**: Bernice Mann in honor of her parents, and the New Brunswick University Opportunities Fund.

William McIntosh Memorial Scholarship
field: Preference to those enrolling or enrolled in Mathematics or Natural Science. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Tenable at UNBSJ. Awarded on the basis of financial need to students whose record shows they may benefit from a university education. Open to any New Brunswick student. **donor**: Dr. G. Forbes Elliot, Former Vice-President, UNBSJ and the New Brunswick University Opportunities Fund.

McCue Scholarship
field: Science. **value**: $1,000. number: 1 **duration**: 1 year. **conditions**: Awarded to a student in the Bachelor of Science degree program who is a New Brunswick resident, according to the Provincial Government´s Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Dr. Shannon McCue BSc'97, Sean Cameron, and the New Brunswick University Opportunities Fund.

T. Ross Moore Memorial Bursary
field: Science or Engineering. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students who are enrolled in an undergraduate degree program in the Faculty of Science or the Faculty of Engineering. The recipient must demonstrate successful academic achievement and be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. **donor**: The estate of Mary Olive Moore, in memory of her husband, T. Ross Moore (BSC 1933).

Fletcher Peacock Memorial Scholarship
field: Preference to those enrolling or enrolled in Business Administration, Engineering or Forestry. **value**: Approximately $650. number: 1. **duration**: 1 year. **conditions**: Tenable at UNBSJ. Awarded on the basis of financial need to students whose recor shows they may benefit from a university education. Open to any New Brunswick student. **donor**: Dr. G. Forbes Elliot, Former Vice-President, UNBSJ.

H.G. & M.L. Pond Scholarship
field: Forestry/Forest Engineering and Nursing. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Open to students in the program leading to the degree of Bachelor of Science in Forestry/Forest Engineering or Nursing. Selections are made on the basis of scholastic attainment and financial need. Consideration will be given to participation in extracurricular activities. All qualified applicants will be considered including those from the three Prairie provinces. **donor**: Mr. & Mrs. H.G. Pond.

Rolf Riegger Bursary
field: Computer Science or Engineering. **value**: $1,500. **number**: 3. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Saint John campus students who are Canadian citizens entering first or second year of a Bachelor of Science in Computer Science or Bachelor of Science in Engineering degree program. Recipients must demonstrate successful academic performance. **donor**: Sachiko Riegger.

James C. Sansom, MM, Memorial Scholarship
field: Business Administration or Forestry. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student in the Bachelor of Business Administration or Bachelor of Science in Forestry degree program. Selection will be based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Brock Sansom, BBA'76, Brent Sansom, BBA'75, and the New Brunswick University Opportunities Fund.

Schulich Bursary
field: Science, Technology, Engineering or Mathematics. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students enrolled in an undergraduate degree program in the areas of Science, Technology, Engineering or Mathematics. Recipients must demonstrate successful academic performance. **donor**: Seymour Schulich.

Jean R. Stewart Memorial Scholarship
field: Physical Sciences or Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to female students studying one of the physical sciences or engineering at the University of New Brunswick. The student should have graduated in the top quarter of the high school graduation class and have a demonstrated need for financial assistance. **donor**: The late Jean R. Stewart.

Stanley Frank Trzop Sr. & Jr. Memorial Scholarship
field: Geology, Geological Engineering, Engineering, or Business. **value**: Variable - up to $3,000.00 /year. **number**: 1 or more. **duration**: For recipients in Geology or Geological Engineering a maximum of three years; for recipients in other degree programs, one year. The one year scholarship will be an entrance scholarship. **conditions**: Awarded to a student who is a graduate of Minto Memorial High School and entering a Geology or Geological Engineering degree program at UNB. It will be awarded based on the student's scholastic achievement; athletic ability and leadership in the school and community will also be considered. Should a qualified candidate not exist in Geology or Geological Engineering, consideration will then be given to a student in any other Engineering degree program, and failing that, consideration will be given to students entering a business program. **donor**: Stanley Frank Trzop Jr. in memory of his father Stanly Frank Trzop Sr., and Charles Day, the first Principal of Minto Memorial School.

NURSING

50th Anniversary Scholarship in Nursing
field: Nursing. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a First Nations student enrolled in the Faculty of Nursing on the Fredericton campus. Selection is based on scholastic attainment. awarding agency:The University, on the recommendation of the Faculty of Nursing. **donor**: Alumni and Friends of the Faculty of Nursing.

Bannon Family Scholarship
field: Nursing. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from the Moncton area who is enrolled in the Bachelor of Nursing advanced standing program at the Moncton site. Selection is based on academic achievement. Consideration may be given to the student's involvement in extracurricular activities and/or financial need. **donor**: Douglas Bannon.

Dr. Everett Chalmers Hospital Auxiliary Scholarship for Mature Nursing Students
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to entering or continuing mature students who are graduates of a high school in York, Victoria, Carleton or Sunbury Counties enrolled in either the Basic or Post RN Nursing Program. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: Dr. Everett Chalmers Hospital Auxiliary and the New Brunswick University Opportunities Fund.

Catherine Leslie Ircha Bursary in Nursing
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student enrolled in the Bachelor of Nursing degree program. **donor**: Dr. Michael C. Ircha, in memory of his mother.

M. J. Lloyd Memorial Scholarship
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to students in either the Basic or Post RN Nursing program. **donor**: Mrs. Erie Yvonne Bamford.

Cheryl A. and John S. Lockhart Memorial Bursary
field: Nursing. **value**: $500. **number**: 2. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student enrolled in the Bachelor of Nursing degree program at the Moncton site or on the Saint John campus. The recipient must demonstrate successful academic performance and be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services Guidelines. **donor**: Friends and Family of the late Cheryl (Stevens) and John Lockhart (BScCE 1972) and the New Brunswick University Opportunities Fund.

Francis Hugh Scovil Scholarship in Nursing
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year (may be renewed). **conditions**: Awarded primarily on the basis of academic performance to students in either the Basic or Post-RN Nursing program. **donor**: The late Francis Hugh Scovil.

Patricia S. Wilson Scholarship
field: Nursing. **value**: $2,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student enrolled in the Bachelor of Nursing degree program at the Moncton site. Selection is based on scholastic attainment and financial need. The recipient must be a New Brunswick resident, according to the NB Provincial Government's Student Financial Services guidelines. **donor**: The Fred and Nadine Taylor Charitable Foundation and the New Brunswick University Opportunities Fund.

Jane Margaret Worth Memorial Bursary
field: Nursing. **value**: $1,000. **number**: 1. **duration**: 4 years. **conditions**: Awarded on the basis of financial need to a student enrolled in the Bachelor of Nursing degree program who has demonstrated successful academic performance. Consideration will be given to the student's involvement in community activities. The recipient must be a New Brunswick resident, according to the NB Provincial Government's Student Financial Services guidelines. Only one scholarship will be awarded every 4 years. **donor**: This bursary was established to honour Jane Worth BN 1970, a dedicated nurse and health care administrator with donations from Jane's family and friends as well as a matching gift from the New Brunswick University Opportunities Fund.

SCIENCE

N. Myles Brown Natural Science Scholarship
field: Any **field** of science/applied science concerned with ecology. **value**: Variable. **number**: 1. **duration**: Awarded for 1 year. **conditions**: Students who are either beginning an undergraduate degree program at UNB or have completed the normal requirements for the first year of the program in which they are registered. Applicants must intend to pursue their studies in any **field** of science/applied science concerned with ecology. Selections are made on the basis of scholastic and other attainments and financial need. **donor**: The Woodstock Museum Inc.

Karl Land Fiddes BA. 1962 Memorial Scholarship in Science
field: Science. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to students in the undergraduate Bachelor of Science degree program. **donor**: The late Karl Land Fiddes.

Fundy Environmental Scholarship
field: Environmental Studies. **value**: $1,000. **number**: 2. **duration**: 1 year (may be renewed). **conditions**: Awarded to two students on the Saint John campus who reside in the South Bay through Grand Bay-Westfield area, who are graduates of a high school in the Saint John region, and who are not currently the recipients of any major scholarships. Students must be enrolled in an undergraduate degree program and demonstrate an interest in the environment. The recipient may retain this scholarship for a maximum of two years while enrolled in a UNB articulated degree program and attending the partnering institution. awarding agency: The University. **donor**: Fundy Future Environment and Benefits Council.

Dr. W. Blair Orser Scholarship in Science
field: Science. **value**: Based on funds available and may vary in amounts from $100 to full annual tuition. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to students entering Science at UNB who are graduates of Hartland High School or Carleton North High School and intend to follow a pre-medical program of studies. Priority is given to students entering 1st year Science at UNB with renewals being subject to available funds. awarding agency: The University. **donor**: Dr. W. Blair Orser.

Allister R. Peach Memorial Scholarship
field: Unrestricted but preference to Geology. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus from Cape Breton, Nova Scotia, with preference to a student in the Department of Earth Sciences. Selection is made on the basis of academic standing and strength of character. **donor**: Family and friends of the late Allister R. Peach.

SCIENCE, APPLIED SCIENCE & ENGINEERING

Horst Sauerteig Bursary
field: Science, Applied Science and Engineering. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student enrolled in an undergraduate degree program in the Faculty of Science, Applied Science and Engineering. The recipient must demonstrate successful academic performance. **donor**: The Sauerteig family.

Cherrill Edwina Shea and Carl Robert Aron Scholarship
field: Nursing or Health Sciences. **value**: $7,500. **number**: 1. **duration**: 1 year.
conditions: Awarded to a Saint John campus student who is a graduate of a New Brunswick high school, a New Brunswick resident, and enrolled in the Bachelor of Nursing or the Bachelor of Health Sciences. Selection is based on academic achievement and financial need. The recipients may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. **donor**: Cherrill Edwina Shea, Carl Robert Aron and the New Brunswick University Opportunities Fund.

UNRESTRICTED

Aliant Centennial Scholarship
field: Unrestricted. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: A scholarship will be awarded to a student on the Fredericton campus; the second scholarship will be awarded to a student on the Saint John campus. Open to students who are either entering or have completed at least the normal requirements for the first year of a degree program at UNB. Selection is made on the basis of scholastic attainment with consideration given to financial need. **donor**: Aliant Telecom.

George & Elaine Andrews Memorial Scholarship in Athletics
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are members of a Varsity Reds team. Selection is based on academic achievement in combination with athletic achievement. Preference will be given to students who are studying Forestry. awarding agency: The University, in consultation with the Director of Athletics. **donor**: The estate of George (BSF 1950) and Elaine Andrews.

Anonymous Donor Scholarship
field: Unrestricted. **value**: Approximately $200. **number**: 1. **duration**: 1 year. **conditions**: A needy and deserving student of UNB. **donor**: Anonymous.

David and Marian Bassett Scholarship
field: Unrestricted. **value**: $7,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a resident of the Bahamas. Selection will be based on scholastic attainment. Transfer students may also be considered.**donor**: David and Marian Bassett.

John F. Bassett Memorial Scholarship
field: Unrestricted. **value**: Minimum $2,000. **number**: Two per year. **duration**: 1 year. **conditions**: Open to graduates of any high school in Ontario. Awarded primarily for scholastic attainment, but extracurricular activities, sports achievement and need may also be taken into account. **donor**: Dr. Fredrik S. Eaton.

Fannie Chandler Bell Scholarship
field: Unrestricted. **value**: Up to $2,500. **number**: Variable. **duration**: Up to 2 years. **conditions**: Students who show academic promise and need financial assistance. **donor**: The late Fannie Chandler Bell.

Bermuda Alumni Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to students from Bermuda enrolled in a degree program at UNB. **donor**: Bermuda Alumni.

BMO Financial Group Soccer Award
field: Unrestricted. **value**: $5,000. **number**: 10. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are members of the Varsity Reds Soccer teams. Five awards will be provided to the women's team and five awards will be provided to the men's team. Selections are based on academic achievement (a minimum 2.5 grade point average for returning students or 80% average for entering students) and athletic excellence. These awards are open to transfer students.awarding agency: The University, on the recommendation of the Director of Athletics, in consultation with the coaches of the men's and women's Varsity Reds Soccer teams. **donor**: BMO Financial.

Boyer Scholarship
field: Unrestricted. **value**: $850. **number**: 1. **duration**: 1 year. **conditions**: Awarded to students who are residents of Carleton County, New Brunswick, and who are children of veterans of active service in either First or Second World Wars.**donor**: The late Miss Bertha Boyer.

Stephen Branch Memorial Scholarship
field: Unrestricted. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in an undergraduate degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: The estate of Stephen Branch, BA 1951, and the New Brunswick University Opportunities Fund.

Canaport LNG Scholarship
field: Unrestricted. **value**: $5,000. **number**: 5. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in an undergraduate degree program on the Saint John campus. Selection is based on academic achievement, financial need and community involvement. **donor**: Canaport LNG.

Dr. G. F. Gregory Bridges Scholarship
field: Unrestricted. **value**: Minimum $500. **number**: Variable. **duration**: 1 year. **conditions**: Selections are made on the basis of scholastic attainment and financial need. **donor**: The late Dr. G.F. Gregory Bridges.

Clayton A. Buckingham Basketball Award
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to a male student who is entering an undergraduate degree program on the Fredericton campus and is a member of the Varsity Reds men's basketball team. The recipient must be a resident of New Brunswick and meet the minimum entrance average as required by the CIS (80% for high school students or 2.5 gpa for transfer students). This award is also open to transfer students. awarding agency: The University, on the recommendation of the Director of Athletics in the consultation with the Men's Basketball Coach. **donor**: The Buckingham Family.

Gladys Callaghan Memorial Scholarship
field: Unrestricted. **value**: Minimum of $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of Sugarloaf High School with preference given to a student beginning an undergraduate degree program directly after high school. Selection is based on scholastic attainment and financial need. **donor**: Dean Callaghan, in honour of his mother and the New Brunswick University Opportunities Fund.

Helen Neill Campbell Merit Award
field: Unrestricted. **value**: Not to exceed tuition and fees. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the **field** of varsity athletics. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for entering students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours, as required by the CIS. awarding agency: The University on the recommendation of the Director of Athletics. **donor**: Dr. D. Chester Campbell, BScCE 1934, D.Sc. 1982 and his wife, Mrs. Helen Neill Campbell, BA 1934.

Helen Campbell Memorial Award in Women's Basketball
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has demonstrated academic achievement (minimum 2.5 scholarship GPA for returning students, and 80% average for entering students) and special athletic ability in the sport of women's varsity basketball. awarding agency: The University, on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics and the Women's Basketball Coach. **donor**: Jumbo Video and Andrew Campbell, BBA '95 and B. Phys. Ed '96.

Vivian and David Campbell Family Foundation Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students on the basis of scholastic attainment and financial need. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: The Vivian and David Campbell Family Foundation and the New Brunswick University Opportunities Fund.

Enid Hager Clarke Memorial Bursary - UNB Fredericton
field: Unrestricted. **value**: Approximately $500. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students on the Fredericton campus who have graduated from a high school in Saint John County or Kings County, New Brunswick, and have achieved successful academic performance. **donor**: The late Enid Hager Clarke.

Enid Hager Clarke Memorial Bursary - UNB Saint John
field: Unrestricted. **value**: Approximately $500. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students on the Saint John campus who have graduated from a high school in Saint John County or Kings County, New Brunswick and have achieved successful academic performance. **donor**: The late Enid Hager Clarke and the New Brunswick University Opportunities Fund.

Class of 1936 Scholarship
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Selections are made on the basis of scholastic attainment and financial need. **donor**: The Class of 1936.

Class of 1950 Scholarship
field: Unrestricted. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in an undergraduate degree program. Selection will be based on scholastic attainment and financial need. **donor**: The Class of 1950.

Class of 1987 Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to students enrolled in an undergraduate degree program on the Fredericton campus. Selections are made on the basis of scholastic attainment and financial need, with consideration given to participation in extracurricular activities. **donor**: The Class of 1987.

Peter Coates Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from JMA Armstrong High School and is enrolled in an undergraduate degree program. Selection is based on academic achievement. Consideration may be given to the student's involvement in extracurricular activities and/or financial need. **donor**: Peter Coates, BBA 1983.

Florence Julia Colpitts Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students who are graduates of a rural New Brunswick high school located outside any of New Brunswick's incorporated cities. Selections are made on the basis of financial need and satisfactory academic performance. **donor**: The estate of Philip Colpitts and the New Brunswick University Opportunities Fund.

Carlton C. Covey Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: Up to 4 years. **conditions**: Open to Fredericton campus students who have graduated from a New Brunswick high school. Selection will be based on scholastic achievement and financial need. **donor**: The estate of Lillian E. Covey and the New Brunswick University Opportunities Fund.

Dr. John Z. & Helen M. Currie Memorial Scholarship
field: Unrestricted. **value**: $250. number: 1. **duration**: 1 year. **conditions**: Student with high scholastic standing who needs financial help. **donor**: The late John Bayard Currie.

Robert P. Dann Scholarship
field: Unrestricted. **value**: $750. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in an undergraduate degree program. Selection is based on scholastic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Robert P. Dann, BA 1937 and the New Brunswick University Opportunities Fund.

Linda Darling Memorial Scholarship
field: Unrestricted. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student enrolled in an undergraduate degree program. Selection will be based on scholastic achievement. **donor**: John Miller, MSc'84.

Gwendolyn Dorcas Scholarship
field: Unrestricted. **value**: Variable. number: One or more. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in an undergraduate degree program and has graduated from Stanley High School. Preference will be given to a student enrolled in the Bachelor of Nursing degree program. Selection will be based on academic achievement and financial need. apply: Associate Registrar, Undergraduate Awards. **donor**: Gwen Ferguson (Tuttle, VPH School of Nursing 1969, BN 1993) and the New Brunswick University Opportunities Fund.

Satya Vati & Som Dutt Dosaj Memorial Scholarship
field: Unrestricted. **value**: Approx. $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student enrolled in an undergraduate degree program. Selection is based on academic achievement and financial need. Consideration may be given to extracurricular activities and/or community involvement. **donor**: Dr. Vishu and Abha Dosaj & family.

John A. H. Duffie Memorial Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment. **donor**: The late John A.H. Duffie.

Kenneth Joseph Dunn / Allan McInerney Memorial Scholarship
field: Unrestricted. **value**: $250. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need. **donor**: Friends of the late Kenneth Joseph Dunn and Allan McInerney .

Malcolm Early Award
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a male student on the Fredericton campus who has demonstrated high academic achievement (3.0 assessment year GPA for returning students, and 80% average for entering students), special athletic ability in the sport of men's varsity volleyball as well as leadership abilities in his surrounding community. This award is open to transfer students. awarding agency: The University, on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics. **donor**: UNB Volleyball Alumni.

Emmerson Family Scholarship
field: Unrestricted. **value**: $2,000. number: 2. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in an undergraduate degree program at the University of New Brunswick and are residents of Cumberland County, Nova Scotia or either Westmorland or St. John County, New Brunswick. Selection is based on scholastic attainment. **donor**: PolyCello.

Ernest L. and Lena M. Flewelling Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to to a student in an undergraduate degree program who is a graduate of a New Brunswick High School. Selection is made on the basis of academic achievement and financial need. **donor**: Ernest L. (BA 1945, BED 1961) and Lena M. Flewelling.

Sir George E. Foster Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: Up to 4 years. **conditions**: Men and women who show scholastic promise and who need financial assistance to attend university. Open to students from all parts of Canada.

Friends of the Seawolves
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Saint John campus undergraduate or graduate students who have demonstrated talent in the **field** of varsity athletics. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours, as required by the CCAA. awarding agency: The University on the recommendation of the Director of Athletics UNB Saint John. **donor**: Alumni and friends of the Seawolves.

Friends of the Varsity Reds
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who play for a Varsity Reds team. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours, as required by the CIS. awarding agency: The University on the recommendation of the Director of Athletics. **donor**: Alumni and friends of the Varsity Reds.

Friends of UNB Cross Country/ Track & Field
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to undergraduate or graduate students who are members of the UNB Cross Country team or the UNB Track and **Field** team. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students. awarding agency: The University, on the recommendation of the Coach of the Cross Country/Track & **Field** team. **donor**: Alumni and friends of the UNB Cross Country and Track and **Field** Teams.

Gale Memorial Scholarship
field: Unrestricted. **value**: Approximately $1,250. number: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Saint John campus of UNB. Financial need is an important consideration in the awarding of the scholarship, as is successful academic performance. **donor**: The late Miss Catherine B. Gale, in memory of Harry Garfield Gale and Alberta Ballentine Gale.

Dr. Eric Garland Memorial Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who is registered in an undergraduate degree program. Selection is made on the basis of scholastic attainment and financial need with consideration given to students who have shown leadership qualities and community skills. **donor**: Family and friends of the late Dr. Eric C. Garland.

Eric C. & Marilyn M. Garland Athletic Award
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and is enrolled in an undergraduate degree program at UNB. The recipient must be a member of a UNB varsity team and demonstrate exceptional leadership qualities. Selection is also based on financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines, and have at least an 80% entering average or a 2.5 grade point average in the previous year of study, as per the CIS regulations on athletic awards. awarding agency: The University, on the recommendation of the Director of Athletics. **donor**: Marilyn Garland (BT '79) and Dr. Eric Garland (B.Sc. CE '54, B.Sc. ME '55), and the New Brunswick University Opportunities Fund.

Eric C. & Marilyn M. Garland Athletic Award
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and is enrolled in an undergraduate degree program at UNB. The recipient must be a member of a UNB varsity team and demonstrate exceptional leadership qualities. Selection is also based on financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines, and have at least an 80% entering average or a 2.5 grade point average in the previous year of study, as per the CIS regulations on athletic awards. awarding agency: The University, on the recommendation of the Director of Athletics. **donor**: Marilyn Garland (BT '79) and Dr. Eric Garland (B.Sc. CE '54, B.Sc. ME '55), and the New Brunswick University Opportunities Fund.

Susanna Gerow Scholarship
field: Unrestricted. **value**: Approximately $450. number: 1. **duration**: 1 year. **conditions**: A deserving student from the Counties of Queens or York, in New Brunswick who is in need of financial assistance. **donor**: The late Areta B. and Lenora M. Gerow.

Greenblatt Shore Memorial Bursary
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who have demonstrated successful academic performance. **donor**: The late Ilsa Janice Shore, the first woman Chair of UNB's Board of Governors, and her friends and family.

Greenblatt Shore Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to undergraduate students primarily on the basis of scholastic attainment. **donor**: The late Ilsa Janice Shore, the first woman Chair of UNB's Board of Governors, and her friends and family.

Whitman Haines Memorial Scholarship
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in an undergraduate degree program and have graduated from a high school in Fredericton North. Preference will be given to students who are residents of Fredericton North formerly known as Devon. Selection is based on academic achievement and financial need. **donor**: Jacqueline Neville (nee Haines) BA 1951, and the New Brunswick University Opportunities Fund.

Fred, Elsie, Brian & Robert Hanson Family Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: Up to 4 yrs. **conditions**: Awarded on the basis of scholastic attainment to students from China enrolled in a degree program at UNB. **donor**: The Estate of G. Robert Hanson.

Hazlett Basketball Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has demonstrated special athletic ability in the sport of varsity basketball, as a member of the men's Varsity Reds basketball team, and academic achievement (minimum 2.5 scholarship GPA for returning students, or minimum 80% average for entering students). awarding agency: The University, on the recommendation of the Director of Athletics in consultation with the Men's Basketball Coach. **donor**: Former Red Raider Mark Hazlett (BPE 1987, MPE 1989) and Red Bloomer Leanne (Brady) Hazlett (BPE1990).

Steadman Bucknell Henderson Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to undergraduate students primarily on the basis of scholastic attainment. **donor**: The late Kathleen Rachel Henderson in memory of her son, Steadman Bucknell Henderson.

Tom & Parker Hickey Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: Variable. **conditions**: Male student entering the University subject to the following **conditions**: (1) Born in Restigouche, Gloucester, Northumberland, or Kent Counties; (2) One branch of the candidate's family must have been settled in one of these counties prior to 1873; (3) Some of the forebears of the candidate must have earned part of their living by working in the forests, sawmills, or pulp mills in those counties between the years 1878 and 1900. Male descendants of clergymen and doctors who settled in these counties prior to 1878 are also eligible; (4) Candidate may have obtained his preparatory education elsewhere than in these counties. **donor**: The late W. Parker Hickey.

Harry Hindmarsh Memorial Bursary
field: Unrestricted. **value**: $3,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a UNB Fredericton campus student, on the basis of financial need and satisfactory academic performance. **donor**: The Class of 1965 in memory of their late classmate, Harry Hindmarsh.

Thomas E. Hoben Scholarship
field: Unrestricted. **value**: Approximately $75. number: 1. **duration**: 1 year. **conditions**: Worthy student requiring financial assistance who is either beginning an undergraduate degree program or has completed the normal requirements for the first year of the program in which the student is registered. **donor**: The late Dr. Allan T. Hoben.

Edwin Jacob Special University Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: Up to 4 years. **conditions**: Awarded to students based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. Students transferring from other institutions may be considered.

Ernest P. Jarvis Bursary
field: Unrestricted. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a graduate of Stanley High School who is enrolled in an undergraduate degree program. The recipient must demonstrate successful academic performance. Preference is given to a student enrolled in the Bachelor of Business Administration degree program. **donor**: Murray Jarvis, BBA 1976.

Khaki University & Y.M.C.A. Scholarship
field: Unrestricted. **value**: $400. number: 2. **duration**: 1 year. **conditions**: One scholarship to a member of the Freshman class and a scholarship to a member of the Sophomore class under the following **conditions** and in order named: (1) Sons and daughters of those who served in the Armed Forces during the war of 1914-18. (2) Sons and daughters of those who served in the Armed Forces during the War of 1939-45. (3) Those who served in the Armed Forces during the War of 1939-45. Scholarships are awarded on consideration of financial need and academic success.

Dirk Kiy Leadership Award
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled at UNB Fredericton and has demonstrated a high skill level in the sport of men's varsity volleyball as well as exceptional leadership qualities. The recipient must have a minimum 80% entering average or a 2.5 assessment grade point average, as per CIS regulations. This award is open to transfer students. awarding agency: The University on the recommendation of the Director of Athletics. **donor**: Friends of Dirk Kiy, member of the men's UNB volleyball team from 1975-78, team captain from 1977-78 and an AUS All Star in 1977-78.

Aldéa and Fernand Landry Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student in an undergraduate degree program who has graduated from a high school in Gloucester, Northumberland or Restigouche Counties, with preference given to a graduate from a high school in the Acadian Peninsula. Selection is based on academic achievement and financial need. **donor**: Dr. Aldéa Landry (LLB 1971, LLD 2002), P.C., C.M., Q.C. and the New Brunswick University Opportunities Fund.

Kevin & Dena LeBlanc Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of the Riverview High School and is enrolled in an undergraduate degree program on the Fredericton campus. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. **donor**: Kevin (BSC CS 1985, BBA 1986) and Dena LeBlanc and the New Brunswick University Opportunities Fund.

Amby Legere Award in Swimming
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a male student who is a member of the UNB Swim Team on the Fredericton campus. Selection is based on hard work, dedication to the sport of swimming and strong involvement in the community. The recipient must have a 2.5 grade point average (or 80% for an entering student). This award is also available to transfer students. awarding agency: The University, on the recommendation of the Coach of the Swim Team, UNB Fredericton. **donor**: The Peppin Family.

Patricia & Charles MacDonald Scholarship
field: Unrestricted. **value**: Tuition. number: 2. **duration**: 1 year. **conditions**: Awarded to a student enrolled in an undergraduate degree program. Selection is based on academic achievement and financial need. Consideration may be given to extra-curricular activities. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Charles MacDonald and the New Brunswick University Opportunities Fund.

Dr. Colin B. Mackay Achievement Award
field: Unrestricted. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled an undergraduate degree program on the Saint John campus and has demonstrated successful academic achievement. Selection is based on the demonstration of overcoming significant barriers in the pursuit of a post-secondary education. Consideration may also be given to leadership qualities, financial need and/or community involvement. awarding agency: The University, on the recommendation of the Vice-President Academic, UNB Saint John. **donor**: The estate of Dr. Colin B. Mackay, BA' 42, LLD '55, President of UNB, 1953-1969, President Emeritus 1978-2003.

Dr. Colin B. Mackay Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: Up to 4 years. **conditions**: Awarded to Canadian and/or international students who are enrolled in an undergraduate degree program on the Saint John campus. Selection is based on scholastic attainment. Transfer students may be considered for this scholarship. **donor**: The estate of Dr. Colin B. Mackay, BA' 42, LLD '55, President of UNB, 1953-1969, President Emeritus 1978-2003.

Gail MacKinnon Memorial Award
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student on the Fredericton campus who has demonstrated high academic achievement (3.0 assessment year GPA for returning students, and 80% average for entering students), special athletic ability in the sport of womens varsity volleyball as well as leadership abilities in the surrounding community. This award is open to transfer students. awarding agency: The University, on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics **donor**: UNB Volleyball Alumni.

Ruth H. MacMillan Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to students who are graduates of Central New Brunswick Academy, and who are beginning an undergraduate degree program at UNB, or have completed at least the normal requirements for the first year of the program in which they are registered at the University. **donor**: Mr. A. Clair MacMillan and the New Brunswick University Opportunities Fund.

Maecenas Undergraduate Scholarship
field: Unrestricted. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded to students enrolled in an undergraduate degree program. One scholarship to be awarded to a Fredericton campus student and one scholarship to be awarded to a Saint John campus student. Selection will be based on academic achievement and financial need.

H. Harrison McCain Bursary
field: Unrestricted. **value**: $4,000. per year. **number**: Variable. **duration**: 4 years. **conditions**: Awarded to students, who have graduated from any high school in Canada. Selection criteria include financial need, scholastic attainment, leadership qualities, and a demonstrated initiative on the part of the student in funding his/her own education. The bursaries are renewed based on the recipient maintaining an overall academic average of 2.5 in year one, 2.75 in year two and 3.0 in year three and year four. apply: http://www.unb.ca/scholarships/ **donor**: H. Harrison McCain Foundation. deadline: March 1.

Laura B. McCain Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded to students from Carleton County. Selections are made on the basis of scholastic attainment and financial need. **donor**: The late Laura B. McCain.

Donald G. McCrossan Scholarship
field: Unrestricted. **value**: $1000. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students who are Canadian citizens (or landed immigrants). Awarded on the basis of scholastic attainment and financial need with consideration given to participation in extracurricular activities. **donor**: Donald G. McCrossan.

Donald McCrossan (NB) Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in an undergraduate degree program. Selection is based on academic achievement and financial need with consideration given to participation in extracurricular activities. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Donald G. McCrossan and the New Brunswick University Opportunities Fund.

Martha Fraser McIntosh Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment. **donor**: The late Martha Fraser McIntosh.

Clarence McIntyre Bursary
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a UNB student of the black race who is a graduate of a Saint John area high school, has demonstrated successful academic performance, and is registered in an undergraduate degree program. **donor**: Family and friends of the late Clarence McIntyre.

Alan B. McLean and Joyce E. McLean Scholarship
field: Unrestricted. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to Saint John campus students enrolled in an undergraduate degree program. Recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. Selections are made on the basis of scholastic attainment and financial need. **donor**: The estate of Alan B. McLean and the New Brunswick Opportunities Fund.

McIntyre-McMonagle Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to students on the basis of scholastic attainment and financial need. Consideration may be given to students' participation in extracurricular activities.**donor**: The family of Annie (McIntyre) and Walter McMonagle-James Roach McMonagle, Maude (McMongle) Jowsey, A. Ellizabeth McMonagle, S. Muriel McMonagle, in memory of our brothers Hugh McIntyre McMonagle & Walter Neil McMonagle.

Robert F. & Irene McMulkin Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to a student from Queens County. Selection is made on the basis of scholastic attainment and financial need. **donor**: Mr. and Mrs. Robert F. McMulkin and the New Brunswick University Opportunities Fund.

Norman Brougham Miller Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to students who are graduates of a New Brunswick high school. Selections are made on the basis of scholastic attainment. **donor**: The late Norman Brougham Miller BA, BEd '60.

Juan Montalvo Memorial Bursary
field: Unrestricted. **value**: $700. **number**: Minimum 1. **duration**: 1 year (may be renewed). **conditions**: Awarded to undergraduate students at the University of New Brunswick from Latin America or Mexico. Preference will be given to new immigrants of Canada, or their children, who have Landed Immigrant status, and are in need of financial assistance. apply: Director, International Student Advisor's Office awarding agency: The University on the recommendation of the International Student Advisor's Office. **donor**: Family and friends of the late Juan Montalvo, a man who cared deeply about the welfare of newly arrived immigrants to Canada from Latin America.

Anne Murray Alumni Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Selections are made on the basis of scholastic attainment and financial need. **donor**: Associated Alumni.

Vernon Murray Merit Award
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an International student on the Fredericton campus who is a member of a Varsity Reds team. The successful recipient must have a minimum 2.5 GPA or 80% for entering students. The recipient must possess a high level of skill in his/her chosen sport and display hard work and determination. Graduate and transfer students are also eligible. awarding agency: The University on the recommendation of the Director of Athletics for the Varsity Reds athletic program. **donor**: Daniel and Margaret Murray and friends and family of the late Vernon Murray.

Don Nelson Leadership Award
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has demonstrated high academic achievement (3.0 assessment year GPA for returning students, and 80% average for entering students), special athletic ability in the sport of men's varsity basketball, as well as leadership abilities in his surrounding community. This award is open to transfer students. awarding agency: The University, on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics and the Men's Basketball Coach. **donor**: Men's Basketball Alumni.

New Brunswick Students Scholarships
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to students who are residents of New Brunswick, according to the Student Financial Services guidelines. Selection will be based on scholastic achievement and financial need. **donor**: Funds raised through UNB's Annual GivinVernon Murray Merit Awardg Program and the New Brunswick University Opportunities Fund.

New Brunswick Students Scholarships UNBF
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are residents of New Brunswick, according to the Student Financial Services guidelines. Selection will be based on scholastic achievement and financial need. **donor**: Funds raised through UNB's Annual Giving Program and the New Brunswick University Opportunities Fund.

New Brunswick Students Scholarships UNBSJ
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Saint John campus students who are residents of New Brunswick, according to the Student Financial Services guidelines. Selection will be based on scholastic achievement and financial need. **donor**: Funds raised through UNB's Annual Giving Program and the New Brunswick University Opportunities Fund.

Dawn O'Neill Bursary
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is a single mother enrolled in an undergraduate degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines and demonstrate successful academic performance. awarding agency: The University. **donor**: Dawn O'Neill, BSc 1979 and the New Brunswick University Opportunities Fund.

Mr. & Mrs. Conrad J. Osman Scholarship
field: Any course with preference to Forestry and Agriculture. **value**: Variable. **number**: Multiple. **duration**: 1-5 years. **conditions**: Scholarships will be awarded at the discretion of the governing body of the University, but worthy students residing in the County of Albert, in the Province of New Brunswick, applying for entrance to the University, and particularly those who propose to pursue an agricultural or forestry course, shall be shown preference when the scholarships are awarded. **donor**:The late Mrs. Gladys Marie Osman.

Dr. Francis Pang's Confucius Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in an undergraduate degree program at UNB. Selection will be based on academic achievement. **donor**: Dr. Francis Pang.

Dave Patterson Memorial Award
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student on the Saint John campus who has demonstrated a genuine talent in the sport of volleyball. Female students who are active members of the Seawolves Women's Volleyball team or who played volleyball at the high school level may be considered. The recipient must achieve a minimum scholarship gpa of 2.5 as a returning student, or a minimum 80% scholarship average as an entering student. Consideration will be given to the student's involvement in community and school activities. apply: Department of Athletics, UNB Saint John. awarding agency: The University, on the recommendation of the Director of Athletics UNB Saint John. **donor**: Friends, family and colleagues of Dave Patterson.

Pepsi Athletic Award
field: Unrestricted. **value**: Not to exceed tuition & compulsory fees. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the **field** of varsity athletics. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students who are enrolled in a minimum of 9 credit hours, as required by the CIS.awarding agency: The University, on the recommendation of the Director of Athletics. **donor**: Pepsi Canada Inc.

Emma Porter Perkins Scholarship
field: Unrestricted. **value**: Approximately $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance to a Protestant student, preferably from Carleton County. **donor**: The late Perry B. Perkins.

Frances M. Peters Scholarship
field: Unrestricted. **value**: Approximately $150. **number**: 1. **duration**: 1 year. **conditions**: Woman student attending the University who is in need of financial assistance. **donor**: The late Frances M. Peters.

James E. Porter Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: Up to 4 years. **conditions**: Awarded to graduates of Southern Victoria High School and Tobique Valley High School. Selections are made on the basis of scholastic attainment and financial need. Preference will be given to students enrolled in an undergraduate degree program. Graduate students as well as students enrolled in a no-degree program may be considered. Transfer students are eligible to be considered. The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. **donor**: The late Mr. James E. Porter and the New Brunswick University Opportunities Fund.

Project Hero Award
field: Unrestricted. **value**: Tuition for 8 terms; residence for 2 terms. **number**: 1 or more. **duration**: Up to 4 years. **conditions**: Awarded to dependants of Canadian Forces personnel killed while serving in an active military mission as determined by Canadian Forces criteria. To be eligible, the recipient must be a citizen or permanent resident of Canada; a dependant of a Canadian Forces personnel killed while serving in an active mission; under the age of twenty-six; registered as a full-time undergraduate student and in good academic standing at UNB. In the event that another agency or organization is paying the tuition or residence fees on behalf of an eligible student, the UNB Project Hero Award will not also be awarded. apply:Associate Registrar, Undergraduate Awards. Please e-mail awards@unb.ca to request an application. **donor**: The Uinversity. deadline: March 1st preceding the first full-time academic term of the recipient.

Purdy MacDonald Scholarships & Bursaries
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to students who are graduates of a rural New Brunswick high school located outside any of New Brunswick's incorporated cities. Selections are made on the basis of financial need and satisfactory academic performance. **donor**: The late Mrs. Nellie Purdy.

Nick Quinn Memorial Award in Men's Soccer
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has demonstrated academic achievement (minimum 2.5 scholarship GPA for returning students, or 80% average for entering students) and special athletic ability and skill in the sport of men's varsity soccer. The successful candidate will also demonstrate the qualities of leadership and fair play, two qualities that Nick was noted for. This award is also open to transfer and graduate students. Preference will be given to a student-athlete from New Brunswick. awarding agency: The University, on the recommendation of the Director of Athletics in consultation with the coach of the men's soccer team. **donor**:Family and Friends of Nick Quinn.

Red Carpet Food Services Bursary
field: Unrestricted. **value**: Approximately $550. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has demonstrated successful academic performance. **donor**: Red Carpet Food Services.

Renaissance College Scholarship
field: BPhil. **value**: Variable. **number**: Variable. **duration**: Up to 8 terms. **conditions**: Awarded to entering or continuing students who are enrolled in the Bachelor of Philosophy (in Interdisciplinary Leadership Studies) degree program offered by UNB's Renaissance College. Selections are made on the basis of scholastic attainment, educational and career goals, volunteer activities, prior learning experience, diversity of background and skills (such as but not limited to artistic, musical, athletic, cultural, linguistic), and leadership experiences. Students transferring from other institutions may be considered. awarding agency: The University on the recommendation of the Dean of Renaissance College. **donor**: Renaissance College.

Robert (Bob) Spurway Memorial Scholarship - Class of '53
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Selections are made on the basis of scholastic attainment and financial need. **donor**: The Class of 1953.

Wilma & Herb Shephard Bursary
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: Up to 5 years. **conditions**: Awarded on the basis of financial need to Fredericton campus students who are enrolled in an undergraduate degree program and demonstrate satisfactory academic performance. **donor**: Wilma & Herb Shephard.

Joyce Slipp Basketball Award
field: Unrestricted. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the **field** of women's varsity basketball. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours, as required by the CIS.awarding agency: he University on the recommendation of the Director of Athletics in consultation with the coach of the women's basketball team. **donor**: Alumni and friends of Joyce Slipp (1972, 1974) who coached the UNB women's basketball team from 1976-1980 and 1995-2006.

Hazen M. & Margaret A. Smith Scholarship
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: Up to 4 years. **conditions**: Open to students who have graduated from a Charlotte County high school. Selections are made primarily on the basis of academic performance and financial need. **donor**: Margaret A. Smith and the New Brunswick University Opportunities Fund. Hazen 1899-1983 and Margaret 1904-2002(Sinclair) Smith were natives of Pomeroy Ridge and Scotch Ridge. They moved to Somerville, MA after they were married in1924.

James Somerville Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. Students transferring from other institutions may be considered. This scholarship was named in honour of President Somerville who presided over the College of New Brunswick, 1800-1829. **donor**: The University.

Student Awards Campaign Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to students enrolled in an undergraduate degree program. Selection is based on scholastic achievement and financial need. **donor**: Contributors to the Student Awards Campaign.

Student Awards Campaign UNBF Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students enrolled in an undergraduate degree program. Selection is based on scholastic achievement and financial need. **donor**:Contributors to the Student Awards Campaign.

Student Awards Campaign UNBSJ Scholarship
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Saint John campus students enrolled in an undergraduate degree program. Selection is based on scholastic achievement and financial need. **donor**:Contributors to the Student Awards Campaign.

Dr. Jed B. Sutherland Memorial Scholarship
field: Unrestricted. **value**: $2,500 per annum. number: Variable. **duration**: 1 to 4 years. **conditions**: Awarded to students who are graduates of a Carleton County high school. Selection is made on the basis of scholastic attainment, financial need and extracurricular activities. **donor**: The Family of Dr. Jed B. Sutherland, BA '39 and the New Brunswick University Opportunities Fund.

Harold Tam Wing-ming Scholarship
field: Unrestricted. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to students enrolled in an undergraduate degree program. Selection is based on academic achievement. **donor**: Michael Wu, in honour of Harold Tam Wing-ming, BSc (Eng) 1960, UNB's first Chinese student from Hong Kong.

Colonel Henry Thomas Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to a student on the Saint John campus. **donor**: The late Fred S. Thomas, Class of 1906.

Toronto Alumni Chapter Fredrik S. Eaton Scholarship
field: Unrestricted. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student from the Toronto area. Selection is based on academic achievement and involvement in extra-curricular activities. **donor**: Toronto Chapter, UNB Associated Alumni.

Lois Trueland Scholarship
field: Unrestricted. **value**: $950. number: 1. **duration**: 1 year. **conditions**: Award to a student who is a graduate of a rural New Brunswick High School located outside any of New Brunswick's incorporated cities. The recipient must be New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Lois Trueland, BA 1950, and the New Brunswick University Opportunities Fund.

Jean F. & Reginald E. Tweeddale Memorial Leadership Award
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to students who are graduates of a New Brunswick high school. Selection will be based on leadership ability, academic achievement and financial need. The recipients must be New Brunswick residents, according to the Provincial Government's Student Financial Services guidelines. **donor**: The late Reg Tweeddale (BScEE 1935), the late Jean F. Tweeddale, and the New Brunswick Universities Opportunities Fund.

UNB Black Bear Wrestling Award
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the sport of wrestling. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students. awarding agency: The University on the recommendation of the Wrestling Coach. **donor**: Alumni and friends of the UNB Wrestling team.

UNB Edmonton Alumni Chapter Bursary
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student enrolled in an undergraduate degree program who has demonstrated successful academic performance. Preference will be given to a student who is from the 780 area code region around Edmonton, Alberta. **donor**: Edmonton Alumni Chapter.

UNB Fredericton Registrar's Office Bursary
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is a graduate of a New Brunswick high school and who has demonstrated successful academic performance. **donor**: Staff and friends of the Registrar's Office, UNB Fredericton and the New Brunswick University Opportunities Fund

UNB Fredericton Residence Scholarship
field: Unrestricted. **value**: Residence & Meal Plan. number: 1 or more. **duration**: Up to 4 years. **conditions**: Awarded to Fredericton campus students who are enrolled in an undergraduate degree program. Selection is based on scholastic attainment. Consideration may be given to financial need, leadership qualities, as well as community involvement. Recipients must stay in residence to retain this scholarship. Transfer students may be considered.

UNB Reds Soccer Memorial Award
field: Unrestricted. **value**: Up to tuition and compulsory fees. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has demonstrated academic achievement (minimum 2.5 scholarship GPA for returning students, or 80% average for entering students) and special athletic ability and skill in the sport of men's varsity soccer. The recipient will demonstrate leadership, be a team player and place the program and his teammates before his own successes. This award is also open to transfer and graduate students. awarding agency: The University, on the recommendation of the Director of Athletics and the coach of the men's soccer team. **donor**: Men's soccer alumni and friends.

UNB Saint John Campus Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to Saint John campus students based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. Students transferring from international or domestic institutions may be considered. **donor**: The University.

UNB Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: Up to 4 years. **conditions**: Awarded primarily on the basis of scholastic attainment. **donor**: The University.

UNBF Recreation Services Sport Club Award
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in a sport which is in a sanctioned Recreation Services Sport Club. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours. awarding agency: The University on the recommendation of the Manager of Recreation Sports. **donor**: Alumni and friends of the UNBF Sport Club Program.

UNBF Women's Hockey Award
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the sport of women's ice hockey. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours. awarding agency: The University on the recommendation of the Women's Hockey Coach and Manager of Recreation Sports. **donor**: Alumni and friends of the UNBF Women's hockey team.

University of New Brunswick Alumni Merit Award
field: Unrestricted. **value**: $500. number: Variable. **duration**: 1 year. **conditions**: Awarded to a student demonstrating a special talent and showing successful academic performance. The student will be expected to use this special talent to contribute to the University community. **donor**: The Associated Alumni of the University of New Brunswick

Punch Walker Memorial Award in Men's Hockey
field: Unrestricted. **value**: $2,000. number: 2. **duration**: 1 year. **conditions**: Awarded to students in a degree program on the Fredericton campus who are, or will be, members of the University's varsity men's hockey team. Recipients must have demonstrated successful academic performance (minimum 80% admission average for an entering student or minimum 2.5 assessment year grade point average for a continuing student). Any requirements of Atlantic University Sport and CIS will also apply. This award is open to transfer students. awarding agency: The University, in consultation with David Hashey, Q.C. (or his appointee), the UNB hockey coach and the UNB Athletics Director. **donor**: The late A. Ross "Punch" Walker.

George L. White Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: Up to 4 years. **conditions**: Awarded on the basis of academic achievement and financial need to graduates of NB high schools. **donor**: The estate of George L. White and the New Brunswick University Opportunities Fund.

Edna Isabel Corbett-Wile Scholarship
field: Unrestricted. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to female students who are enrolled in an undergraduate degree program, have graduated from Oromocto High School and are from Queens County with preference given to those from Gagetown. Selection is based on academic achievement. Consideration may be given to financial need. **donor**: The estate of Byron Wile.

Rhoda and Ronald Woodworth Scholarship
field: Unrestricted. **value**: $5,000. number: 1 or more. **duration**: Up to 4 years. **conditions**: Awarded to Saint John campus students who are graduates of a Saint John high school, residents of the City of Saint John, Canadian citizens and enrolled in an undergraduate degree program. Selection is based on scholastic attainment and financial need. **donor**: The estate of Rhoda Woodworth and the New Brunswick University Opportunities Fund.

Continuing UNB Students
ARTS

Aristotle Scholarship
field: Classics. **value**: $720. number: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who is enrolled in the Bachelor of Arts degree program and has declared a major or honours in Classics or Classical Studies. Selection is based on scholastic achievement. awarding agency: The University, on the recommendation of the Department of Classics and Ancient History. **donor**: The Greek Canadian Community of New Brunswick.

Richard J. Bagley Memorial Scholarship in English
field: Arts. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an undergraduate student on the Fredericton campus who has graduated from a New Brunswick high school, has completed at least 90ch towards the Bachelor of Arts degree programmed, and is enrolled in the English Major or Honours programmed. Preference will be given to students who have demonstrated excellence in at least one upper-level Canadian Literature course. Selection will be based on academic achievement and financial need. **awarding agency**: The University, on the recommendation of the Department of English. **donor**: Friends and Family of Richard J. Bagley, BA '72, MA '79 and the New Brunswick University Opportunities Fund.

Alfred G. Bailey Undergraduate Scholarship
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the Bachelor of Arts program who has declared a major in History. Selection will be made on the basis of scholastic attainment and financial need. **donor**: Students, colleagues and family established this scholarship in memory of Alfred G. Bailey, professor of History at UNB, librarian, poet and professor emeritus.

Anthony W. Branscombe Scholarship
field: English. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Arts degree program, declared a Major or applied for (or been admitted to) Honours in English and has a demonstrated interest in creative writing. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **awarding agency**: The University, on the recommendation of the Faculty of Arts. **donor**: Family and friends of the late Anthony Watson Branscombe, a former UNB Arts and Science student and the New Brunswick University Opportunities Fund.

Bliss Carman Memorial Scholarship in English Literature
field: Arts. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Open to students in the Faculty of Arts who have completed at least the normal requirements for the first year of the Arts degree program at UNB. Preference will be given to students who have demonstrated excellence in at least 12 ch in English Literature. **donor**: The late Dr. Lorne Pierce.

Captain Royal A. Carrick and Marjorie Oatey Carrick Memorial Scholarship
field: Arts. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to students majoring in English Literature, who have taken at least one course in poetry, prose, or music writing. Selection is made on the basis of scholastic achievement. **donor**: Estate of Royal Alexander Carrick.

Ralph B. Clark Memorial Scholarship
field: Arts. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment to students who are entering the penultimate year (completed a minimum of 60-66 ch) of the Arts degree program at UNB. **donor**: The late Mrs. Georgie Alberta Ryan Clark.

Maurice L. Collins Memorial Scholarship in Philosophy
field: Philosophy. **value**: Approximately $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an undergraduate or graduate student, alternating each year between the Fredericton campus and the Saint John campus. The student must have completed the requirements for at least the second year of a Bachelor of Arts degree program. Selection will be made on the basis of academic achievement. Preference will be given to the students who demonstrate an aptitude in the **field** of Philosophy, have declared a major in Philosophy or have decided to do postgraduate work in Philosophy, preferably in the area of contemporary European philosophy or ancient Greek philosophy. **awarding agency**: The University, on the recommendation of the Department of Philosophy, UNB Fredericton and the Department of Humanities and Languages, UNB Saint John, as appropriate. **donor**: Family of Maurice L. Collins.

Dr. Ann Gorman Condon Memorial Scholarship
field: Arts. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed the requirements for the second year of the Bachelor of Arts degree program. Preference will be given to the student who has enrolled or completed courses on women in history. Selection is based on academic achievement. **awarding agency**: The University, on the recommendation of the Chair of the Department of History and Politics, UNB Saint John. **donor**: Family and friends of Dr. Ann Gorman Condon.

Cook Family Bursary
field: Arts. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who is enrolled in the Bachelor of Arts degree program, and has declared a major in English. The recipient must be a graduate of a high school in the Greater Saint John area, have demonstrated successful academic performance and a love for English. **awarding agency**: The University on the recommendation of the Coordinator of English, Department of Humanities and Languages, UNB Saint John. **donor**: The Cook Family Fund, a permanently endowed fund of the Greater Saint John Community Foundation and the New Brunswick University Opportunities Fund.

Margot MacLauchlan Dawson Memorial Scholarship
field: Spanish. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students majoring in Spanish who have completed at UNB at least 45 ch in Arts. Selections are made on the basis of scholastic attainment and financial need. **awarding agency**: The University on the recommendation of the Department of Culture and Language Studies. **donor**: Julia MacLauchlan and Warren McKenzie.

Department of Humanities & Languages Scholarship
field: Preference to those enrolled in any majors program. **value**: Approximately $1,450. **number**: 1. **duration**: 1 year. **conditions**: To be awarded on the basis of scholastic attainment and financial need to a student enrolled in any majors program of the Department of Humanities and Languages. **donor**: The Department of Humanities and Languages.

Department of Humanities and Languages Scholarship (Certificate of Proficiency in French Levels I and II)
field: Certificate of Proficiency in French Program. **value**: $225. **number**: 1 or more. **duration**: 1 year. **conditions**: To be awarded on the basis of scholastic excellence in a French course which is part of the Certificate of Proficiency in French program on the Saint John campus to a student or students who enroll in a further French course on the Saint John campus. The scholarship(s) will be withdrawn if the student(s) withdraw(s) from the course. Apply: Chair, Department of Humanities and Languages, Saint John campus. **awarding agency**: Department of Humanities and Languages (French Section) **donor**: Department of Humanities and Languages.

David and Ethel Evans Scholarship in History
field: History. **value**: $1,200. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Arts degree program who is beginning the final year of the Honours program in History. Preference will be given to the student who has a demonstrated interest in British and/or European History. Selection is based on academic achievement. **awarding agency**: The University, on the recommendation of the Department of History, UNB Fredericton. **donor**: Thomas Evans (BA 1960) in memory of his parents.

French Spanish German Scholarship
field: French, Spanish or German. **value**: Up to $1,000. **number**: 1. **duration**: 1 year. **conditions**: Open to first, second and third year full- and part-time students enrolled at the Saint John campus of the University of New Brunswick who plan to continue their studies in French, Spanish or German. The scholarship is available for study at an appropriate University overseas or at Laval University. **awarding agency**: The University on the recommendation of the Faculty members in the disciplines of French, Spanish and German at the University of New Brunswick in Saint John. **donor**: Professors Celine Arabackyj, David Jory, Rosi Jory, Fatma Loutfi, Leslie Marcus, Suzanne Pons-Ridler and the Modern Languages Centre.

Alice MacKenzie Gaukrodger Scholarship in Arts
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the second year of the Bachelor of Arts degree program. Selection is based on scholastic attainment and financial need. **donor**: Alice MacKenzie Gaukrodger.

Nan Gregg Scholarship in Creative Arts
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the music minor or another creative arts minor (drama, film, creative writing) who demonstrates excellence in courses required for the minor. Selection is based on academic achievement. Preference will be given to students in the music minor. **awarding agency**: The University, on the recommendation of Chair of Culture and Language Studies in consulation with the Director of the Centre for Musical Arts. **donor**: The Estate of Miss Nan V. Gregg.

Ben & Millie Guss Scholarship
field: Unrestricted. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the first year of his/her degree program and intends to pursue an interest in fine arts, including creative writing, theatre, film, music, visual arts, or multimedia studies. Selection will be based on scholastic achievement and financial need. The recipient must be a NB resident, according to the NB Provincial Government's Student Financial Services guidelines. **awarding agency**: The University, on the recommendation of the Office of the Dean of Arts. **donor**: Family of Ben and Millie Guss and the New Brunswick University Opportunities Agency.

Hon. Richard Hatfield Undergraduate Scholarship in Political Science
field: Arts (Political Science). **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has declared a major or honours in Political Science. Preference will be given to a student who graduated from a New Brunswick high school. Selection will be made on the basis of scholastic attainment, demonstrated leadership qualities and community skills. **donor**: The Fredericton Silverwood Progressive Conservative Association and the friends of Richard Hatfield.

D. King Hazen Scholarship
field: Arts. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Open to students enrolled in a Bachelor of Arts program who have completed at least the normal requirements for the first year (30-36 ch) of their program at UNB. Preference will be given to students who have demonstrated excellence in at least six ch in English literature. Recipients should have a substantial interest in athletics. **donor**: The late D.E. Rosemary Hazen.

Sandra Irving Scholarship
field: Political Science. **value**: Up to $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually to a student on the Saint John campus who has completed a minimum of 45 ch and is majoring or intending to major in Political Science. Selection is on the basis of academic achievement, career aspirations and candidates' statement of the scholarship's **value** in reaching career goals. Preference will be given to full-time students but part-time students are eligible. **apply**: The Chair, Department of History and Politics, UNBSJ. **awarding agency**: The University on the recommendation of the Vice-President (Saint John). **donor**: Sandra Irving.

Prof. Jack A. Iwanicki Scholarship
field: Arts. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a New Brunswick student who has completed the requirements for the second year of an undergraduate degree program in the Faculty of Arts and has declared a major in philosophy. Selection will be based on academic achievement and financial need. The awarding of the scholarship will alternate each year between the Fredericton and Saint John campuses. **awarding agency**: The University, on the recommendation of the Department of Philosophy, UNB Fredericton and the Department of Humanities and Languages, UNB Saint John, as appropriate. **donor**: Jack A. Iwanicki

Daniel F. Johnson Memorial Scholarship in History
field: History. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to full-time third or fourth year undergraduate students or full-time masters candidates in the Faculty of Arts on the Saint John campus, who have declared a major in history. The recipients must be residents of the Province of New Brunswick and demonstrate successful academic performance. **apply**: UNB Saint John, Department of History. **awarding agency**: The University, on the recommendation of the Department of History, UNB Saint John. **donor**: The Saint John Branch of the New Brunswick Genealogical Society Inc. in memory of Daniel F. Johnson who was a founding member of the Society, a past president thereof, a member of the Branch and a lecturer in a course in genealogy at UNB Saint John.

Søren Kierkegaard Scholarship
field: Arts. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed the requirements for the third year of an undergraduate degree program in the Faculty of Arts in Fredericton and has declared a major or is in the honours program in philosophy. Preference will be given to students who have a demonstrated academic excellence in philosophy and have an interest in existentialism and/or phenomenology. **awarding agency**: The University, on the recommendation of the Department of Philosophy, UNB Fredericton. **donor**: William Elderkin, retired professor of philosophy at UNB.

Larry Levine Scholarship
field: Arts/Economics. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually to the most deserving Fredericton campus student in the Major A program, or the Honours program. Selection will be made on the basis of scholastic attainment. **awarding agency**: The University, on the recommendation of the Chair of the Economics Dept., UNB Fredericton. **donor**: Faculty and friends of Dr. Larry Levine, Professor Emeritus of Economics at UNB Fredericton.

Douglas & Susan Leyden Arts Bursary
field: Arts. **value**: Minimum $1,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Saint John campus students enrolled in the Bachelor of Arts degree program who demonstrate sucessful academic performance. Preference will be given to 3rd and 4th year students (minimum 60 ch) majoring in English or History. **awarding agency**: The University. **donor**: Douglas Leyden, BBA 1967 and Susan Leyden BA (History) 1985, BEd 1986.

Dr. Henry Llambias Memorial Scholarship
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to students in the Faculty of Arts on the Fredericton Campus who have completed at least the normal requirements at UNB for the first year of the Bachelor of Arts degree program, including those students who are registered in a concurrent BA degree program. Candidates must be members of the UNB Residence Community at the time of scholarship selection, and during the tenure of the scholarship. Selections are made on the basis of academic performance and financial need. **donor**: Family and friends of the late Dr. Henry Llambias, former Professor of Political Sciences, Dean of Men's Residence 1981-82 and Don of Jones House, 1982-1991.

Stuart and Richard Lowerison Memorial Scholarship
field: Arts. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to undergraduate students on the Fredericton campus in the Faculty of Arts who have completed at least the normal requirements for first year of the Arts degree program at UNB and have demonstrated excellence in at least 6 ch in English, History or French. **donor**: The late Stuart Lowerison.

Neil MacGill Scholarship in Philosophy
field: Arts. **value**: $4,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of a Bachelor of Arts or a Bachelor of Arts and Science, and who has declared a Major in Philosophy or has been admitted to the Philosophy Honours programmed. Selection is made on the basis of academic achievement. **awarding agency**: The University, on the recommendation of the Department of Philosophy. **donor**: The Late Professor Neil MacGill.

Peter McGahan Memorial Scholarship
field: Arts. **value**: $2,750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a full-time or part-time student on the Saint John campus who is enrolled in the Faculty of Arts, and has achieved a high academic standing after 60 credit hours of study. The student should have demonstrated in his/her course selection a desire to explore as many disciplines as possible at the lower level. This reflects the philosophy of Peter McGahan that students in the first two years of a BA degree should diversify rather than specialize. **awarding agency**: The University on the recommendation of the Dean of Arts, UNB Saint John, in consultation with the departmental chairs in the Faculty of Arts. **donor**: Faculty, staff, family and friends of the late Peter McGahan.

Rose May and Reta Mae McGee Memorial Scholarship
field: Arts. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students enrolled in the Bachelor of Arts program. Preference will be given to a student enrolled in one or more subjects in the humanities and languages disciplines. Selection will be based on scholastic attainment and financial need. **awarding agency**: The University. **donor**: Robert Harley McGee.

Mary McKean English Major Scholarship
field: English. **value**: Minimum of $1,000. **number**: Up to 2. **duration**: Up to 2 years. **conditions**: Awarded to Saint John Campus students who are majoring in English, in either the honours, single majors, or double majors program, and who have completed at least 60ch and are entering their third year. Selection is made on the basis of scholastic attainment. Part-time students may be considered for this award. **awarding agency**: The University, on the recommendation of the Coordinator of English, Department of Humanities and Languages, UNB Saint John. **donor**: The estate of Mary McKean.

Mary McKean English Student Award
field: English. **value**: $300. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who is majoring in English, in either honours, single majors or double majors and who, in addition to his or her academic achievement, has contributed to the life of the English discipline and has taken a leadership role among his or her peers in order to improve the general educational and arts experience of the student body. Part-time students may be considered for this award. **awarding agency**: The University, on the recommendation of the Coordinator of English, Department of Humanities and Languages, UNB Saint John. **donor**: The estate of Mary McKean.

Mary McKean Scholarships for Upper Level Students in English
field: English. **value**: $300. **number**: Up to 10. **duration**: 1 year. **conditions**: Awarded to Saint John campus students who are majoring in English, in either the honours, single majors, or double majors program, and who have completed 75 ch (or 25 courses) of their degree program. Part-time students may be considered for this award. Selection will be made on the basis of scholastic attainment. **awarding agency**: The University, on the recommendation of the Coordinator of English, Dept. of Humanities and Languages, UNB Saint John **donor**: The estate of Mary McKean.

Jack Murray Memorial Scholarship
field: Arts. **value**: Approximately $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed a minimum of 60 credit hours at UNB in the Faculty of Arts degree program and has made a contribution to student life at the University. **donor**: Family and friends of the late Jack Murray.

Dr. Richard Papenhausen Bursary for English Students
field: English. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who is a New Brunswick resident, according to the definition used by Student Financial Services. The recipient must have declared a major or honors in English and achieved at least a 2.5 scholarship grade point average in the previous year of study. **donor**: Friends and Family of the late Dr. Richard Papenhausen, Director of Student Life and Support Services UNBSJ from 1982 to 2003, and the New Brunswick University Opportunities Fund.

Mary Passaris Memorial Scholarship
field: Economics. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Open to female Fredericton campus students majoring in economics who have completed their second or third year of studies (minimum 60 ch) and who have demonstrated academic accomplishment. Preference will be given to those who demonstrate extracurricular involvement in the life of the University. **awarding agency**: The University, on the recommendation of the Department of Economics, UNB Fredericton **donor**: Professor Constantine E. Passaris.

Fernando Poyatos Scholarship
field: Arts. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is in the honours program in Anthropology, Psychology or Sociology. Selection will be based on academic attainment and financial need. **donor**: Fernando Poyatos, UNB Professor Emeritus, has donated his portion of the proceeds from the book "Impressions of Historic Fredericton" to establish this award.

Alvin Shaw Memorial Scholarship in Drama Production
field: Arts. **value**: $2,000. **number**: 1. **duration**: Up to three years. **conditions**: Awarded to a Fredericton campus student who is enrolled in a Minor in Drama or a Major in English (Drama) and who is judged to be a top performer in ENGL/DRAM 2170. Preference will be given to students enrolled in an Arts Faculty degree program. Renewal of this scholarship is based on satisfactory performance and progress through the program. awarding agency: The University, on the recommendation of the Director of Drama. **donor**: Alvin Shaw.

Margaret C. Sheldrick Memorial Scholarship in Arts (English)
field: Arts. **value**: $525. **number**: 1. **duration**: 1 year. **conditions**: Open to graduates of a New Brunswick high school, in the Faculty of Arts, who have completed at least the normal requirements for the first year of the Arts degree program at UNB. Preference will be given to students who have demonstrated excellence in at least one six credit hour course in English. Financial need will be a consideration in making the award. **donor**: The late Col. (Ret'd) K. Douglas Sheldrick.

Margaret C. Sheldrick Memorial Scholarship in Arts (Philosophy or Political Science)
field: Arts. **value**: $ 525. **number**: 1. **duration**: 1 year. **conditions**: Open to graduates of a New Brunswick high school, in the Faculty of Arts, who have completed at least the normal requirements for the first year of the Arts degree program at UNB. Preference will be given to students who have demonstrated excellence in at least one six credit hour course in Philosophy or Political Science. Financial need will be a consideration in making the award. **donor**: The late Col. (Ret'd) K. Douglas Sheldrick.

W.Y. Smith Memorial Scholarship
field: Arts. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the Bachelor of Arts program who has declared a major in Economics. Selection will be made on the basis of scholastic attainment and financial need. **donor**: Former students, colleagues and family established this scholarship is in memory of W.Y. Smith, professor of Economics and Political Science at UNB, former Vice-President (Academic) and professor emeritus

Dr. Bernie Vigod Memorial Scholarship
field: History. **value**: $1,000 per year. **number**: 1 each year. **duration**: 2 years. **conditions**: Awarded on the recommendation of the Department of History to an outstanding Fredericton campus student entering the Honours program in History.**donor**: Family and friends of the late Bernie Vigod.

Roberta Wilson Weiner Scholarship
field: Arts. **value**: Approximately $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually to a student on the Fredericton campus who has successfully completed at least the first year of an Arts degree program on the Fredericton campus. Selection is to be made on the basis of academic achievement and financial need. Through this scholarship, the **donor** hopes to encourage students to enter such **fields** as library, archives, gallery or museum work. This scholarship is tenable at UNBF. **donor**: Mrs. R.W. Weiner.

A. Jeyaratnam Wilson Memorial Scholarship
field: Political Science. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has declared a major or honours in political science. Preference will be given to a student who has demonstrated excellence in International Relations or Comparative Politics. Selection is based on scholastic attainment. awarding agency: The University on the recommendation of the Department of Political Science, UNB Fredericton. **donor**: Friends and family of A. Jeyaratnam Wilson.

Ina & Ray Peterson Memorial Scholarship
field: Arts/Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to female students who have graduated from a New Brunswick high school and are entering the third or fourth year of the concurrent Bachelor of Arts/Bachelor of Education degree program on the Saint John Campus. Preference will be given to students from Fredericton Junction/Sunbury County, N.B. Selection is based on academic achievement and financial need. **donor**: E. Sarah Peterson (BA 1948, Med) and immediate family.

Evelyn (Evie) Marie Webber Memorial Scholarship
field: Arts and Education. **value**: $1,000. **number**: 1. **duration**: 1 year (may be renewed). **conditions**: Awarded to a Saint John campus student who is enrolled in the concurrent Bachelor of Arts/Bachelor of Education program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection is based on academic achievement and financial need. Preference will be given to a mature student. **donor**: Friends and family of the Late Evelyn Webber and New Brunswick University Opportunities Fund.

BUSINESS ADMINISTRATION

Lorna Jenkins Alaffe Memorial Bursary
field: Business Administration. **value**: $850. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student in the Business Administration degree program on the Saint John campus who has demonstrated successful academic performance. **donor**: Mr. W.R. Jenkins and Nabisco Brands Ltd.

Aliant Scholarship
field: Business Administration. **value**: $1,500. **number**: 2 **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance to students in the Business Administration degree program who have completed at least the normal requirements for the first year of the degree program. Eligible candidates must be residents of the Province of New Brunswick. **donor**: Aliant Telecom.

A. George Anderson Scholarship
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Business Administration degree program. Preference will be given to a student who has demonstrated excellence in Marketing courses. Selection will be based on scholastic attainment and financial need. **donor**: The estate of A. George Anderson.

Shaila Bari Memorial Scholarship
field: Business Administration. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female International student on the Fredericton campus who has completed at least the minimum requirements for the first year of the Bachelor of Business Administration degree program. Selection will be based on academic achievement (minimum 3.0 gpa) and financial need. **donor**: The Faculty of Business Administration and friends and family of the late Shaila Bari.

BBA Graduates (1954-1959) Bursary
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student continuing beyond first year (30 credit hours) in the BBA program on the Fredericton Campus. The recipient must have a satisfactory academic record as determined by the Faculty of Business Administration. awarding agency: The University upon the recommendation of the Faculty of Business Administration. **donor**: BBA graduates from 1954-1959.

Richard Burpee Scholarship
field: Business. **value**: $1,350. **number**: 4. **duration**: 1 year. **conditions**: Awarded to Saint John campus students who are enrolled in the Co-op option of the Bachelor of Business Administration degree program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need. The scholarship will be awarded during the student's co-op work term. awarding agency: The University, on the recommendation of the Faculty of Business. **donor**: Saint John Energy and the New Brunswick University Opportunities Fund.

Frederick J. Cashwell Memorial Scholarship
field: Business. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student from the greater Saint John area who has completed the normal requirements for the first year of the Bachelor of Business Administration degree program. Selection will be based on scholastic attainment and financial need. **donor**: Edith Maye Cashwell and Gold Star Window Cleaning Co. Ltd., established in 1942 by Frederick J. Cashwell and the New Brunswick University Opportunities Fund.

CIBC Scholarship in Business Administration
field: Business Administration. **value**: $2,500. **number**: 4. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the minimum requirements for the first year of the Bachelor of Business Administration degree program. Two scholarships will be awarded to BBA students on the Fredericton campus and two scholarships will be awarded to students on the Saint John campus. Selection will be based on academic achievement. awarding agency: The University. **donor**:Canadian Imperial Bank of Commerce.

Gerald Cook Scholarship
field: Business Administration. **value**: $1,200. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in the Bachelor of Business Administration degree program and has declared a major in accounting. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Family of Gerald Cook and the New Brunswick University Opportunities Fund.

Delta Brunswick Hotel Scholarship
field: Hospitality and Tourism. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed a two-year diploma at an articulated Community College and is entering the Bachelor of Applied Management in Hospitality and Tourism degree program at UNB Saint John. Selection is based on scholastic attainment. **donor**: Delta Brunswick Hotel.

Electronic Commerce Centre Awards
field: Business. **value**: $500. **number**: 2. **duration**: 1 year. **conditions**: Two awards of $500 each to be awarded annually on the recommendation of the Electronic Commerce Centre at the Faculty of Business on the Saint John campus. Applicants will be judged on papers written in Electronic Commerce courses and interviews. To be eligible, applicants must be entering the final year of the major in Electronic Commerce. apply: Dean of Business, UNB Saint John. awarding agency:The University, on the recommendation of the Faculty of Business, UNB Saint John. **donor**: The Electronic Commerce Centre

Faculty of Business Administration Undergraduate Bursary
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student or students continuing beyond the first year (30 ch) in the BBA program on the Fredericton campus. The recipient must have at least an average academic record (minimum assessment year GPA 2.5). awarding agency: The University on the recommendation of the Faculty of Business Administration. **donor**: Faculty, staff and friends of the Faculty of Business Administration.

Freedom Travel Bursary
field: BAMHT. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who is enrolled in the Bachelor of Applied Management in Hospitality in Tourism. The recipient must demonstrate successful academic performance. The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. awarding agency: The University of New Brunswick on the recommendation of the Business BAMHT Director/ Coordinator. **donor**: Freedom Travel.

Grant Thornton Scholarship
field: Business Administration. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have completed the requirements for the second year of the Business Administration degree program. Selection is based on academic excellence, qualities of leadership, professional promise and career aspirations in the **field** of chartered accountancy. Preference will be given to a student in the Co-op program who has attained high academic standing in at least 3 credit hours of accounting electives. awarding agency: The University on the basis of a recommendation from the Faculty of Business Administration in consultation with Grant Thornton. **donor**: Grant Thornton LLP.

Hilton Saint John Scholarship
field: Bachelor of Applied Management in Hospitality and Tourism. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Open to students who have completed an articulated two-year diploma at a Community College and are enrolled in the BAMHT degree program at UNB Saint John. Selection is based on scholastic achievement. awarding agency: The University. **donor**: Hilton Saint John.

IBEC Scholarship
field: Business Administration. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the second year of the Bachelor of Business Administration degree program and has demonstrated interest in entrepreneurship and/or international business. Selection is based on academic achievement and community involvement. awarding agency: The University, on the recommendation of the Director of the International Business & Entrepreneurship Centre. **donor**: UNB International Business & Entrepreneurship Centre.

Knox Family Bursary
field: Business. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student enrolled in Co-op in the Bachelor of Business Administration degree program. The recipient must demonstrate successful academic achievement and be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Preference will be given to graduates of Saint John High School. The scholarship will be awarded during the student's co-op work term. apply: Co-op Coordinator, Faculty of Business. awarding agency: The University, on the recommendation of the Faculty of Business. **donor**: The Knox Family and the New Brunswick University Opportunities Fund.

Gerald B. Lawson Memorial Scholarship
field: Business. **value**: $6,200. **number**: 1. **duration**: 1 year. **conditions**: Open to students in the Faculty of Business on the Saint John Campus who have completed at least 30 credit hours in the Business degree program. The scholarship will be awarded at the end of the first 30-36 credit hours, or at the completion of a total of 60-69 credit hours in the Business degree program. Selections are made on the basis of scholastic attainment, financial need, and the contribution of the student to the university community, the Saint John community and/or the home community of the student. awarding agency: The University. **donor**: Family of the late Mr. Gerald B. Lawson.

Sany Leckie Memorial Bursary
field: Business Administration. **value**: $4,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded upon the recommendation of the Faculty of Business Administration, on the basis of financial need, to a student enrolled in the second year of the Business Administration program (BBA) on the Fredericton campus, who has demonstrated successful academic performance. awarding agency: The University, on the recommendation of the Faculty of Business Administration.**donor**: The Leckie family.

Carl & Dorothy Loughrey Scholarship
field: Business Administration. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Business Administration degree program and has declared a major in Finance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Dorothy Loughrey and the New Brunswick University Opportunities Fund.

Roland J. Lutes, C.A. Memorial Scholarship
field: Business Administration. **value**: Tuition. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the requirements of the first year of the Bachelor of Business Administration degree program. Selection will be based on scholastic attainment and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Family and friends of Rollie J. Lutes, BBA 1958, and the New Brunswick University Opportunities Fund.

E.D. Maher Scholarship
field: Business Administration. **value**: Approximately $1,700. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to a student continuing beyond first year (30 ch) in the BBA program.**donor**: Students, faculty, staff, graduates, organizations, and friends in recognition of E.D. Maher's many contributions to the University community and, in particular, to the undergraduate business program.

A.J. Malley Memorial Scholarship
field: Business Administration. **value**: Approximately $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an outstanding Fredericton campus student who has completed the third year of the Bachelor of Business Administration degree program at UNB. Preference will be given to a student who has enrolled in entrepreneurship courses. Selection is made on the basis of academic performance and financial need. The recipient must be a New Brunswick resident as defined by the Provincial Government's Student Financial Services. awarding agency: The University, on the recommendation of the Director of the International Business & Entrepreneurship Centre. **donor**: The family of A.J. Malley and the New Brunswick University Opportunities Fund.

Brydone deBlois Millidge Memorial Scholarship
field: Business Administration. **value**: Up to $1,000. **number**: 1. **duration**: 1 year (may be renewed). **conditions**: Awarded on the basis of scholastic attainment and financial need to a BBA student on the Fredericton campus who has completed at least one year (minimum 30 ch) of the Business degree program. **donor**: The late Mrs. Brydone deBlois Millidge.

Kenneth D. Moore Memorial Scholarship
field: Business Administration. **value**: Approximately $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually on the basis of academic performance and financial need to a student entering the second year (completed 30 ch) of the BBA degree program on the Fredericton campus. **donor**: Canadian Retail Shippers' Association.

Dipendra P. Pradhan Scholarship
field: Business Administration. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who has completed the requirements of the first year of the Bachelor of Business Administration degree program and is beginning second year. Selection is based on academic achievement and financial need. **donor**: Dipendra P. Pradhan, BBA 2011.

PricewaterhouseCoopers Co-op Fellowships in Business
field: Business. **value**: $5,000. **number**: Up to 3 annually. **duration**: 1 year. **conditions**: Awarded to Saint John campus students who are enrolled in the Co-op option of the Bachelor of Business Administration degree Program. Selection will be based on academic achievement. The fellowship is to be held during the students' co-op placement. awarding agency: The University, on the recommendation of the Faculty of Business, UNB Saint John. **donor**: PricewaterhouseCoopers LLP.

ROYTEC/Faculty of Business Administration Scholarship
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to ROYTEC students who have been officially accepted to the UNB/BBA program and are attending the ROYTEC site. Selection is made on the basis of scholastic attainment and financial need. apply: ROYTEC Registrar. **donor**: UNB Faculty of Business Administration.

Harold Sharp Undergraduate Bursary
field: Business Administration. **value**: Variable. **number**: Variable. **duration**: 1 year (may be renewed). **conditions**: Awarded on the basis of financial need to a student or students continuing beyond the first year (30 credit hours) in the BBA program on the Fredericton campus. The recipient must have at least an average academic record (minimum 2.5 assessment year grade point average). awarding agency: The University on the recommendation of the Faculty of Business Administration. **donor**: Faculty, staff and friends of the Faculty of Business Administration.

David W. Stevenson, F.C.A. Scholarship
field: Business Administrationi. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in the Bachelor of Business Administration degree program on the Fredericton campus and has declared a major in accounting. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: David W. Stevenson, F.C.A. (BBA '68) and the New Brunswick University Opportunities Fund.

Tourism Synergy Ltd. Scholarship
field: Bachelor of Applied Management in Hospitality and Tourism. **value**: $1000/$500. **number**: 2. **duration**: 1 year. **conditions**: One scholarship **valued** at $1000 will be awarded to a student who has completed a two-year diploma at an articulated Community College and is enrolled in the BAMHT degree program at UNB Saint John. One scholarship **valued** at $500 will be awarded to a student returning to the BAMHT degree program at UNB Saint John after completing a year at an approved partner institution. Selection will be based on academic achievement. **donor**: Tourism Synergy Ltd.

Trenholm Scholarship
field: Business. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the first year of the Bachelor of Business Administration degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Barbara and Brian Trenholm, and the New Brunswick University Opportunities Fund.

H. D. Woods Memorial Bursary
field: Business Administration. **value**: Approximately $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student continuing beyond the first year (30 ch) in the BBA program on the Fredericton campus. The recipient must have at least an average academic record. This Bursary was established to recognize the outstanding contributions made by the late Professor H.D. Woods to industrial relations, and to the students and Faculty of Business Administration at UNB. **awarding agency**: The University on the recommendation of Faculty of Business Administration. **donor**: Friends and family of the late H.D."Bus" Woods.

COMPUTER SCIENCE

Eldon & Maxine Clair Bursary in the Faculty of Computer Science
field: Computer Science. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to part-time or full-time, graduate or undergraduate students on the Fredericton campus who are enrolled in a degree program in the Faculty of Computer Science. Recipients must demonstrate successful academic performance. **awarding agency**: The University, on the recommendation of the Faculty of Computer Science. **donor**: The estate of Eldon and Maxine Clair.

MacLauchlan McKenzie Scholarship: Women in Technology
field: Computer Science. **value**: $2,000. **number**: 2. **duration**: 1 year. **conditions**: Open to Fredericton campus female students who have completed at least the normal requirements for the first year of an undergraduate degree program in the Faculty of Computer Science and will attend the Fredericton campus during the tenure of the scholarship. Selections are made on the basis of scholastic attainment and financial need. **awarding agency**: The University on the recommendation of the Faculty of Computer Science. **donor**: Julia MacLauchlan and Warren McKenzie.

EDUCATION

Marion Thomas Ashfield Memorial Bursary in Education
field: Education. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student enrolled in the Bachelor of Education degree program. The recipient must demonstrate successful academic performance and be a New Brunswick resident according to the Provincial Government's Student Financial Services guidelines. Preference will be given to a student in the elementary program, who has volunteer experience or extracurricular activities and who comes from a rural area of New Brunswick. **donor**: Family and friends of the late Marion Ashfield, a former New Brunswick teacher established this award to honour her love of teaching and her commitment to helping and supporting others. Contributions were also received from the New Brunswick University Opportunities Fund.

Muriel Farris Baird Alumnae Scholarship
field: Education. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to a female Fredericton campus student who has been admitted to the Bachelor of Education degree program. Selection will be based on academic achievement and financial need. **awarding agency**: The University, in consultation with the Associated Alumnae. **donor**: Associated Alumnae.

Tanya V. M. Barrett Memorial Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student in the Bachelor of Education degree program. Selections is made on the basis of scholastic attainment and financial need. **donor**: Family of the late Tanya V.M. Barrett, BSc 1978, Bed 1984, UNB.

Stanley E. Bateman Memorial Bursary
field: Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who is enrolled in the Bachelor of Education degree program. Preference will be given to a student in the Bachelor of Education concurrent degree program who has declared or completed a major in English. The recipient must be a New Brunswick resident, according to NB Student Financial Services guidelines. **donor**: Friends and Family of Stanley Bateman, a dedicated teacher for over 40 years, UNB Faculty of Education 1973-1976, and the New Brunswick University Opportunities Fund.

Dr. David Beebe Memorial Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the Bachelor of Education degree program who has completed a Bachelor of Business Administration degree. Selection is based on academic achievement and financial need. **donor**: Colleagues and friends of the late Dr. David Beebe.

M. Louise Burbidge Memorial Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student in the Bachelor of Education degree program who is a graduate of an NB high school. Selection is based on academic performance and financial need. **donor**: Margaret Burbidge.

Della H. Cody Memorial Scholarship
field: Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Education degree program. Selection is based on academic achievement. Preference will be given to the student who has completed a Bachelor of Science in Kinesiology. **donor**: Friends of the late Della H. Cody.

Dietze-Turner Bursary in Adult Education
field: Adult Education. **value**: $250. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a full-time or part-time student enrolled in the Bachelor of Education, Adult Education program. The recipient must demonstrate successful academic achievement. **donor**: Beverlie A. Dietze and Agnes E. Turner.

Asa Dow Scholarship
field: Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a male student in the Bachelor of Education degree program. The recipient must be a New Brunswick resident and must not be residing at home while attending university. **donor**: The late Asa Dow.

Karen Duffy Memorial Scholarship
field: Preference to Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student from Blackville High School who is beginning an undergraduate degree program on the Fredericton campus. Preference will be given to a student entering the Bachelor of Education program. **donor**: Family and friends of the late Karen Duffy.

Garfield Dykeman Memorial Bursary in Education
field: Education. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student enrolled in the Bachelor of Education degree program. The recipient must demonstrate successful academic performance and be a New Brunswick resident according to the Provincial Government's Student Financial Services guidelines. Preference will be given to a student in the elementary program, who has volunteer experience or extracurricular activities and who comes from a rural area of New Brunswick. **donor**: Clarence Johnston Memorial Bridge Club, family and friends of the late Garfield Dykeman, a former New Brunswick teacher and principal, established this award to honour his enthusiastic support and contribution to a wide range community service, especially in the **field** of Education. Contributions were also received from the New Brunswick University Opportunities Fund.

Viviane Edwards Scholarship in Second Language Education
field: Education. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Education (Consecutive or Concurrent) degree program, has completed or is registered in a minimum of 9 credit hours of courses in second language education, 6 credit hours of which must be in French and is intending to teach French as a second language. The student must meet the definition of a New Brunswick resident as defined by Student Financial Services. Selection will be based on scholastic attainment and financial need. **awarding agency**: The University, on the recommendation of the Faculty of Education. **donor**: Friends and colleagues of Viviane Edwards and the New Brunswick University Opportunities Fund.

Faculty of Education Scholarship
field: Education. **value**: Variable. **number**: 1 or more. **duration**: 1 or more. **conditions**: Awarded to a student who has been accepted to the Bachelor of Education degree program on the Fredericton campus. Selection is based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. **awarding agency**: The University, on the recommendation of the Faculty of Education. **donor**: Alumni and friends of the Faculty of Education.

Agnes L. Green Memorial Bursary
field: Education. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student in the Bachelor of Education degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. awarding agency: The University, on the recommendation of the Faculty of Education. **donor**: The family of the late Agnes L. Green and the New Brunswick University Opportunities Fund.

Eleanor Haines Memorial Scholarship
field: Education. **value**: Approximately $1,200. **number**: 1. **duration**: 1 year. **conditions**: A student of promise studying towards a degree in Education. **donor**: The late Hazel L. Haines.

Jackson Hanson Memorial Scholarship
field: Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Education degree program. Selection will be based on academic achievement. **donor**: Family and friends of the late Jackson Hanson.

A. B. Lumsden Memorial Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the Bachelor of Education degree program who has completeted a Bachelor of Business Administration degree and is a graduate of a New Brunswick high school. Selection is based on academic achievement. **donor**: Friends of the late A.B. Lumsden.

E. Belle Lynds Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student entering the penultimate year of the Concurrent program in the Faculty of Education. The recipient should be planning to pursue the study of communications, including such areas as media, speech, drama and creative writing, in the balance of the undergraduate degree program. awarding agency: The University on the recommendation of the Faculty of Education. **donor**: The late Margaret R. Lynds.

Hulda A. Lynds Memorial Scholarship
field: Education. **value**: Up to $1,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a student who is a resident of Albert County and who is enrolled in the Bachelor of Education (consecutive or concurrent) degree program. Selection is based on academic achievement. **donor**: The late Eleanor B. Lynds.

Verna MacDonald Scholarship
field: Education. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to able and needy students in the penultimate and final years of the Faculty of Education enrolled in the undergraduate Bachelor of Education program.**donor**: The late Verna MacDonald.

Margaret Macdougall Bursary in Education
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student in the Bachelor of Education degree program. Preference will be given to a student who has completed a Bachelor of Business Administration degree. The recipient must demonstrate successful academic performance. awarding agency: The University on the recommendation of the Faculty of Education. **donor**: The Business Education Subject Council, in honour of Prof. Margaret Macdougall.

Helen MacFarlane Scholarship
field: Education. **value**: $1,200. **number**: 2. **duration**: 1 year. **conditions**: Open to a student in the Faculty of Education who is entering the 3rd or 4th year of the undergraduate Bachelor of Education degree program. Students who are enrolled in this program as a second undergraduate degree are eligible for consideration. To be eligible the student must a) have successfully completed six ch (or the equivalency) in Reading/Language Arts, b) have demonstrated a high level of academic achievement, and c) pursue studies in Reading/Language Arts. awarding agency: The University on the recommendation of the Faculty of Education. **donor**: Friends of Helen MacFarlane in honor of her outstanding contribution to Education.

Sheri Lynne McCordick Memorial Bursary
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student enrolled in the Bachelor of Education degree program. The recipient must demonstrate successful academic performance. **donor**: Family and friends of the late Sheri Lynne McCordick, a former UNB student.

Mary (Nee Outlet) McDougall Memorial Scholarship
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has a physical disability on the Fredericton campus on the basis of scholastic attainment and financial need. Preference given to Education students. **donor**: Family and friends of the late Mary McDougall, a former UNB Education student.

Luz Murray Memorial Scholarship in Music Education
field: Music Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to students who are enrolled in the BEd program and who have demonstrated excellence in the study of music education at the University of New Brunswick.awarding agency: The University on the recommendation of the Faculty of Education. **donor**: Mr. Bruce Murray, in memory of his wife, Luz.

Mabel Parker Bursary
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Consecutive or Concurrent Education degree program who has demonstrated satisfactory academic performance. The recipient must have a demonstrated interest in dealing with children who have learning disabilities or who are mentally challenged. Preference will be given to graduates of a Charlotte County high school. awarding agency: The University, on the recommendation of the Faculty of Education **donor**: St. Stephen and District Association for Community Living.

Ronald Edward Parks and Sophia Arlene Parks Scholarship
field: Education. **value**: $2,000. **number**: 2. **duration**: 1 year. **conditions**: Awarded to students in the Bachelor of Education program on the Fredericton Campus. Selection will be based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Ronald Edward Parks, Sophia Arlene Parks, BT'72, BEd'74, MEd'83, and the New Brunswick University Opportunities Fund.

Dr. & Mrs. Fletcher Peacock Scholarship in Education
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is in the Bachelor of Education degree program and is intending to pursue studies in the area of people who are physically and/or mentally challenged. Selection is based on academic achievement. awarding agency: The University on the recommendation of the Faculty of Education. **donor**: Mrs. Jessie W. Sharpe.

Ernest & Blanche LeBel Picot Scholarship
field: Education - French Second Language Program. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of program performance to students with a French Education (core or immersion) concentration who have completed a least 66 ch of their degree program. Candidates must have completed year two French courses, obtained a mark of B or higher on all French courses taken since the beginning of their program, and have a cumulative GPA of 3.0 or higher. apply: Assistant Registrar, Undergraduate Awards, and the Director of the Second Language Teacher Education Centre. awarding agency: The University on the recommendation of the UNB Director of the Second Language Teacher Education Centre. **donor**: The late Dr. J.E. Picot (and his family).

Joan Rogers Science Educator Scholarship
field: Education. **value**: $500. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton Campus student enrolled in the Bachelor of Education (Consecutive or Concurrent) degree program who has completed a Bachelor of Science degree or is enrolled in the Bachelor of Science/Bachelor of Education degree program. The student must be a New Brunswick resident, according to the Student Financial Services guidelines. Selection will be based on financial need and academic performance. awarding agency: The University, on the recommendation of the Faculty of Education. **donor**: Joan Rogers, Family, Friends and the New Brunswick University Opportunities Fund.

Della M. Sansom Memorial Scholarship
field: Education. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student in the Bachelor of Education degree progam. Selection will be based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Friends and Family of the late Della Sansom and the New Brunswick Opportunities Fund.

Dr. Neil Scott Memorial Scholarship
field: Elementary Education. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a male Saint John campus student enrolled in the Bachelor of Education degree program who has a demonstrated interest in elementary education. Selection will be based on scholastic attainment (preference will be given to a Scholarship GPA of 3.2 or above) with consideration given to the student who demonstrates experience in volunteering or working with children. awarding agency: The University on the recommendation of the Dean of Arts, UNB Saint John, in consultation with the Education Coordinator at UNB Saint John. **donor**: Family and friends of the late Dr. Neil Scott.

Second Language Research Institute of Canada Scholarship
field: Education. **value**: $2,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a student who is beginning the Bachelor of Education degree program on the Fredericton campus, and has expressed an interest in and is eligible for the Certificate in Teaching French as a Second Language. Selection is based on academic achievement and French language competency. Consideration may be given to financial need. awarding agency: The University, on the recommendation of the Director of the Second Language Research Institute of Canada. **donor**: Second Language Research Institute of Canada.

F. Dorothy Skene Memorial Scholarship
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to a student who is entering the third or fourth year of studies in the Concurrent program in the Faculty of Education and has shown potential for a high degree of professional ability as a teacher. **donor**: The Victor Hatheway Chapter of the I.O.D.E.

Audrey Stevenson Memorial Scholarship
field: Education. **value**: $2,500. **number**: 3. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in the Bachelor of Education degree program. Selection will be based on scholastic attainment and financial need, with consideration given to demonstrated leadership qualities and community involvement. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **donor**: Donald R. Stevenson, in loving memory of his mother, and the New Brunswick University Opportunities Fund.

Murray F. Stewart Scholarship
field: Education-English Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a BEd (Consecutive) or BEd (Concurrent) student who has completed three years of study in an Arts degree with a major in English including courses in English composition and/or linguistics and who plans to pursue a concentration in literacy/language arts in Education. Selection is made on the basis of scholastic attainment with consideration of financial need. **apply**: Assistant Registrar, Undergraduate Awards and the Chair of the Department of Curriculum and Instruction. **awarding agency**: The University on the recommendation of the Faculty of Education. **donor**: Murray F. Stewart, former English education professor at UNB.

Heather (Clarke) Toole Scholarship
field: Education. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who is entering the 3rd or 4th year of the concurrent Bachelor of Arts/ Bachelor of Education degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Heather Toole (BA 1968, BED 1976, MED 1981) and the New Brunswick University Opportunities Fund.

Evelyn Walker Memorial Bursary
field: Education. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a female Anglophone student who is enrolled in the Bachelor of Education degree program on the Fredericton campus and is intending to teach French as a second language and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **awarding agency**: The University, on the recommendation of the Faculty of Education. **donor**: Family & friends of Evelyn Walker and the New Brunswick Universities Opportunities Fund.

R. Earl and Mary L. Walter Memorial Scholarship
field: Education. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Open to students in the concurrent or consecutive Bachelor of Education degree program. Selections are made on the basis of scholastic attainment. **donor**:Estate of Dr. Mary L. Walter, BT 1964, BA 1967, MA 1972, PhD 1979 (Boston U.)

ENGINEERING

Wilson W. Abernethy Award in Construction Engineering
field: Civil Engineering. **value**: Approximately $8,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Canadian student who is entering the final year of the Bachelor of Science in Engineering (Civil) degree program. Selection is made on the basis of a demonstrated practical interest in construction engineering with consideration given to financial need, extracurricular activities, practical potential, and ethical standards. In any given year the scholarship may not be awarded if a suitable candidate is not found. **awarding agency**: The University, on the recommendation of the Department of Civil Engineering. **donor**: John W. and Gail L. Abernethy.

Alberta Land Surveyors' Association Academic Achievement Scholarship
field: Geodesy and Geomatics Engineering. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Geodesy and Geomatics Engineering student who has completed or has enrolled in the two cadastral surveying option courses: GGE5521 Survey Law; GGE5833 Land Use Planning for Geomatics. Selection will be based on academic achievement. **awarding agency**: The University, on the recommendation of the Faculty of Engineering. **donor**: Alberta Land Surveyors' Association.

Nels Anderson II Scholarship
field: Civil Engineering. **value**: $6,500. **number**: 2. **duration**: 1 year. **conditions**: Awarded to two students on the Fredericton campus who have a good academic standing (GPA 3.0 or better) and have a demonstrated involvement in student activities at the University, Faculty of Engineering or community level. In making the award, consideration will be given to students considered to have potential for developing a successful career in engineering. Preference will be given to students who meet the criteria and do not hold another major award. One scholarship to be awarded to a student who is beginning the third year of the Bachelor of Science in Engineering (Civil) degree program and one scholarship to be awarded to a student who is entering the final year of the Bachelor of Science in Engineering (Civil) degree program. **awarding agency**: The University on the recommendation of the Department of Civil Engineering. **donor**: Family, friends, classmates of the late Nels Anderson II.

ASHRAE Scholarship
field: Mechanical Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a deserving Fredericton campus student of high academic standing in Mechanical Engineering from New Brunswick or Prince Edward Island who has completed at least 120 ch in the Mechanical Engineering degree program. Preference will be given to a student enrolled in either of Air **Conditioning** (ME 4453) or Electrical and Mechanical Equipment for Buildings (ME 4263). **awarding agency**:The University on the recommendation of the Department of Mechanical Engineering. **donor**: The New Brunswick Chapter of the American Society of Heating, Refrigerating and Air **Conditioning** Engineers.

Association of New Brunswick Land Surveyors Scholarship
field: Geodesy and Geomatics Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the requirements for the first year of the Bachelor of Science in Engineering (Geodesy and Geomatics) degree program. Preference will be given to the student who has completed or has enrolled in the two cadastral surveying option courses: GGE5521 Survey Law; GGE5833 Land Use Planning for Geomatics. The recipient must be a resident of New Brunswick, according to the NB Provincial Government Student Financial Services Guidelines. Selection will be based on academic attainment and financial need. **awarding agency**: The University, on the recommendation of the Faculty of Engineering. **donor**: Association of New Brunswick Land Surveyors Association and the New Brunswick University Opportunities Fund.

Dr. A. Foster Baird Alumni Scholarship
field: Engineering. **value**: $250. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually to an Engineering student entering the final year of a bachelor's program. Major consideration for this award shall be given to the student's interest and participation in student activities. The student's scholastic achievement and financial need will be the other factors considered. **donor**: The Associated Alumni.

Dr. R. Balasubramanian Memorial Scholarship
field: Electrical Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to a student in Electrical Engineering who has completed at least 35 ch in the Electrical Engineering program. The recipient will be selected on the basis of academic achievement and financial need. **awarding agency**: The University, upon the recommendation of the Department of Electrical Engineering. **donor**: Friends of the late Dr. Balasubramanian.

William L. Barrett Engineering Undergraduate Scholarship
field: Engineering. **value**: $1000. **number**: 1. **duration**: 1 year. **conditions**: To be awarded annually to a student in the Engineering program at UNB on the Fredericton campus who has successfully completed one year of study (a minimum of 35 ch) leading to the degree of Bachelor of Science in Engineering. Preference will be given to students who have graduated from a high school within the City of Fredericton. **donor**: APEGNB Fredericton Branch.

BC Land Surveyors Foundation UNB Scholarship
field: Geodesy and Geomatics Engineering. **value**: $1,900. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Geomatics) degree program. Preference will be given to students from British Columbia and or students who are registered as a student or member of the Association of BC Land Surveyors. Selection will be based on academic achievement. This scholarship is also open to transfer students. **donor**: Association of BC Land Surveyors.

Ira & Gladys Beattie Memorial Scholarship in Civil Engineering
field: Civil Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick high school, has completed the requirements for the first year of the Bachelor of Science in Engineering (Civil) program and is beginning the second year. Preference will be given to a student from Restigouche County. Selection will be based on scholastic attainment and financial need. **donor**: Ira and Gladys Beattie and the New Brunswick University Opportunities Fund.

Charles S. Bennett Memorial Scholarship
field: Civil Engineering. **value**: Variable. **number**: 3 (of equal **value**). **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to three students in Civil Engineering who have just completed the first year of the program at UNB (a minimum of 30 credit hours). **donor**: Mrs. Helen A. Bennett.

Lorne Berggren Scholarship
field: Mechanical Engineering. **value**: $10,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are Canadian citizens enrolled in the Bachelor of Science in Engineering degree program with preference to those in mechanical engineering. Selection will be based on academic achievement and demonstration of good practical thinking and entrepreneurial spirit as demonstrated, for instance, by students who intend to complete the Diploma in Technology Management and Entrepreneurship. **awarding agency**: The University, on the recommendation of the Faculty of Engineering. **donor**: Lorne Berggren.

Joseph Braithwaite Memorial Scholarship
field: Geomatics Engineering. **value**: Variable. number: 1. **duration**: 1 year.
conditions: Awarded on the basis of scholastic attainment and financial need to a student in the Geomatics Engineering degree program. **donor**: The Surveying Engineering Class of 1989, and friends of the late Joseph Braithwaite.

Ralph Edwin Brannen Scholarship
field: Engineering. **value**: $6,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program in the Faculty of Engineering. Selection is based on academic achievement. Consideration may be given to financial need and/or extracurricular activities. **donor**: The estate of Roseland Irene Brennan.

Dale and Carol Bray Scholarship
field: Civil Engineering. **value**: Variable. number: Multiple. **duration**: 1 year.
conditions: Awarded to Fredericton campus students who have completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Civil) degree program and do not hold a major scholarship. Selection is based on academic achievement. **donor**: Dr. Dale Bray (BScCE 1963, MSE CE 1965) and Mrs. Carol Bray (BA 1968).

C. Gerard Breau Memorial Scholarship
field: Engineering. **value**: Minimum $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in a Bachelor of Science in Engineering degree program who has successfully completed the minimum credit hour requirement for two complete years of study. Preference will be given to an undergraduate student who is registered in the Electrical Engineering degree program. Selection will be made on the basis of scholastic attainment and financial need.**donor**: Mrs. Jacqueline Breau in memory of her husband, C. Gerard Breau.

Ajay Cariappa Bursary
field: Civil Engineering. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is enrolled in the third or fourth year of the Bachelor of Science in Engineering (Civil) degree program. The recipient must have successful academic performance and, in keeping with the professional experience of Ajay Cariappa have a demonstrated interest in construction engineering. awarding agency: The University on the recommendation of the Faculty of Engineering. **donor**: Peter Kiewit Sons' Inc., and the friends and family of the late Ajay Cariappa (MSE CE '00).

Stanley B. Cassidy Memorial Engineering Undergraduate Scholarship
field: Engineering. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: To be awarded annually to a student in the Engineering program at UNB on the Fredericton campus, who has successfully completed at least one year of study (a minimum of 35 ch) leading to the degree of Bachelor of Science in Engineering. Preference will be given to students who have graduated from a high school within the APENB Fredericton Branch District (i.e. comprising York, Carleton, Sunbury, and Queens Counties). **donor**: APEGNB Fredericton Branch

CBCL Scholarship in Engineering
field: Engineering. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is entering the final year of the Bachelor of Science in Engineering degree program. Selection will be based on scholastic attainment. **donor**:CBCL Limited.

Class of 1958 Engineering Alumni Scholarship
field: Engineering. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have completed at least the minimum requirements for the third year of the Bachelor of Science in Engineering degree program (all disciplines). Selection will be made on the basis of scholastic achievement and financial need. **donor**: Class of 1958 Engineering Alumni.

R. J. Collier Memorial Scholarship
field: Electrical Engineering. **value**: $2,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student entering the graduating year of his or her studies in one of the undergraduate degree programs under the Department of Electrical Engineering. Selection is based on the best combination of the qualities of good scholarship and active interest in matters outside the scope of the regular program of study. awarding agency: The University, on the recommendation of the Department of Electrical Engineering, UNB Fredericton. **donor**: Friends and students of the late Professor R. J. Collier.

Colter/Aviva Group Canada Scholarship
field: Civil Engineering. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus Civil Engineering students who have graduated from a high school in the Atlantic provinces. Selections are made on the basis of scholastic attainment and financial need. **donor**: Colter/Aviva Canada, in honour of their 50-year business relationship with Diamond Construction.

Computer Engineering Scholarship
field: Computer Engineering. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least one year of study (a minimum of 35 credit hours) leading to the degree of Bachelor of Science in Engineering (Computer). Selection will be based on scholastic achievement. Preference will be given to students who have graduated from a high school within the City of Fredericton. **donor**: Anonymous.

William P. Cooper Scholarship
field: Civil Engineering. **value**: Variable. number: 1. **duration**: 1 year.
conditions: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Civil) degree program with a minimum 3.0 scholarship grade point average and has enrolled in the CE 3603 Construction Engineering I course. Selection will be based on scholastic achievement. Consideration may be given to the student's involvement in extracurricular activities in high school or at university. **donor**: William P. Cooper.

Margaret & Ronald Costar Scholarship
field: Electrical Engineering. **value**: $1,200. number: 1. **duration**: 1 year.
conditions: Awarded to a student who has completed at least the normal requirements for the first year of the Bachelor of Science in Engineering (Electrical) degree program. Selection will be based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Margaret and Ronald Costar and the New Brunswick University Opportunities Fund.

Ron Covill Memorial Scholarship
field: Civil and Geological Engineering. **value**: $3,250. number: 5.
duration: 1 year. **conditions**: Awarded to Fredericton campus students who have graduated from a high school in Atlantic Canada and have completed at least the first year of the Bachelor of Science in Engineering (Civil or Geological) degree program. Preference will be given to students entering the second year of the Bachelor of Science in Engineering (Civil or Geological) degree program. Selection is based on academic attainment and financial need. **donor**: Family of the late Ron Covill, BScEng (Civil) '69.

Crape Geomatics Bursary
field: Geomatics Engineering. **value**: $2,500. number: 1. **duration**: 1 year.
conditions: Awarded on the basis of financial need to a Fredericton campus student who has completed at the least the minimum requirements for the first year of the Bachelor of Science in Engineering (Geomatics) degree program and is beginning the second year and has demonstrated successful academic performance. **donor**: Crape Geomatics.

Wellington B. Cuthbertson Memorial Scholarship in Electrical Engineering
field: Electrical Engineering. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to undergraduate students in the Electrical Engineering degree program who have graduated from a high school in New Brunswick. Selections are made on the basis of scholastic attainment and financial need, with consideration given to the recipients' qualities of leadership. **donor**: Mrs. Marion C. Cuthbertson.

Louis and Montoura Debly Undergraduate Scholarship
field: Civil Engineering **value**: Min $1000 number: 1. **duration**: 1 year.
conditions: Awarded to a Fredericton campus student who is entering the final year of the Bachelor of Engineering (Civil Eng) degree program and who has shown a high level of achievement in the structural engineering courses. Selection is based on scholastic attainment. awarding agency: The University, on the recommendation of the Department of Civil Engineering. **donor**: Louis Debly (CE'47).

Department of Civil Engineering Venture Scholarship
field: Civil Engineering. **value**: Variable. number: 1. **duration**: 1 year.
conditions: Awarded to a Fredericton campus student who has completed at least the requirements of the first year of the Bachelor of Science in Engineering (Civil) degree program. Selection will be based on academic achievement and financial need. awarding agency: The University on the recommendation of the Department of Civil Engineering. **donor**: Faculty members and friends of the Department of Civil Engineering UNB Fredericton.

Dixon Family Foundation Scholarship
field: Engineering. **value**: $7,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick high school and has completed the requirements for the first year of the Bachelor of Science in Engineering program. Selection will be based on scholastic attainment and financial need. Preference will be given to a student studying civil engineering. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Greg (BSE CE 1980) and Shelli Dixon and the New Brunswick University Opportunities Fund.

Dr. Walter J. Dohaney Memorial Scholarship
field: Civil Engineering. **value**: $2,000. number: 1. **duration**: 1 year.
conditions: Open to Civil Engineering students from the Province of New Brunswick who have completed at least half of the requirements for the Civil Engineering program. The recipient will be selected on the basis of involvement in student affairs and/or athletics. Financial need will be a consideration and the student must have maintained an academic standing at or above a B average. awarding agency:The University, upon the recommendation of the Department of Civil Engineering. **donor**: Family and friends of the late Walter J. Dohaney, Assistant Dean of Engineering 1981-1985 and the New Brunswick University Opportunities Fund.

Thomas D. Doyle Award
field: Engineering. **value**: Variable, minimum $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick high school and has completed at least the first-year of the Engineering degree program on the Fredericton campus. Awarded on the basis of active involvement in an Engineering Undergraduate Society, scholastic attainment and financial need. awarding agency: The University on the recommendation of the Faculty of Engineering.**donor**: Trans Mountain Pipe Line Company in honour of Thomas D. Doyle, BSc Engineering, 1960, and the New Brunswick University Opportunities Fund.

Rudy & Theresa Esterbauer Scholarship
field: Mechanical Engineering. **value**: Up to $5,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are in the Bachelor of Science in Engineering (Mechanical) degree program. Selection is based on academic achievement. Preference will be given to students transferring from other institutions. awarding agency: The University, on the recommendation of the Chair of Mechanical Engineering. **donor**: Rudy and Theresa Esterbauer.

Fluor Scholarship in Engineering
field: Chemical, Electrical, Mechanical or Civil Engineering. **value**: $2,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are Canadian citizens or permanent residents and have completed the requirements of the second or third year of the Bachelor of Science in Engineering (Chemical, Electrical, Mechanical or Civil) degree program. The candidates must not hold a major scholarship at the same time as this one. Selection will be based on academic achievement. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: Fluor Canada Ltd.

WSP | Focus Scholarship
field: Geodesy and Geomatics Engineering. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the third year and is beginning the fourth year of the Bachelor of Engineering (Geodesy and Geomatics) degree program. Selection is based on academic achievement and financial need. **donor**: WSP Canada.

Professor Ralph Francis Bursary
field: Civil Engineering. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Science in Engineering (Civil) degree program and is a graduate of a New Brunswick high school. Preference will be given to a student specializing in structural design. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic achievement and financial need. awarding agency: The University, on the recommendation of the Department of Civil Engineering.

John H. Fulton Memorial Scholarship in Electrical Engineering
field: Electrical Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance to students who have successfully completed at least one year of study (a minimum of 35 ch) in the Electrical Engineering program at UNB. **donor**: The late John H. Fulton.

John Gilchrist Associated Alumni Engineering Scholarship
field: Engineering. **value**: Approximately $500. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Engineering degree program. The recipient must be a graduate of a New Brunswick high school. Selection is based on scholastic achievement and financial need. **donor**: The late John Gilchrist, BSc EE 1932 and the New Brunswick University Opportunities Fund.

M. Patrick Gillin Award in Engineering
field: Engineering Departments and Programs. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to deserving undergraduate students who have completed their high school education in New Brunswick, have demonstrated involvement in the community, have achieved a satisfactory academic record and require financial assistance. Students are not eligible for a Gillin Award in an academic year during which they have a Coop or PEP term. awarding agency: The University in consultation with Alumni Awards Committee. **donor**: The Gillin Family and the New Brunswick University Opportunities Fund.

Robin W. Gough Scholarship in Electrical Engineering
field: Electrical Engineering. **value**: Variable. **number**: 1. **duration**: 1 year **conditions**: Awarded to a Fredericton campus student who has completed at UNB at least the normal requirements for th first year of the Bachelor of Science in Engineering (Electrical Engineering) degree program. Selections are made on the basis of scholastic attainment and financial need. **donor**: Robin W. Gough, BScEE'26, BScCE'32.

Grandy, Gibson, Holmes Memorial Scholarship
field: Engineering. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: May be awarded to a student in Engineering, including Forest Engineering, at UNB who has demonstrated successful academic performance, has shown a potential for leadership in professional or civic affairs, and is entering the final year of the Engineering or Forest Engineering degree program. awarding agency: The University on the recommendation of the Faculty of Engineering and Geoscience. **donor**:Association of Professional Engineers and Geoscientists of New Brunswick Foundation for Education in memory of Norman Grandy, P.Eng., Andrew Gibson, P.Eng., and Neville Holmes, P.Eng.

Earl J. Grant Memorial Scholarship
field: Civil Engineering. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus student who has completed the requirements for first year in the Bachelor of Science in Engineering (Civil Engineering) degree program and has a demonstrated interest in the area of structural engineering. Selection will be based on scholastic attainment; consideration may be given to financial need. awarding agency: The University on the recommendation of the Faculty of Engineering. **donor**: Family and friends of Earl J. Grant, P. Eng.'54, a former Civil Engineering professor at UNB from 1958 until his untimely death in 1987.

Hart Family Scholarship in Geological Engineering
field: Geological Engineering. **value**: $2,500. **number**: 1. **duration**: 1 year with the possibility of renewal. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Geological) and has demonstrated a keen interest in making a career within the earth sciences. Selection is made on the basis of scholastic attainment and financial need to a student who in a tangible way has demonstrated that s/he will bring to the Geological Engineering profession a high degree of dedication and enthusiasm. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: John Hart.

Jack Howett OCI Scholarship
field: Chemical, Mechanical or Electrical Engineering. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the third year of the Bachelor of Science in Engineering (Chemical, Mechanical or Electrical) degree program. The recipient must demonstrate a solid aptitude and interest in the **field** of nuclear engineering. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic attainment and financial need. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: The Organization of CANDU Industries (OCI) and the New Brunswick University Opportunities Fund.

Imperial Oil Outreach Merit Award
field: Engineering or Science. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have contributed significantly to the Science, Technology, Engineering and Math (STEM) Outreach Program. awarding agency: The University, on the recommendation of the Faculty of Engineering, in consultation with the STEM Coordinator. **donor**: Imperial Oil.

Verne M. Ireton Bursary
field: Mechanical Engineering. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who is beginning the second or third year of Bachelor of Science in Engineering (Mechanical) degree program. Consideration may be given to a student who is involved in extracurricular activities. awarding agency: The University, in consultation with Jonas Angus and family. **donor**: Jonas Angus, BScME'82, and family.

Jones Geomatics Scholarship
field: Geomatics. **value**: $500. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Science in Engineering (Geodesy and Geomatics) degree program. Preference will be given to a student who has transferred from the Nova Scotia Community College COGS Geomatics program. Selection is based on scholastic achievement and demonstrated commitment towards becoming a registered land surveyor. **donor**: R. Kevin Jones, BScEng 1988.

Dr. Y. C. Lee Memorial Scholarship
field: Geomatics. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student enrolled in the Bachelor of Science in Engineering (Geomatics) degree program, who has shown special interest and promise in the study of Geographic Information Systems (GIS). awarding agency: The University on the recommendation of the Department of Geodesy and Geomatics Engineering. **donor**: Family and friends of the late Dr. Y. C. Lee, PhD, P.Eng, who was a faculty member of the Department of Geodesy and Geomatics Engineering.

Leica Geosystems Limited Scholarship
field: Surveying Engineering. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance, to a student entering the penultimate year (completed 90 ch) of the Surveying Engineering program at UNB. **donor**: Leica Geosystems Ltd.

Woodrow P. London Scholarship
field: Civil, Electrical and Mechanical Engineering. **value**: $1,400. **number**: 1. **duration**: 1 year. **conditions**: Selection is made on the basis of scholastic attainment and financial need. **donor**: W. P. London and Associates Limited, as well as friends, in honour of the late Mr. Woodrow P. London.

Dr. Ian R. Lowe Memorial Scholarship
field: Mechanical Engineering. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to a student who has completed at UNB the minimum requirements for the first year of the BScME degree program. Selection will be made on the basis of scholastic attainment. **donor**: Mrs. Joyce Lowe.

Donald MacFadyen BScSE Memorial Scholarship
field: Geodesy and Geomatics. **value**: $1,250. number: 1. **duration**: 1 year. **conditions**: Open to a student from the Maritime Provinces who has completed 130 ch in the Geodesy and Geomatics Engineering Program. The recipient who has at least a B- average will be selected on the basis of financial need, involvement in student and community activities. awarding agency: The University on the recommendation of the Department of Geodesy and Geomatics Engineering. **donor**: Jean, Malcolm, family and friends of the late Donald MacFadyen.

E. Nelson Macnab Memorial Scholarship
field: Engineering. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the minimum requirements of the first year of the Bachelor of Science in Engineering degree program. Selection will be based on scholastic achievement and financial need. Preference will be given to students who demonstrate an interest in sports. **donor**: The family of E. Nelson Macnab, BScEng 1943.

Malcolm and Lorna MacNeil Scholarship
field: Engineering. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student from the Maritime Provinces who has completed at least the minimum requirements for second year of the Bachelor of Science in Engineering (any discipline). Selection is based on academic achievement and financial need. awarding agency: The University. **donor**: Malcolm and Lorna MacNeil.

J. Nairn McCaffrey Memorial Scholarship
field: Civil Engineering. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to Civil Engineering students. **donor**: The late Catherine Phyllis McCaffrey.

McElhanney Scholarship
field: Geodesy and Geomatics Engineering. **value**: $2,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Geodesy and Geomatics Engineering student who has completed or has enrolled in two of the four cadastral surveying option courses: GGE5521 Survey Law; GGE5532 Land Economy and Administration; CE5313 Urban Planning or CE5342 Site Planning. Selection will be based on academic achievement (minimum 3.2 scholarship gpa). Demonstrated leadership ability and innovative skills will also be taken into consideration in selecting the recipient for this award. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: McElhanney Land Surveys Ltd.

Professor Howard McFarlane Bursary
field: Civil Engineering. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Science in Engineering (Civil) degree program and is a graduate of a New Brunswick high school. Preference will be given to a student specializing in Soils Mechanics. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines, and demonstrate successful academic performance. awarding agency: The University on the recommendation of the Department of Civil Engineering, UNB Fredericton.

H. E. McKeen Scholarship
field: Engineering. **value**: $1,500. number: Multiple. **duration**: 1 year. **conditions**: Awarded to students enrolled in any discipline of the Bachelor of Science in Engineering. Selection will be based on academic achievement and financial need.**donor**: The McKeen Foundation.

Midwest Surveys Scholarship
field: Geodesy and Geomatics. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is in the final year of the Bachelor of Science in Engineering (Geodesy and Geomatics) degree program and has demonstrated an interest in cadastral studies. Selection is based on academic achievement and demonstrated leadership. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: Midwest Surveys.

Neill and Gunter Scholarship
field: Engineering. **value**: $2,500. number: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students (1 male and 1 female) who have completed the minimum requirements for the first year of the Bachelor of Science in Engineering degree program. Selection will be based on scholastic attainment. **donor**: Neill and Gunter Limited.

Theodore "Ted" Parsons Memorial Scholarship
field: Engineering. **value**: $2,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Civil or Geological). Selection is based on academic achievement. **donor**: Gemtec.

Dr. Jules C. Picot Scholarship
field: Chemical Engineering. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Chemical) degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need. **donor**: Established by Dr. Varagur S.V. Rajan (Ph.D. CHE 1970) and supported by alumni, colleagues, friends and the New Brunswick University Opportunities Fund in recognition of Jules Picot's many contributions to the University.

Dr. Douglas G. Pincock Electrical Engineering Scholarship
field: Electrical Engineering. **value**: $2,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is entering the third or fourth year of study in the Bachelor of Engineering (Electrical) degree program. Selection will be based on academic achievement. Preference will be given to a student who is involved in extracurricular activities. **donor**: AMIRIX Systems Inc.

David Kent Plummer Memorial Scholarship
field: Electrical Engineering. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed the requirements for the first year of the Bachelor of Science in Engineering (Electrical) and is beginning second year. Preference will be given to a graduate of Saint John High School. Selection will be based on scholastic attainment and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Arthur Plummer and the New Brunswick University Opportunities Fund.

Procter & Gamble TME Scholarship
field: Engineering. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering and is pursuing a Diploma in Technology Management and Entrepreneurship. Selection is based on academic achievement. awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: Procter & Gamble

Dr. Varagur S. V. Rajan & Mrs. Savitri Rajan Scholarship
field: Chemical Engineering. **value**: $800. number: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Chemical) degree program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic attainment and financial need. **donor**: Dr.& Mrs. Rajan and the New Brunswick University Opportunities Fund.

Rory Reardon Memorial Scholarship
field: Engineering. **value**: $3,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the second year of the Bachelor of Science in Engineering (any discipline). Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. Preference will be given to a student who has graduated from a Saint John area high school. **donor**: The family and friends of Rory Reardon (BSE ME 2010) and the New Brunswick University Opportunities Fund.

Dr. Willis F. Roberts Scholarship
field: Geodesy and Geomatics Engineering. **value**: $3,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Geodesy and Geomatics) degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic attainment and financial need. **donor**: Dr. Willis F. Roberts, B.Sc.For. 1940, D.Sc. 2005 and the New Brunswick University Opportunities Fund.

Brenda Claire Sharpe Memorial Scholarship
field: Engineering. **value**: $5,000. number: 40. **duration**: Up to 4 years. **conditions**: Awarded to Fredericton campus students who have completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering degree program. Selection is made on the basis of scholastic attainment. **donor**: John and Barbara Sharpe, in memory of their daughter.

Leslie W. Shemilt Scholarship
field: Chemical Engineering. **value**: Up to $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Science in Engineering (Chemical) and is a graduate of an Atlantic Canadian high school. Selection is based on academic achievement. Consideration may be given to financial need. Students transferring from another Canadian institution may be considered for this scholarship. **donor**: Dr. Desmond J. Green (MSE CHE '67, DSC '95), engineer, entrepreneur and community leader.

A.R. Mearle Smith Bursary
field: Engineering (preference Mechanical Engineering). **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to graduates of Bathurst High School requiring financial assistance who are currently enrolled in Engineering at UNB, and who have completed at least the normal requirements for the first year of the Engineering program at UNB. Preference will be given to Mechanical Engineering students. **donor**: The late A.R. Mearle Smith.

Spectra Energy Scholarship in Engineering
field: Civil, Chemical or Mechanical Engineering. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the requirements for the first year of the Civil, Chemical or Mechanical Engineering degree program. Selection will be based on academic achievement. **donor**: Spectra Energy.

Sutton-Wilkinson Memorial Bursary
field: Engineering (preference to Civil Engineering). **value**: Approximately $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus Engineering student, with preference given to a student in Civil Engineering. The recipient must have demonstrated successful academic performance. **donor**: Friends of the late Wade Sutton and the late Kevin Wilkinson.

Joseph Edward Thomas Memorial Scholarship
field: Engineering. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering degree program. Selection is based on academic achievement. awarding agency: The University. **donor**: Mark Joseph Thomas.

Paul C. C. Ting Memorial Scholarship
field: Electrical Engineering. **value**: Approximately $1,700. **number**: 1. **duration**: 1 year. **conditions**: Open to students who have completed the normal requirements for the first two years of the Electrical Engineering degree program and who have demonstrated outstanding performance in the study of electric circuits. awarding agency: The University on the recommendation of the Faculty of Engineering. **donor**: Family and friends of Paul Ting.

D. O. Turnbull Memorial Scholarship
field: Engineering. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: May be awarded annually to a New Brunswick student who has completed his or her penultimate year of Engineering with high academic standing. **donor**: Association of Professional Engineers and Geoscientists Of New Brunswick Foundation for Education.

Dirk van der Meijden Memorial Scholarship
field: Electrical Engineering. **value**: $9,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female Fredericton campus student who is entering the third or fourth year of study in the Bachelor of Science in Engineering (Electrical) degree program. Selection will be based on academic achievement and financial need. **donor**: Denise van der Meijden.

Ken Vaughan Memorial Bursary
field: Civil Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to Civil Engineering students who have completed at least the normal requirements for the first year of the Civil Engineering degree program (minimum 40 ch). Selections are made on the basis of scholastic attainment and financial need. **donor**: The Moncton Motor Sport Club.

Jawahar and Ahilya Vohra Scholarship
field: Engineering. **value**: Variable. **number**: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students (one to a male student and one to a female student) who have completed more than 38 credit hours and less than 111 credit hours in the Bachelor of Science in Engineering (Electrical or Computer) degree program. The scholarship will be awarded to students who have a scholarship grade point average of 3.7 or higher (Dean's List) and have been involved with and contributed the most to activities of their local community. Preference will be given to students who have shown a willingness to serve the needs of others while pursuing their course of academic study.awarding agency: The University, on the recommendation of the Faculty of Engineering. **donor**: Friends and family of Jawahar and Ahilya Vohra.

John S. Watt Memorial Scholarship
field: Civil Engineering. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering (Civil). Selection is based on academic achievement and financial need. **donor**: The estate of John S. Watt.

Wheatley Memorial Bursary
field: Engineering. **value**: Minimum $500. **number**: 2 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who have completed at least the minimum requirements for the first year of the Bachelor of Science in Engineering degree program and has demonstrated successful performance. Preference may be given to married students. **donor**: Family of Eric Wheatley, founder and head of Mechanical Engineering Dept. & his wife Wenonah Wheatley, a member of the Faculty Women's Club and a long-time supporter of the student wive's organization.

Frank Wilson Scholarship
field: Civil Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is entering the third or fourth year of the Bachelor of Science in Engineering (Civil) degree program. Selection is made on the basis of a demonstrated practical interest in civil engineering with consideration given to financial need, extracurricular activities, practical potential, and ethical standards. awarding agency: The University, on the recommendation of the Department of Civil Engineering. **donor**: Family, friends, colleagues and former students of Dr. Frank R. Wilson B.Sc. CE 1962, M.Sc. CE 1963, former professor of civil engineering, dean of engineering, dean of graduate students, dean of students and vice president research at the University of New Brunswick.

Johann Wordel Scholarship
field: Civil Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year (may be renewed). **conditions**: Awarded to Fredericton campus students who have completed at least 30 credit hours or one year of study in the Civil Engineering degree program and have achieved at least a B+ average (3.3 gpa). This scholarship is open to second and third year students in Civil Engineering and may be renewed through annual application procedures if the student maintains at least a B+ or 75% average (3.3 gpa). Recipients must have been born in New Brunswick or have resided in New Brunswick 10 months prior to attending UNB. awarding agency: The University on the recommendation of the Faculty of Engineering. **donor**: The late Johann Wordel.

FORESTRY

Elaine MacKay Bancroft Scholarship
field: Forestry. value: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the third year of an undergraduate degree program in the Faculty of Forestry and is beginning the fourth year. Selection will be based on academic achievement and financial need. **donor**: J. Douglas Bancroft.

Michael J. Bruhm Memorial Scholarship in Silviculture
field: Forestry. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to students who have completed approximately 90 - 100 ch in the UNB Bachelor of Science in Forestry degree program. Selection is made on the basis of financial need, satisfactory academic performance and consideration of extracurricular activities. Recipients must have demonstrated excellence in Silviculture courses and an interest in the area of Silviculture. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Friends, relatives and colleagues of Michael J. Bruhm across Canada, including colleagues in the British Columbia Ministry of Forests, the Forest Industry, and the Association of British Columbia Professional Foresters.

Centennial Scholarship in Environment & Natural Resources
field: Environment & Natural Resources. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the minimum requirements for the first year of the Bachelor of Science in Environment & Natural Resources. Selection is based on academic achievement. awarding agency: The University, on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Alumni and Friends of the Faculty of Forestry & Environmental Management.

Class of 1955 Forestry Alumni Scholarship
field: Forestry and Forest Engineering. **value**: $3,250. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student entering the fourth year of study in the Bachelor of Science in Forest Engineering or the Bachelor of Science in Forestry degree program. Selection is based on academic achievement and financial need. **donor**: Members of the Forestry Class of 1955.

David A. Daugharty Memorial Scholarship
field: Forestry and Forest Engineering. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed at least the requirements for the second year of the Bachelor of Science in Forestry or Bachelor of Science Engineering (Forest Engineering) and have demonstrated successful academic performance. Selection will be based on financial need with preference given to students who participate in extracurricular activities and show a dedication to the **field** and study of Forestry or Forest Engineering. awarding agency: The University upon the recommendation from the Faculty of Forestry and Environmental Management. **donor**: Friends and family of the late David A. Daugharty, Assistant Dean of the Faculty of Forestry and Environmental Management from July, 1990 until his death in January of 2005.

Glenn & Mary Daugharty Forestry Scholarship
field: Forestry and Forest Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded annually to a continuing student who has completed at least the first year of the BScFE (44 credit hours) or BScF (36 credit hours).awarding agency: The University in consultation with the Faculty of Forestry and Environmental Management. **donor**: Glenn & Mary Daugharty with matching funds from Northern Telecom.

Sherif H. Fahmy Forest Soils Scholarship
field: Forestry and Environmental Management. **value**: $800. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has successfully completed courses in soils and plant-soil ecology and management and silviculture receiving an average of B+ or better. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. awarding agency: The University, on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Sherif H. Fahmy and the New Brunswick University Opportunities Fund.

B. W. Barney Flieger Memorial Scholarship in Forest Engineering
field: Forest Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to outstanding Forest Engineering students who have completed the normal requirements for the first two years of the Forest Engineering degree program (80-100 ch). **donor**: The late Mrs. Margaret Flieger.

Forestry Special Award
field: Forestry. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to a student in Forestry or Forest Engineering who is a graduate of the Maritime College of Forest Technology. apply: The Dean of Forestry and Environmental Management. awarding agency: The University, on the recommendation of the Faculty of Forestry. **donor**: Friends of the late B.W. Flieger.

Robin W. Gough Scholarship in Forest Engineering
field: Forest Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at UNB at least the normal requirements for the first year of the Bachelor of Science in Forest Engineering degree program. Selections are made on the basis of scholastic attainment and financial need. **donor**: Robin W. Gough, BScEE'26, BScCE'32.

Graduates Award in Forestry
field: Forest Resources/Forest Engineering. **value**: Variable. **number**: Variable. **duration**: 1 year (may be renewed) **conditions**: Open to students who have completed at least the normal requirements for the first year of the program in which they are registered. Selections are made on the basis of academic performance and financial need. **donor**: Forestry Alumni and Alumnae.

Ernest H. Gunter Memorial Scholarship
field: Forestry and Environmental Management. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to Fredericton campus students who have completed at least 30 credit hours in the Faculty of Forestry and Environmental Management. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: The late Doris Gunter Bent.

George Edward Gunter Memorial Scholarship
field: Environmental Studies. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a graduate or undergraduate student on the Fredericton campus who has a demonstrated interest and involvement in environmental and sustainability issues. Selection will be based on academic achievement with consideration given to involvement in extra- curricular or co-curricular activities. awarding agency: The University, on the recommendation of the Coordinator of Environmental Studies. **donor**: Friends and Family of the late George Edward Gunter, BScEng (Mechanical) 1959.

William Haliburton Memorial Scholarship
field: Forestry. **value**: $3,000. **number**: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed at UNB at least the normal requirements for the first year of the Bachelor of Science in Forestry or Bachelor of Science in Forest Engineering degree programs. Selection is made on the basis of scholastic attainment. Preference will be given to students undertaking senior projects focussed on forestry in harmony with nature, and/or those who have personal integrity and a demonstrated commitment to the environment. awarding agency: The University, on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Family of the late William Haliburton.

Norman L. Kissick Memorial Scholarship
field: Forestry or Forest Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed 75 credit hours of the Bachelor of Science in Forestry degree program or 111 credit hours of the Bachelor of Science in Forest Engineering degree program and who has a demonstrated interest in forest resource management. Selection will be based on scholastic attainment and financial need. awarding agency: The University, on the recommendation of the Faculty of Forestry. **donor**: Family and friends of Norman Kissick.

H. Douglas Long Memorial Scholarship
field: Forestry. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to a student entering the penultimate or the final year of the program leading to the degree of Bachelor of Science in Forestry, who has shown special interest and promise in the silvicultural aspects of forest management. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Contributors to the University Faculty Fund.

Hon. Elmer MacKay Scholarship in Forestry or Forest Engineering
field: Forestry or Forest Engineering. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to a Fredericton campus student from the Atlantic provinces who has completed the normal requirements at UNB for the first year of the Forestry or Forest Engineering degree program (minimum 37 to 41 ch). awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**:Staff and friends of the Hon. Elmer MacKay.

Steven McGill Memorial Scholarship
field: Forestry. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the second year of an undergraduate degree program in the Faculty of Forestry. Preference will be given first to a student from outside the Maritimes and then to a student from outside New Brunswick. Selection is based on academic achievement. awarding agency: The University. **donor**: The Family of Steven McGill.

NewPage Port Hawkesbury Exchange Scholarship
field: Forestry or Forest Engineering. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students participating in the exchange program with the Faculty of Forestry at the Swedish University of Agricultural Sciences. Selection is made on the basis of scholastic attainment; preference will be given to students from Nova Scotia. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management **donor**:NewPage Port Hawkesbury Limited.

NewPage Port Hawkesbury Scholarship
field: Forestry or Forest Engineering. **value**: Approximately $750. **number**: 3. **duration**: 1 year. **conditions**: Open to graduates of a Nova Scotia high school who have completed at least the requirements for the first year of the Forestry or Forest Engineering program at UNB. Selections are made on the basis of scholastic attainment and financial need. **donor**: NewPage Port Hawkesbury Limited.

Registered Professional Foresters of NB Scholarship
field: Forestry and/or Environmental Management. **value**: $1,000. **number**: 3. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment to Fredericton campus students entering the second, third or fourth year of either the BScF or BScENR programs. Evidence of leadership, as demonstrated by involvement in extra-curricular activities, executive positions in student societies, etc., will also be a consideration. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: The Association of Registered Professional Foresters of New Brunswick.

David N. Shepherd Bursary
field: Forestry and Environmental Management. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of an undergraduate degree program in the Faculty of Forestry and Environmental Management and has demonstrated successful academic achievement. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Lorelei Robins, Gregory Robins, Friends and Family of the late David N. Shepherd, and the New Brunswick University Opportunities Fund.

Ross Silversides Memorial Scholarship in Forestry
field: Forestry and Environmental Management. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Canadian citizen or permanent resident who is a Fredericton Campus student in the faculty of Forestry and Environmental Management. Selection is made on the basis of academic achievement with consideration given to financial need. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: Bessie E. Silversides and friends of the late Ross Silversides.

Weyerhaeuser Community Education Scholarship
field: Forestry or Forest Engineering. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the minimum requirements for the first year of the Bachelor of Forestry or Bachelor of Forest Engineering degree program. Preference will be given to a student from a Weyerhaeuser community in Canada. Selection will be made on academic achievement. **awarding agency**: The University, on the recommendation of the Faculty of Forestry. **donor**: Weyerhaeuser Company Limited, through the Weyerhaeuser Community Education Awards Program.

KINESIOLOGY

AMSI Kinesiology Scholarship
field: Kinesiology. **value**: $4,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the second year of an undergraduate degree program in the Faculty of Kinesiology. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: AMSI and the New Brunswick University Opportunities Fund..

Annual Eastern Canada Student Recreation Conference Award
field: Recreation & Sport Studies. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Recreation & Sport Studies student who has completed a minimum of 65 credit hours and all required first and second year courses in the Recreation & Sport Studies program and is returning to the junior or senior year. The recipient should have exhibited leadership ability, shown campus and/or community involvement in the **field** of recreation, and achieved a minimum 3.0 assessment year grade point average. **awarding agency**: The University on the recommendation of the Faculty of Kinesiology. **donor**: Planning Committee of the Annual Eastern Canada Recreation Conference.

Dax Brown Memorial Scholarship
field: Kinesiology. **value**: Approximately $1,200. **number**: 1. **duration**: 1 year. **conditions**: To be awarded to a student who has successfully completed three years of the Bachelor of Kinesiology program (minimum 101 ch) and who demonstrates academic excellence, qualities of leadership and professional promise. **apply**: Dax Brown Memorial Scholarship Committee, c/o Assistant Registrar of Undergraduate Awards, University of New Brunswick. **awarding agency**: The University on the recommendation of the Faculty of Kinesiology. **donor**: Anonymous.

Zula V. Hallett Alumnae Scholarship in Kinesiology
field: Kinesiology. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female Fredericton campus student who has completed the requirements for her second year of a Kinesiology degree program. Selection will be made on scholastic achievement and financial need. **awarding agency**: The University, in consultation with the Associated Alumnae. **donor**: The Associated Alumnae.

Tony Proudfoot Memorial Scholarship
field: Kinesiology. **value**: Not to exceed tuition and compulsory fees. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree in the Faculty of Kinesiology. Selection is based on academic achievement and the demonstration of leadership ability. Preference will be given to a student involved in the UNB Football program. This award is open to students who are enrolled in a minimum of 9 credit hours, as required by the CIS. A student can receive this award only once. **awarding agency**: The University, on the recommendation of the Faculty of Kinesiology. **donor**: Friends and family of Tony Proudfoot, BPE 1971.

Dr. Chris Stevenson Scholarship
field: Kinesiology. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of a degree program in the Faculty of Kinesiology. Selection is based on academic achievement and community involvement. **awarding agency**: The University, on the recommendation of the Faculty of Kinesiology. **donor**: Friends and alumni of the Faculty of Kinesiology in honor of Dr. Christopher Stevenson, a member of the Faculty of Kinesiology (1974-2007) and Dean of the Faculty (1999-2006).

MULTIPLE PROGRAMS

AMSI Science & Engineering Scholarship
field: Science or Engineering. **value**: $4,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the second year of the Bachelor of Science or the Bachelor of Science in Engineering degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: AMSI and the New Brunswick University Opportunities Fund.

Alan David Bell Memorial Scholarship
field: Chemical Engineering or Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students who are graduates of a New Brunswick high school and are starting the second year of the Engineering or Science degree program at UNB. Preference is given to a candidate in Chemical Engineering or a candidate in Science with a major in Chemistry. Selection is made on the basis of scholastic attainment and financial need. **donor**: Family and friends of the late Alan David Bell, a first year Chemical Engineering scholarship student at UNB and 1992 FHS graduate and the New Brunswick University Opportunities Fund.

Dr. J.A.M. Bell Memorial Scholarship
field: Nursing, Science or Arts. **value**: Subject to need. **number**: Variable. **duration**: 1 year (students may reapply). **conditions**: Available to Nursing students who have successfully completed the requirements for the first year of the Nursing program. Available also to students entering their penultimate or final year in Science or Arts who intend to study medicine. Awards will be made in the following order of priority: (1) North and South Esk; (2) Newcastle area; (3) Miramichi area; (4) New Brunswick. Selection is based on academic achievement and financial need. **donor**: Friends of the late Dr. J. Alex M. Bell.

Lt. Governor Wallace S. Bird Memorial Scholarship
field: Business Administration, Engineering or Forestry. **value**: Approximately $1300. **number**: 3. **duration**: 1 year. **conditions**: Deserving students entering their second year. Students must be native of New Brunswick, Nova Scotia, Prince Edward Island, or Newfoundland or have resided in any of these four provinces for at least ten years preceding the award. Selections are made on the basis of scholastic attainment and financial need. **donor**: M.T.M. Holdings Limited.

Marven L. Blakely Scholarship
field: Mathematics or Physics **value**: $7,500. **number**: 3. **duration**: 1 year (may be renewed). **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program and has declared a major in mathematics or physics. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. **awarding agency**: The University. **donor**: Marven L. Blakely (BA '58) and the New Brunswick University Opportunities Fund.

Brian W. Boucher Scholarship
field: Forestry or Business. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program in the Faculty of Forestry and is a graduate of a New Brunswick High School. Preference will be given to graduates of Bathurst High School. If there is no qualified student available, then a student from the Faculty of Business Administration may be selected. Selection is based on academic achievement, extracurricular activities and community involvement. Consideration may be given to financial need. **donor**: Brian W. Boucher.

Marie-Paule F. Boucher (Godin) Scholarship
field: Forestry or Biology. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student on the Fredericton campus who has completed at least the minimum requirements for the first year of an undergraduate degree program in the Faculty of Forestry. The recipient must be a graduate of a New Brunswick High School with preference given to graduates of Mathieu Martin High School. If there is no qualified student available, one may be chosen from the Bachelor of Science program who has declared a major in Biology. Selection is based on academic achievement, extracurricular activities and community involvement. Consideration may be given to financial need. **donor**: Marie-Paule Boucher (Godin).

Carol Bronnum Memorial Scholarship
field: Political Science. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of a degree program and has declared a major in Political Science. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. Selection is based on academic achievement. **donor**: Friends and family of Carol Bronnum.

Winston A. Bronnum Memorial Scholarship
field: Art Education or Applied Arts. **value**: $1,500. **number**: 1. **duration**: 1 year. (may be renewed.) **conditions**: Open to Fredericton campus students enrolled in the concurrent or consecutive Bachelor of Education (Art Education) degree program or the Bachelor of Applied Arts degree program. Selection will be made on scholastic attainment. If not renewed, the scholarship will alternate between an art education student and a BAA student. **donor**: The Estate and Family of the New Brunswick artist, Winston A. Bronnum.

William S. Butler & Jeffrey W. Butler Memorial Scholarship
field: Forestry, Forest Engineering, Renaissance College. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a Canadian high school and who has completed either the minimum requirements for one year of study in the Bachelor of Forestry or Bachelor of Forest Engineering degree programs, or two years of study at Renaissance College. The Renaissance College candidate must be pursuing the science option. Selection is based on scholastic achievement. **donor**: Friends and family of the late William S. Butler.

David J. Cartwright Memorial Scholarship
field: Environment and Natural Resources. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Open to students on the Fredericton campus entering the final year of the Bachelor of Science in Environment and Natural Resources, with preference given to those who have declared a major in wildlife. Candidates should have combined scholastic ability with a demonstrated interest in wildlife management. awarding agency: The University on the recommendation of the Faculty of Forestry and Environmental Management. **donor**: The Atlantic Society of Fish and Wildlife Biologists.

Class of 1939 Scholarship
field: Arts, Engineering, Science or Forestry. **value**: $1,000 (minimum). number: 2 or more. **duration**: 1 year. **conditions**: Awarded to UNB students who are registered in either the Bachelor of Arts, Science, Engineering or Forestry degree programs and who have completed at least the normal requirements for the first year. Selection is made on the basis of scholastic attainment and financial need. **donor**: The Class of 1939.

Colter Family Bursary
field: Athletics, Nursing, Engineering or Business Administration. **value**: $500. number: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who have demonstrated successful academic performance and have graduated from a New Brunswick high school. Candidates must have completed at least the requirements for the first year of the Bachelor of Nursing, Bachelor of Science in Engineering or Bachelor of Business Administration degree program or have completed the requirements for the first year of an undergraduate degree program and have demonstrated excellence in varsity athletics. **donor**: The Colter Family.

Computer Science & Applied Statistics Scholarship
field: Computer Science. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed the minimum requirements for the first year of the BScCS, BDA, BCS or a concurrent program involving one of these. Selection will be based on academic achievement. **donor**: Janet Light Thompson.

Connell Family Memorial Scholarship
field: Psychology. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is enrolled in an undergraduate degree program and has declared a major in psychology. Selection is based on academic achievement. **donor**: Heather Connell (Class 2005).

J. Roy and Shirley L. Cooper Bursary
field: Various **fields** of study. **value**: Up to Tuition. number: 1 or more. **duration**: 1 year (may be renewed). **conditions**: Awarded on the basis of financial need to students who have achieved at least an overall "B" average (3.0 gpa) in their preceding academic year in an undergraduate degree program. The bursaries are open to students on either campus in the following faculties: Business Administration; Business; Computer Science; Education; Engineering; Forestry & Environmental Management; Kinesiology; Law; Nursing; Renaissance College; Science; and Applied Science and Engineering. **donor**: J. Roy and Shirley L. Cooper.

Albert J. and T. Ferne Odessa Currie Memorial Scholarship
field: Science or Nursing. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from a New Brunswick high school and has completed at least the minimum requirements for the first year of a degree program. Preference will be given to the student who intends to pursue a career in health care. Selection will be based on scholastic attainment and financial need. **donor**: The family of Albert & Ferne Currie and the New Brunswick University Opportunities Fund.

Enbridge Gas NB Scholarship
field: Business Administration or Engineering. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed the requirements for the second or third year for the Bachelor of Business Administration or the Bachelor of Science in Engineering degree programs. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines and may also be offered summer employment with Enbridge Gas NB. Selection will be based on scholastic achievement (minimum 3.5 gpa is required) as well as suitability for employment with Enbridge Gas NB. A shortlist of candidates will be provided to Enbridge Gas NB for review and input.awarding agency: The University, in consultation with Enbridge Gas NB. **donor**: Enbridge Gas NB.

Perley and Phyllis Estey Bursary
field: Science, Engineering, Forestry and Environmental Management, Computer Science, Business Administration and Nursing **value**: Variable. number: Multiple. **duration**: 1 year (may be renewed). **conditions**: Awarded on the basis of financial need to Fredericton campus students who are entering the third or fourth year of an undergraduate program in Science, Engineering, Forestry and Environmental Management, Computer Science, Business Administration or Nursing. Preference will be given to students entering third-year. The recipients must be residents of York, Sunbury or Queen's county, outside the city/town limits of Fredericton or Oromocto. The recipients must demonstrate successful academic performance and industrious habits. **donor**: Perley and Phyllis Estey and the New Brunswick University Opportunities Fund.

Anton Feicht Scholarship
field: Chemistry. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who is entering the second year of the Bachelor of Science in Engineering (Chemical) degree program or the Bachelor of Science degree program and is a graduate of a New Brunswick high school. Preference will be given to students who have declared a major in Chemistry or Biology-Psychology. Selection will be based on scholastic achievement and financial need. This cannot be held in conjunction with another scholarship. Only students with scholarship gpas between 3.0 and 3.6 will be considered. awarding agency: The University on the recommendation of the Department of Chemistry. **donor**: Dr. Anton Feicht and the New Brunswick University Opportunities Fund.

Joseph A. and Kathleen A. Flanagan Memorial Scholarship
field: Science or Engineering. **value**: $5,000. number: Two or more. **duration**: 1 year. **conditions**: Awarded to students who are graduates of a New Brunswick high school and who have completed at the least the minimum requirements for the first year of the Bachelor of Science or the Bachelor of Science in Engineering (Civil, Computer, Chemical, Electrical, Geodesy & Geomatics, Geological, Mechanical). Selection is based on academic achievement and financial need. **donor**: The Estate of Joe Flanagan and the New Brunswick University Opportunities Fund.

Jean Crawford Flemming Memorial Scholarship
field: Computer Science. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed the minimum requirements for the first year of the BScCS, BDA, BCS or a concurrent program involving one of these. Selection will be based on academic achievement in Computer Science, Mathematics and Statistics courses. awarding agency: The University on the recommendation of the Department of Computer Science and Applied Statistics. **donor**: J. Archie Flemming, former Professor of Mathematics and Statistics at UNB Saint John.

R. W. Gilbert Memorial Scholarship
field: Engineering, including Computer Science, Forestry and/or Forest Engineering. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: A deserving student in the Faculties of Engineering, including Computer Science, or Forestry and/or Forest Engineering. **donor**: The late Mrs. R.W. Gilbert.

Louis Joseph Godbout Memorial Scholarship
field: Geology or Geological Engineering. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a UNB student who has completed at least the normal requirements for first year of the Science or Geological Engineering degree program. Selection is made on the basis of scholastic attainment and financial need to a student who in a tangible way has demonstrated he/she will bring to the Geology profession a high degree of dedication and enthusiasm. **donor**: Co-workers at Utah Mines Ltd./Utah International Inc. and the Company.

Bev and Althea Macaulay Scholarship
field: Arts, Engineering, Forestry, Science. **value**: Approximately $900. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Arts, Bachelor of Science in Engineering, Bachelor of Science in Forestry, or Bachelor of Science degree program. Selection will be based on scholastic attainment and financial need. The recipient must be a resident of New Brunswick as defined by the Provincial Government's Student Financial Services. **donor**: Dr. Beverley F. Macaulay, BScE 1928, DSC 1974, UNB Vice-President of Administration from 1960 to 1972 and Dr. Althea Warren Macaulay, BA 1939, LLD 1990, who taught in the Faculty of Science from 1942 to 1945 and from 1951 to 1958. A donation was also received from the New Brunswick Universities Opportunity Fund.

Dr. Ian MacDonald Scholarship
field: Dalhousie Medical Program. **value**: $3,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed an undergraduate degree with the University of New Brunswick and has been accepted into the Dalhousie Medical Program being delivered on the UNB Saint John campus. The recipient must be a graduate of a New Brunswick high school and a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic achievement and financial need. apply: Associate Registrar, Undergraduate Awards. Please e-mail awards@unb.ca to request an application awarding agency: The University. deadline: Completed application along with documentation confirming admission to the Dalhousie medical program at the UNB Saint John campus must be received on or before June 30.

MacFarlane-Reid Scholarship
field: Unrestricted or Science. **value**: Variable. number: 4. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have successfully completed the requirements for the first two years of an undergraduate degree program. Two scholarships are awarded to students who are graduates of a Fredericton high school and are enrolled in the Bachelor of Science degree program. Two scholarships are awarded to students who are graduates of a high school in Kings County, New Brunswick with preference given to residents of Norton, Bloomfield or Southfield, and are enrolled in any undergraduate degree program. Selections are made on the basis of academic performance. awarding agency: The University. **donor**: Edith MacFarlane Reid BSc 1946 UNB and Jamie M. Reid Class of 1951 in memory of E. Leslie Class of 1919 and Leona Tracy MacFarlane and Ivan W. and Gladys Allaby Reid.

Henri and Jeannette Marcotte Memorial Scholarship
field: Economics or Education. **value**: $800. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the requirements for the second or third year of the Bachelor of Arts or the Bachelor of Business Administration and has declared a major in Economics. Students enrolled in the Bachelor of Education degree program may also be considered. Selection is based on scholastic attainment. **donor**: The estate of Jeannette E. Marcotte.

T. Ross Moore Memorial Scholarship
field: Science or Engineering. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are enrolled in an undergraduate degree program in the Faculty of Science or the Faculty of Engineering. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. **donor**: The estate of Mary Olive Moore, in memory of her husband, T. Ross Moore (BSC 1933).

New Brunswick School Trustees Association Scholarship
field: Education, Kinesiology or Nursing. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is a graduate of a New Brunswick High School and is entering the final year of an undergraduate degree program in Education, Kinesiology or Nursing. Selection will be based on academic achievement, financial need and involvement with children in a paid or volunteer capacity. The recipient must be a New Brunswick resident, according to NB Students Financial Services guidelines. **donor**: New Brunswick School Trustees Association and New Brunswick University Opportunities Fund.

Ronald G. Pearce Memorial Bursary
field: Arts and Science. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the first year of the concurrent Bachelor of Arts/Bachelor of Science degree program. The recipient must demonstrate successful academic achievement. **donor**: The scholarship is in memory of Ronald G. Pearce, who graduated in Electrical Engineering at UNB in 1962. Throughout his life, Ron had an interest in the arts, photography, music and travel, as well as engineering.

Linda Sales Memorial Bursary
field: Education or Computer Science. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a female student on the Fredericton campus who is facing significant personal challenges such as being a single parent. The recipient must demonstrate successful academic performance and be enrolled in an undergraduate degree program in the Faculty of Education or the Faculty of Computer Science. **donor**: Friends and family of Linda Sales.

Lewis Gregory Sears Memorial Scholarship
field: Mathematics. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Open to students on the basis of scholastic attainment, who have completed at UNB at least the normal requirements for the first year of an undergraduate degree program, and have demonstrated excellence in a minimum of four term courses in Mathematics. **donor**: The late Marjorie Sears, in memory of Lewis Gregory Sears, B.A., Class of 1929.

Stantec Scholarship
field: Engineering or Environmental and Natural Resources. **value**: $2,500. number: 4. **duration**: 1 year. **conditions**: Awarded to three students who have completed at least the requirements for the first year of the Bachelor Science in Engineering (any discipline) and to one student who has completed at least the requirements for the first year of the Bachelor of Science in Environmental and Natural Resources. Selection is based on scholastic attainment and participation in extracurricular activities. Consideration may be given to financial need. Preference will be given to students accepted to the Co-op or PEP option. awarding agency: The University, in consultation with representatives of Stantec. **donor**: Originally established by Jacques Whitford which was acquired by Stantec in 2009.

K.T. (Kwok-Tai) Kan & Marie Tong Scholarship
field: Civil Engineering or Chemistry. **value**: $2,000. number: 6. **duration**: 1 year (may be renewed.) **conditions**: Awarded to two Fredericton campus students who are entering the second year of the Bachelor of Science in Engineering (Civil) and two Fredericton campus students who are entering the second year of the Bachelor of Science with a Major in chemistry. Selection will be based on academic achievement (minimum GPA of 3.0) and financial need. **donor**: Drs. K.T. and Marie Tong Kan, and friends.

Andrew Turnbull Scholarship
field: Chemistry/Chemical Engineering. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed at least the minimum requirements for the first year of an undergraduate degree program and are residents of Queen's County, New Brunswick with preference given to graduates of the Cambridge Narrows School. Students who are enrolled in the Bachelor of Science with a Major in Chemistry or the Bachelor of Science in Engineering (Chemical) degree programs will be considered first. Selection will be based on scholastic attainment and financial need. **donor**: Andrew Turnbull and the New Brunswick University Opportunities Fund.

Lorenzo N. Wadlin Scholarship
field: One in Mechanical Engineering and one unrestricted. **value**: Approximately $525. number: 2. **duration**: 1 year. **conditions**: One scholarship to a student entering the fifth term of Mechanical Engineering, who is a native of Charlotte County, and who makes a grade of at least B in the final examination in Mathematics for the year in which the scholarship is given. In the event that in any one year there should not be in Mechanical Engineering a student from Charlotte County, then the scholarship shall be given to such student from any other county in the Province of New Brunswick who obtains a standing of B in Mathematics in the final examination for that year. The second scholarship is to be awarded to a student entering the third term in any faculty, who obtains high academic standing of B+ or more. apply: Mechanical Engineering Scholarship, Dean of Engineering, UNB. Second scholarship, Undergraduate Awards Office, UNB. **donor**: The late Lorenzo N. Wadlin.

Dr. Theodore Weiner Memorial Scholarship
field: Science and Engineering. **value**: Variable. number: 2. **duration**: 1 year. **conditions**: Awarded annually to students on the Fredericton campus, one in Science, giving preference to Physics, and one in Engineering. The recipients must have completed at least the normal requirements for the first year of their program at UNB. Selection is made on the basis of scholastic attainment and financial need. **donor**: Family, colleagues and friends of the late Dr. Theodore Weiner, Professor Emeritus of Physics, who taught at UNB from 1947-1975.

Dr. Richard & Lynne Winter Scholarship
field: Dalhousie Medical Program. **value**: Approximately $4,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a UNB student who has completed the requirements for an undergraduate degree program and has been accepted into the Dalhousie Medical Program being delivered on the UNB Saint John campus. Selection is based on financial need and scholastic attainment. apply: Please e-mail awards@unb.ca to request an application. awarding agency: The University. **donor**: Dr. Richard W. Winter B.Sc. 1953 from UNB and an M.D.,C.M. 1958 from Dalhousie University to honour his late wife Lynne (Lordly) Winter, a graduate from the School of Nursing, V.G.H., Halifax 1956. Dr. Winter interned at the Saint John General Hospital 1957-58. deadline: Completed application along with documentation confirming admission to the Dalhousie medical program at the UNB Saint John campus must be received on or before June 30.

UNB Environmental Studies Scholarship
field: Environmental studies. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to students from the Atlantic Provinces who have completed at least the minimum requirements for the first year of an undergraduate degree program and have a demonstrated interest in the environment. Selection is based on academic achievement.

NURSING

AMSI Nursing Scholarship
field: Nursing. **value**: $4,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the second year of the Bachelor of Nursing degree program. Selection is based on academic achievement and financial need. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: AMSI and the New Brunswick University Opportunities Fund.

Margaret Benoit Ayerst IODE Memorial Nurses' Scholarship
field: Nursing. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed at least the minimum requirements for the first year of the Bachelor of Nursing degree program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic attainment and financial need. awarding agency: The University on the recommendation of the Department of Nursing. **donor**: William John Ayerst and the New Brunswick University Opportunities Fund.

Katharine E. Black Memorial Bursary
field: Nursing. **value**: $300. **number**: 1. **duration**: 1 year. **conditions**: Given annually to a student from New Brunswick who has completed the requirements for the first year in the Faculty of Nursing and who requires financial assistance.**donor**: Sir Howard Douglas Chapter, I.O.D.E., Fredericton and the New Brunswick University Opportunities Fund.

Dr. Everett Chalmers Hospital Auxiliary Bursaries
field: Nursing - Undergraduate program. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Nursing students who are graduates of a high school in York, Victoria, Carleton or Sunbury Counties and who have successfully completed a minimum of one academic year at UNB in either the Basic or Post RN Nursing program. **donor**: Dr. Everett Chalmers Hospital Auxiliary and the New Brunswick University Opportunities Fund.

Margaret B. Christie Memorial Scholarship
field: Nursing. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed the requirements for the first year of the Bachelor of Nursing degree program. Preference will be given to a student who has demonstrated interest in palliative care. Selection will be based on scholastic attainment. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: Friends and family of the late Margaret B. Christie.

Andrea Clowater Memorial Scholarship
field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student in the final year of his/her Bachelor of Nursing degree program. Selection is based on scholastic attainment and involvement in the community and/or campus life. The recipient must be a compassionate caring student nurse as determined by Professors and instructors. The recipients must have a positive outlook with regards to Nursing and life in general. The recipients must be recognized as having the above qualities by his/her peers, instructors and patients. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: Family and friends of the late Andrea Clowater.

Connolly Bursary in Nursing
field: Nursing. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a New Brunswick student who has completed at least the minimum requirements for the first year of the Bachelor of Nursing degree program and has demonstrated successful academic performance. Preference will be given to graduates of Minto High School. The bursary is available to Nursing students at UNB Fredericton, Bathurst and Moncton. **donor**: Anonymous and the New Brunswick University Opportunities Fund.

Mildred Alice Crowell Scholarship
field: Nursing. **value**: Approximately $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a female student who is a graduate of Leo Hayes High School, Fredericton High School or Ecole Ste Anne, has just completed the requirements of the first year of the Bachelor of Nursing degree program on the Fredericton campus and is beginning the second year of the program. Selection will be based on scholastic attainment and financial need. **donor**: The Fredericton Community Foundation Inc. and the New Brunswick University Opportunities Fund.

Ericson Nursing Scholarship
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student in the Faculty of Nursing after the completion of at least one year of successful performance at UNB. The recipient is to demonstrate financial need as well as nursing excellence. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: Penny K. Ericson, BSN, MSN

Blanche Botsford Fowler Nursing Bursary
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students who have completed at least the minimum requirements for the first year of the Bachelor of Nursing degree program and have demonstrated successful academic performance. The scholarship is available to Nursing students at Fredericton, Bathurst and Moncton sites. **donor**: Estate of Bernice Nesbitt.

Nancy M. Fraser & Clara R. Stone Fraser Scholarship
field: Nursing. **value**: Approximately $200. **number**: 1. **duration**: 1 year. **conditions**: Deserving Fredericton campus student having a high scholastic standing who requires financial assistance. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: The late Norman S. Fraser.

Dorothy C. (Dann) Friars Scholarship
field: BN Degree Program at UNBSJ. **value**: $650. **number**: 1. **duration**: 1 year. **conditions**: Open to part-time and full-time students who are enrolled in the BN program at UNB Saint John. Selections are made on the basis of scholastic attainment with consideration of financial need. Preference will be given to students enrolled in the BN/RN program. apply: Associate Registrar, Undergraduate Awards. awarding agency: The University on the recommendation of the BN/RN faculty members at UNB Saint John. **donor**: G. W. & Dorothy C. Friars.

Eileen Handa Nursing Bursary
field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who has completed the minimum requirements for the second year of the Bachelor of Nursing degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Dr. Paul Handa and the New Brunswick University Opportunities Fund.

Muriel E. Hunter Scholarship
field: Nursing. **value**: Variable. **number**: 1. **duration**: Up to 4 years. **conditions**: Open to BN and BN/RN students. Preference will be given to full-time students. Students will have demonstrated interest and competent practice in community health nursing within the program or in employment. Capacity to be innovative in practice is a criterion as well as good scholastic standing and financial need. There should be an intention to work in the community in New Brunswick after graduation.awarding agency: The University on the recommendation of the Nursing Faculty. **donor**: Family and friends of the late Muriel E. Hunter, a distinguished public health nurse.

I.O.D.E. Provincial Chapter of New Brunswick Nursing Bursary
field: Nursing. **value**: Minimum of $200. **number**: 5. **duration**: 1 year. **conditions**: Four bursaries awarded on the recommendation of the Nursing Faculty to female students who are entering their second year of the degree program at each of the four New Brunswick sites. One additional bursary to be awarded on the recommendation of the Nursing Faculty to a mature student in Nursing who has successfully completed four university courses. Financial need is a criterion in the awarding of all bursaries. awarding agency: The University on the recommendation of the Nursing Faculty. **donor**: The Provincial Chapter of New Brunswick, I.O.D.E.

Marjorie Johnston Memorial Scholarship in Nursing
field: Nursing. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of the Bachelor of Nursing degree program at the Moncton site. The recipient must demonstrate successful academic performance. **donor**: David Johnston, in memory of his wife.

Irene Leckie Scholarship in Nursing
field: Nursing. **value**: $1,000. **number**: 6. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have completed the requirements for the first, second or third year of the Nursing degree program. Selection will be based on academic achievement, demonstrated excellence in clinical practice, and financial need. awarding agency: The University, on the recommendation of the Faculty of Nursing. **donor**: Irene Leckie, former Professor (1959-1983) and Dean of Nursing (1978-83).

Norman Leckie Memorial Scholarship
field: Nursing. **value**: Approximately $3,000. **number**: 1. **duration**: 1 year. **conditions**: To be awarded annually to a student who has completed two years of study in the Faculty of Nursing (basic students, 95 ch). The award is to be based on competency in nursing practice, a good record of academic performance and financial need. awarding agency: The University in consultation with the Faculty of Nursing. **donor**: The Leckie Family.

Heather Locking-Cusolito and John Cusolito Scholarship
field: Nursing. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who is beginning the final or penultimate year of the Bachelor of Nursing or the Bachelor of Nursing Advanced Standing Program. Selection is based on academic performance. Consideration may be given to financial need. **donor**: Heather Locking-Cusolito and John Cusolito.

MacDonald Scholarship in Nursing
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the second year of the Bachelor of Nursing degree program. Selection will be based on academic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Barbara MacDonald (BBA 1978) in memory of her father.

Miss A.J. MacMaster School of Nursing Scholarship
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded annually to a student entering the fourth year of the generic BN program at the Moncton Site who has demonstrated proficiency in nursing practice, scholastic attainment and has made a significant contribution to campus life. Financial need is a criterion. Preference will be given to a graduate of a New Brunswick high school. awarding agency: The University in consultation with the Nursing Faculty at the Moncton Site. **donor**: The Board of Trustees, The Miss A. J. MacMaster School of Nursing and the New Brunswick University Opportunities Fund.

Allison MacMillan Bursary in Nursing
field: Nursing. **value**: $3,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of the Bachelor of Nursing program at the Bathurst site, has demonstrated successful academic performance and excellence in nursing practice. awarding agency: The University, on the recommendation of the Faculty of Nursing in consultation with the coordinator for the Bathurst site.**donor**: Allison MacMillan.

Arlee Hoyt McGee Nursing Scholarship
field: Nursing. **value**: $1,200. **number**: 1. **duration**: 1 year. **conditions**: Open to Nursing students at any of the four University of New Brunswick sites who are graduates of a New Brunswick high school and have completed at least the minimum requirements for the first year of a Nursing degree program. Selection will be based on academic achievement and financial need. **donor**: Family and friends of the late Arlee Hoyt McGee and the New Brunswick University Opportunities Fund.

Rachel Moffatt Memorial Scholarship
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: To be given annually to a student who has completed a minimum of one academic year in the Nursing program. Demonstrated excellence in nursing practice, active participation in the Nursing Society, and financial need will be the criteria of the award. Preference will be given to students resident in New Brunswick. **donor**: The Nursing Society of the University of New Brunswick in memory of Rachel Moffatt who died March 16, 1979.

Nursing Alumni Scholarship
field: Nursing. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: To be given annually to a student entering the junior or senior year of the basic degree program in the Faculty of Nursing. Demonstrated leadership skills, scholastic attainment, and financial need will be the criteria of the award. awarding agency: The University on the recommendation of the Faculty of Nursing. **donor**: UNB Nursing Alumni.

Dr. Robert M. Pendrigh Scholarship
field: Nursing. **value**: Approximately $1,150. **number**: 1. **duration**: 1 year. **conditions**: Open to a student entering the senior year in either the Basic or Post R.N. Nursing program, with high marks in Nursing courses for the previous two years of study. Financial need will be a criterion in making the award. awarding agency: The University in consultation with the Faculty of Nursing. **donor**: The late Dr. Robert M. Pendrigh.

Margaret Jean (Scott) Peters Memorial Scholarship
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Open to students who have completed at least the requirements for the first year of the Bachelor of Nursing degree program. Selection is based on scholastic attainment and demonstrated excellence in nursing practice. awarding agency: The University in consultation with the Faculty of Nursing. **donor**: Mr. Douglas B. Peters.

Saint John Chapter Nurses Association of New Brunswick Bursary
field: Nursing. **value**: Approximately $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student from the Saint John area who is studying full-time or part-time in the post RN Nursing degree program. Masters and Doctoral Nursing students are also eligible. The recipient must be registered with the Nurses Association of New Brunswick (NANB). awarding agency: The University on the recommendation of the Department of Nursing, UNB Saint John. **donor**: The New Brunswick Nurses Foundation.

SJ General Hospital School of Nursing Alumni Scholarship
field: Nursing. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed at least the requirements for the second year of the Bachelor of Nursing degree program. Selection will be based on demonstrated excellence in the area of geriatrics. The recipient must demonstrate successful academic performance. awarding agency: The University, on the recommendation of the Department of Nursing UNB Saint John. **donor**:Alumni of the Saint John General Hospital School of Nursing.

Judith Diane (McKay) Slipp Memorial Scholarship
field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student entering the final year of the Basic Nursing Program, with preference given to a graduate of a Fredericton area high school. Selection is made on the basis of scholastic attainment. awarding agency: The University on the recommendation of the Faculty of Nursing. **donor**: Family and friends of the late Judith Diane (McKay) Slipp, BN '67.

Sr. Darrah/St. Josephs Hospital Alumni Scholarship
field: Nursing. **value**: Approximately $550. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who is enrolled in the Bachelor of Nursing degree program. Selection is based on financial need and the recipient must demonstrate successful academic performance. apply: Associate Registrar, Undergraduate Awards. awarding agency: The University on the recommendation of the Department of Nursing, UNBSJ. **donor**: The New Brunswick Nurses Foundation.

Dr. Jed B. Sutherland Memorial Bursary
field: Nursing. **value**: Minimum $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a full or part-time student entering the 4th year of the baccalaureate Nursing degree program at UNB who, as recommended by faculty, has demonstrated caring and commitment in the care of older adults. apply: Dean of Nursing, University of New Brunswick. awarding agency: The University on the recommendation of the Faculty of Nursing. **donor**: Alzheimer Society of New Brunswick and family of the late Dr. Jed B. Sutherland, BA'39.

Anne D. Thorne Saint John School of Nursing Scholarship
field: Nursing. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to a graduate of the Saint John School of Nursing who is enrolled in Nursing on the Saint John campus on a full-time or part-time basis. Financial need will be a consideration in the selection process. In the event that the pool of former graduates of the Saint John School of Nursing furthering their education is deemed to be depleted, the scholarship will be awarded to a high school graduate from the Saint John area who is enrolled in Nursing at the University of New Brunswick on the Saint John campus. Financial need will remain a consideration in the awarding of the scholarship apply: Chairperson, Department of Nursing, UNB Saint John. awarding agency: The University on the recommendation of the Department of Nursing, UNB Saint John. **donor**: Saint John School of Nursing.

M. Patricia Whalen Memorial Bursary
field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed the third year of the Bachelor of Nursing degree program at the Moncton site. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines and demonstrate successful academic achievement. Preference will be given to a student who is a single parent. **donor**: Marcia (Whalen) Trail (BN 1973, MN 1999), retired Senior Teaching Associate, UNB's Faculty of Nursing (Moncton) and the New Brunswick University Opportunities Fund.

Judy Whipple Family Bursary
field: Nursing. **value**: $1,250. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed at least the requirements for the second year of the Bachelor of Nursing degree program. Selection is based on academic achievement and financial need. Preference will be given to the student who has a demonstrated interest in neuroscience. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. awarding agency: The University, on the recommendation of the Department of Nursing. **donor**: Family and friends of Judy Whipple and the New Brunswick University Opportunities Fund.

Leah Whitton Graduate of A. J. MacMaster School of Nursing Memorial Bursary
field: Nursing. **value**: $250. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need and successful academic performance, to a student, at the completion of the normal requirements for the first year of the Nursing degree program at the Moncton site. awarding agency: The University in consultation with the Nursing faculty at the Moncton Site. **donor**: Mr. Bill Whitton and Mrs. Edna Whitton, parents of the late Leah Whitton, a 1994 graduate of the A.J. MacMaster School of Nursing.

Scott Withrow Memorial Scholarship
field: Nursing. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a male student on the Fredericton campus student who has completed at least the minimum requirements of the first year of the Bachelor of Nursing degree program. Selection is based on academic achievement and financial need. **donor**: Friends and family of the late Scott Withrow who was tragically killed in a car accident in 2006 during his first year of Nursing.

RENAISSANCE COLLEGE

A.C. Garrod Scholarship Youth Bridge Global Scholarship
field: Bachelor of Philosophy in Interdisciplinary Leadership. **value**: $2,000. **number**: 1 or more. **duration**: Summer term. **conditions**: Awarded to a student who has completed at least the first year of Bachelor of Philosophy in Interdisciplinary Leadership Studies at Renaissance College. Preference will be given to a student who has worked with youth and can work within diverse and developing communities. The recipient will participate as a volunteer staff resource in the Youth Bridge Global program to produce live theatre productions designed for youth in one of the following countries: Bosnia & Herzegovina, Rwanda or other sites yet to be determined. Selection is based on academic achievement (minimum 3.0 gpa) and a demonstrated interest in Drama or Theatre Arts. apply: Renaissance College. deadline: January. awarding agency: The University, on the recommendation of the Dean of Renaissance College, in consultation with the Experiential Education Coordinator. **donor**: Multiple **donors** from across North America who wish to honour Professor Andrew C. Garrod, Dartmouth College.

Debra A. McDonough Memorial International Internship
field: Leadership Studies. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the requirements for the first year of the Bachelor of Philosophy in Leadership Studies. Selection is based on academic achievement. The award is to be held during the student's international internship. apply: Renaissance College. awarding agency: The University on the recommendation of the Dean of Renaissance College. **donor**: Guy Presse, family and friends of Debra McDonough Presse.

Scotiabank Special International Internship
field: Leadership Studies. **value**: Up to $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the requirements for the first year of the Bachelor of Philosophy in Leadership Studies and is living with a disability or intends to work with people living with disabilities during the student's international internship. The award is to be held during the student's international internship. Selection will be based on academic achievement. apply: Renaissance College. awarding agency: The University, on the recommendation of the Dean of Renaissance College. **donor**: Scotiabank.

Jennifer Prosser Wade Scholarship
field: Interdisciplinary Leadership. **value**: $1,200. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Philosophy in Interdisciplinary Leadership degree program offered by UNB's Renaissance College and who is a graduate of a New Brunswick high school. Selection will be based on academic achievement and financial need. **donor**: Dr. Jennifer A. Wade and the New Brunswick University Opportunities Fund.

SCIENCE

G. Vernon and Leila M. Ashfield Memorial Scholarship
field: Science. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the third year of the Bachelor of Science degree program and has indicated the intention to pursue studies toward obtaining a degree in medicine. The recipients must be a graduate of a New Brunswick high school. Selection is based on academic achievement and financial need. **donor**: Mr. & Mrs. Dale Ashfield in memory of his father and mother, G. Vernon and Leila M. Ashfield and the New Brunswick University Opportunities Fund.

Sharon L. W. Bachinski Memorial Scholarship
field: Earth Sciences. **value**: Approximately $1,000. **number**: 1. **duration**: 1 year. **conditions**: Open to students in Earth Scienes on the Fredericton campus. Selections are made on the basis of scholastic attainment. awarding agency: The University, on the recommendation of the Department of Earth Sciences. **donor**: Friends and family of the late Dr. S.L.W. Bachinski, Professor of Geology, UNB.

Joyce E. Baker Memorial Bursary
field: Science. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student with a spouse. The recipient has completed at least the minimum requirements for the first year of the Bachelor of Science degree program and has demonstrated successful academic performance **donor**: William J. Baker, BSc. 1957.

William J. Baker Bursary
field: Science. **value**: $2,000. **number**: 1 or more. **duration**: 3 years. **conditions**: Awarded on that basis of financial need to a Fredericton campus student with a spouse. The recipient must have completed at least the minimum requirements for the first year of the Bachelor of Science degree program and have demonstrated successful academic performance. **donor**: William J. Baker BSc. 1957.

George Frederick Boyer Memorial Bursaries
field: Science (Biology). **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need and academic performance to students in the Science degree program to enable them to attend, or continue to attend UNB and pursue the study of Biology. **donor**: The late Alberta Boyer.

Michael Christian Branscombe Memorial Scholarship
field: Science (Biology). **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students in the Faculty of Science who are majoring in Biology and who have graduated from a New Brunswick high school. The scholarship is intended to assist students whose career plans have the potential to ease the suffering of human beings. Selections are made on the basis of scholastic attainment and financial need. **donor**: Family and friends of the late Michael Christian Branscombe, a former UNB Science student and the New Brunswick University Opportunities Fund.

Christian-Birmingham Memorial Scholarship
field: Science. **value**: Maximum $200. **number**: 1. **duration**: 1 year (may be renewed). **conditions**: Awarded to a student on the Fredericton campus who has completed at least the normal requirements for the first year of the Science degree program. Selection is made on the basis of scholastic attainment. Scholarships will be awarded to graduates of a Carleton County and a York County high school, with preference given to a graduate of a Carleton County high school. **donor**: Howard J. Christian and his wife Amy Beatrice (Birmingham) Christian.

Clayton-Wilkinson Scholarship
field: Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student from New Brunswick who has completed the normal requirements for the first year of the Bachelor of Science degree program. Preference will be given to students majoring in Chemistry. Selection will be made on scholastic attainment and financial need. **donor**: Mrs. Jane Clayton Morissey and the New Brunswick University Opportunities Fund.

Geological Association of Canada - Mineralogical Association of Canada Fredericton '85 Scholarship
field: Earth Sciences. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Open to undergraduate students majoring in Earth Sciences. Selection to be made on the basis of scholastic achievement, financial need and extracurricular activities.awarding agency: The University on the recommendation from the Earth Sciences Department. **donor**: The Geological Association of Canada and the Mineralogical Association of Canada.

Ken Ireland Memorial Scholarship
field: Unrestricted. **value**: $1000. **number**: 2. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have successfully completed two years of a degree program at UNB. Selections are made on the basis of scholastic attainment and financial need. Preference will be given to residents of New Brunswick who have demonstrated excellence in mathematics and have completed at least 9 credit hours in mathematics. awarding agency: The University, in consultation with the Department of Mathematics and Statistics. **donor**: Family, friends and colleagues of the late Dr. Ken Ireland., Professor of Mathematics and Statistics.

Eileen M. Iwanicki Scholarship
field: Science. **value**: $5,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a New Brunswick student who has completed the requirements for the second year of an undergraduate degree program in the Faculty of Science or the Faculty of Science, Applied Science & Engineering and has demonstrated an interest or declared a major in environmental studies. Selection will be based on academic achievement and financial need. The awarding of the scholarship will alternate each year between the Fredericton and Saint John campuses. awarding agency: The University, on the recommendation of the Faculty of Science, UNB Fredericton and the Faculty of Science, Applied Science & Engineering, UNB Saint John, as appropriate.**donor**: Eileen M. Iwanicki

Dorothy and Kenneth Langmaid Scholarship
field: Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has graduated from a Charlotte County High School and has completed at least the requirements for the first year of the Bachelor of Science degree program, with preference given to a student who has a major in Biochemistry or Geology. Preference will also be given to a Sir James Dunn Academy graduate. Selection will be based on academic achievement with consideration given to financial need and the student's level of involvement in his/her community. **donor**: Fundy Community Foundation.

Dr. Ker-Ping Lee Memorial Scholarship
field: Physics. **value**: $1,250. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the second year of the Bachelor of Science degree program and has declared a major in Physics. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. Selection will be based on academic achievement and financial need. **donor**: Family of the late Dr. Ker-Ping Lee, who was an instructor at UNB Fredericton, and the New Brunswick University Opportunities Fund.

Dr. C. Lutze-Wallace Scholarship
field: Chemistry, Biology/Chemistry or Medical Laboratory Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has graduated from a New Brunswick high school and has completed the normal requirements for the first year of the Bachelor of Science degree program demonstrating excellence in the Chemistry or Biology/Chemistry **fields**, or is enrolled in the Bachelor of Medical Laboratory Science. Selection will be made on scholastic attainment and financial need. awarding agency: The University, on the recommendation of the Faculty of Science. **donor**: Dr. Cyril Lutze-Wallace, BSc. '82, PhD '88 and the New Brunswick University Opportunities Fund.

Dr. Deborah A. Mackay-Mitton Memorial Scholarship
field: Science. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment to a UNB female student on the Saint John campus who has completed at UNB the minimum requirements for the first year of the Bachelor of Science degree program. Community involvement will be a consideration in the selection process. **donor**: The Saint John Branch of the Federation of Medical Women, Friends and Colleagues of the late Dr. Deborah Mckay-Mitton.

Major Drilling Group Scholarship
field: Earth Sciences or Geological Engineering. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is in the third year of the Bachelor of Science with a major in Earth Science or the Bachelor of Science in Engineering (Geological). Selection is based on scholastic achievement. **donor**: Major Drilling International.

Margaree Scholarship in Geology
field: Geology. **value**: $2,500. **number**: 1. **duration**: 1 year with the possibility of renewal. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science, has declared a major in Geology and has demonstrated a keen interest in making a career within the earth sciences. Selection is made on the basis of scholastic attainment and financial need to a student who in a tangible way has demonstrated that s/he will bring to the Geology profession a high degree of dedication and enthusiasm. Preference will be given to a student from Cape Breton Highland Academy. awarding agency: The University, on the recommendation of the Department of Geology. **donor**: John Hart.

A.L. McAllister Scholarship
field: Applied Earth Sciences. **value**: Approximately $2,500. **number**: 1. **duration**: 1 year. **conditions**: Open to students entering their final year of the Undergraduate Earth Sciences degree program. Selection will be made on the basis of scholastic attainment and involvement in extracurricular activities. awarding agency: University on the recommendation of the Chair of the Earth Sciences Dept. **donor**: Friends, students, and colleagues of Dr. Arnie McAllister on the occasion of his retirement.

Michael (Mike) McAloon Memorial Scholarship in Physics
field: Physics. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science degree and has declared a Major in Physics. Selection is based on academic achievement. **donor**: Family and friends of the late Mike McAloon, BSc 2007.

John J. McCaffrey Scholarship
field: Science (Biology). **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of academic performance to students in the Science degree program who have demonstrated excellence in at least nine credit hours in Biology. **donor**: The late Catherine Phyllis McCaffrey.

New Brunswick Dental Society Scholarship
field: Science. **value**: $750. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Science degree program and intends to continue his/her studies in the **field** of dentistry after graduation. Selection is based on scholastic achievement and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. awarding agency: The University. **donor**: New Brunswick Dental Society and the New Brunswick University Opportunities Fund.

Herbert and Phyllis Northcott Scholarship
field: Science. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to student who has completed at least minimum requirements for first year of the Bachelor of Science degree program. Preference will be given to a student who has declared a major in chemistry. Selection based on academic achievement, with consideration given to financial need. **donor**: Colleen Northcott (BSC 1977, PHD 1983).

David J.S. Patel Memorial Scholarship
field: Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Open to students in Science on the Saint John campus who have completed at least the normal requirements for the first year of the program in which they are registered.**donor**: Family and friends of the late David Patel.

Dr. John W. Purdy Scholarship
field: Physics. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student who graduated from a New Brunswick High school, and has declared a major in Physics. Selection will be based on scholastic attainment and financial need. **donor**: Family and friends of Dr. John W. Purdy (B.Sc. 1962) and the New Brunswick University Opportunities Fund.

Robert Quartermain Geology Scholarship
field: Geology. **value**: $4,000 in first year & $3,000 in succeeding year. number: 2 or more. **duration**: 2 years. **conditions**: Awarded to Fredericton campus students who have completed at least the requirements for the first year of their Bachelor program and have declared a major in Geology (Geosciences or Geoengineering). Selection is based on scholastic attainment and financial need. Renewal of the scholarship is contingent on academic performance in Geology subjects (minimum 3.5 gpa) and progress through the program. Transfer students are eligible to be considered. awarding agency: The University, on the recommendation of the Chair of Geology. **donor**: Robert Quartermain, Chairman & CEO, Pretium Resources Inc.

Walker H. Rideout Scholarship
field: Science (Chemistry/Biochemistry). **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to Fredericton campus students in the Science degree program who are entering the penultimate year in the Honours or Majors program in Chemistry or Biochemistry. **donor**: Mr. Walker H. Rideout.

Dr. G.F.M. Smith Memorial Scholarship
field: Biological Sciences. **value**: Approx. $1,450. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a UNBF student in the Faculty of Science who has completed a minimum of 75 ch, who is majoring or honouring in Biology (including interdisciplinary programs) and who has good academic standing, high personal integrity and an apparent aptitude for research. awarding agency: The University on the recommendation of the Biology Department. **donor**: The family of the late G.F.M. Smith.

UNB Foundations of Medicine Scholarship
field: Science. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the third year of the Bachelor of Science degree program and has indicated the intention to pursue studies toward obtaining a degree in medicine. Selection is based on scholastic attainment and financial need. **donor**: UNB Alumni in the Dalhousie University Medical School Graduating Class of 1981.

Valeria Vanicek Memorial Scholarship
field: Chemistry. **value**: Approximately $300. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of the Bachelor of Science degree program and has declared a major in chemistry.The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. Selection is based on scholastic achievement and financial need. **donor**: The Fredericton Quilter's Guild and friends and family of the late Valeria Vanicek. A donation was received from the New Brunswick University Opportunities Fund.

Ward Family Scholarship
field: Science. **value**: $8.000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is a graduate of a Maritime high school (NB, NS, PEI) enrolled in the third or fourth year of the Bachelor of Science program intending to attend medical school. Selection is based on academic achievement. **donor**: David Ward.

Ethel and Watson Peterson Memorial Scholarship
field: Science. valude: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science degree program. Selection is based on academic achievement and financial need. **donor**: Watson Peterson BSc 1948 in memory of his parents.

Mackenzie (Mac) Watson Bursary in Geology
field: Geology. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the first year of the Bachelor of Science degree program and has declared a major in geology. Preference will be given to a student who has an interest in economic geology. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. awarding agency: The University, on the recommendation of the Department of Geology. **donor**: Dr. Mackenzie (Mac) Watson, BSc 1959, DSc 2014 and the New Brunswick University Opportunities Fund.

Rosemary A. Wilcox Memorial Scholarship in Earth Sciences
field: Earth Sciences. **value**: Variable. **number**: 1. **duration**: 2 years. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the second year of the Bachelor of Science and has declared a major in Earth Sciences. Selection is made on academic achievement. Only one scholarship will be awarded every two years. **donor**: Donald Wilcox, BSc 1947.

Dr. Haider R. Zaidi Memorial Scholarship
field: Physics or Mathematics. **value**: Approximately $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student majoring in Physics or Mathematics who has successfully completed the minimum credit hour requirements for two years of study and a has achieved a minimum GPA of 3.7. Selection will be based on scholastic attainment and financial need. Preference will be given to Physics students. awarding agency: The University, on the recommendation of the Faculty of Science. **donor**: Family of the late Dr. Haider R. Zaidi.

Lorraine Dee Memorial Scholarship
field: Radiography. **value**: Approximately $500. number: 3. **duration**: 1 year. **conditions**: Open to Saint John campus students who are graduates of a New Brunswick high school and have completed at least the minimum requirements for the first year of the Bachelor of Health Sciences (Radiography) degree program. Selection is based on scholastic attainment and financial need. **donor**: Dr. Gerry Clayden and the New Brunswick University Opportunities Fund.

Eleanor Grace (Vincent) MacKenzie Memorial Bursary
field: Nursing. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who has completed at least the second year of the Bachelor of Nursing degree program. The recipient must demonstrate successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: The family of Eleanor MacKenzie and the New Brunswick University Opportunities Fund.

Riegger Bursary
field: Health Sciences & Nursing. **value**: $2,000. number: 3. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Saint John campus students who demonstrate successful academic performance. One bursary to be awarded to a student who has completed at least the minimum requirements for the first year of the Bachelor of Health Sciences program and two bursaries to be awarded to students who have completed at least the minimum requirements for first year of Bachelor of Nursing program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. The recipients may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. **donor**: Riegger family and the New Brunswick University Opportunities Fund.

Rosetta Caroline Scholarship
field: Mathematics. **value**: Up to $750. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student on the Saint John campus who is majoring in Mathematics or who is registered in the Bachelor of Science in Financial Mathematics degree, and has completed at least 60 ch of the degree. Selection will be based on academic achievement and financial need. **donor**: Dr. Keith De'Bell, former Dean of the Faculty of Science, Applied Science and Engineering, in memory of his mother.

UNRESTRICTED

1998 Men's Hockey Championship Award
field: Unrestricted. **value**: Up to tuition and compulsory fees. number: 1. **duration**: 1 year. **conditions**: Awarded to a returning member of the Varsity Reds Men's Hockey team who has completed at least the normal requirements for the first year of the degree program in which the student is registered and has achieved at least a 2.5 grade point average. The recipient will be nominated by his teammates as the one who places the program and his teammates before his own successes; shows respect for his teammates, coaches and training staff; and best represents the intangibles which are necessary for a team to succeed but may not get seen by the media or the fans. awarding agency: The University, on the recommendation of the Director of Athletics. **donor**: 1998 UNB Men's Hockey Team members, CIS Champions.

Academic Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed the minimum requirements for the first year of their degree program. Selection is based on academic attainment. **donor**: Pepsi Canada Inc.

Toks Akpata Memorial Scholarship
field: Unrestricted. **value**: Minimum of $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who completed at least the minimum requirements for the first year of the degree program in which the student is registered. Selection is based on academic attainment. The recipient must also be an active member of the UNB Rugby Football Club, demonstrate the attributes of the consummate team player and exhibit unselfish dedication to his teammates and to the Club. awarding agency: Assistant Registrar, Undergraduate Awards, on the recommendation of the Toks Akpata Memorial Scholarship Committee. **donor**: UNB Rugby Football Alumni.

John and Elsie Alexander Memorial Scholarship
field: Unrestricted. **value**: Approximately $1,300. number: 2. **duration**: 1 year. **conditions**: Open to students who have completed at least the minimum requirements of the first year of the degree program. Selection will be made on scholastic attainment and financial need. Preference will be given to sons and daughters of Free Masons. **donor**: The estate of John B. Alexander.

John Aubrey Allan Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to a student who has completed at least the normal requirements for the first year of the program in which the student is registered at UNB. **donor**: The late Ethel Hazen Allen.

Alumnae Undergraduate Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Young women entering the penultimate year of a degree program and having good scholastic standing and need for financial assistance. At least one scholarship is to be awarded to a student who has completed her first four terms at UNBSJ. awarding agency: The University, in consultation with the Associated Alumnae. **donor**: Associated Alumnae.

Alumni Undergraduate Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Open to students who have completed at least the normal requirements for the first year of the program in which they are registered. Awarded primarily on the basis of scholastic attainment. Financial need may be considered. **donor**: Associated Alumni.

W. Stafford Anderson Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the normal requirements for first year of an undergraduate degree program and are residents of Northumberland County. Preference will be given to students enrolled in the Bachelor of Science in Forestry or the Bachelor of Forest Engineering degree program. Selections made on the basis of scholastic attainment and financial need. **donor**: The Family of the late W. Stafford Anderson and the New Brunswick University Opportunities Fund.

Jean Campbell Argue Memorial Scholarship
field: Unrestricted. **value**: $3,000. number: 1. **duration**: 1 year. **conditions**: Young woman showing intellectual promise and in need of financial assistance who has completed the normal requirements for the second year and beginning her third year of the program in which she is registered. Tenable at Fredericton campus only. **donor**: Canadian Federation of University Women-Fredericton.

Dr. Teresa Askanas Memorial Scholarship
field: Unrestricted. **value**: $1,500. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to a full-time or part-time student enrolled in an undergraduate degree program on the Fredericton campus who is returning to study after cancer treatment or being affected in some way by a medical illness. Selection is based on scholastic attainment. Consideration will be given to financial need. **donor**: PZU Group and friends and family of Dr. Teresa Askanas.

Associated Alumnae Athletic Award
field: Unrestricted. **value**: $700. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student who has completed at least the requirements for the first year of her degree program and who has demonstrated high academic achievement (3.0 Scholarship GPA), special athletic ability in a varsity sport on the Fredericton campus, and leadership abilities in the surrounding community. awarding agency: The University on the recommendation of the Director of Athletics in consultation with the Associated Alumnae. **donor**: UNB Associated Alumnae.

Paul and Rita Barry Memorial Bursary
field: Unrestricted. **value**: $2,000. number: 2. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student from St. John, Kings or Charlotte County who has completed at least the first year of an undergraduate degree program and has demonstrated successful academic performance. Consideration will be given to the student's participation in or contribution to campus life such as sports, student governance, theatre, music and campus clubs, as well as off campus community activities such as volunteering for charitable activities. **donor**: The family of Paul and Rita Barry.

Ted & Betty Bedard Bursary
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the second year of an undergraduate degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services Guidelines, with preference given to a student from Fredericton, Riverview, Saint John, Sussex or St. Stephen. Preference will also be given to a student who has demonstrated leadership and/or civic responsibility through participation in campus organizations, student government, community volunteer organizations or campus athletic activities. **donor**: Family and friends of the late J. Robert "Ted" Bedard (BSF 1949) and Elizabeth A. "Betty" Bedard (BA 1948) and the New Brunswick University Opportunities Fund.

BMO Financial Group/ Rebecca (Becky) Watson Award
field: Unrestricted. **value**: Up to tuition and fees. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student who is enrolled at UNB Fredericton and has demonstrated a high skill level participating on a Varsity Reds Team. Preference will be given to a student on the Varsity Reds women's hockey team. The recipient must also have exceptional leadership qualities and a minimum 80% entering average or a 3.5 grade point average. This award is open to transfer students.awarding agency: The University on the recommendation of the Director of Athletics. **donor**: BMO Financial Group and friends of Rebecca (Becky) Watson.

Gary Brown Family Merit Award
field: Unrestricted. **value**: Up to Tuition and compulsory fees. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program, has demonstrated academic achievement and special athletic ability and skill in the sport of men's varsity soccer as well as leadership abilities in his surrounding community. This award is also open to transfer and graduate students. awarding agency: The University, on the recommendation of the Director of Athletics in consultation with the Men's Soccer Coach and a representative from the board of the Patrons of Varsity Reds Soccer. **donor**: Patrons of Varsity Reds Soccer.

N. Myles Brown Undergraduate Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Open to students who have completed at least the normal requirements for the first year of the program in which they are registered. Selections are made on the basis of scholastic attainment and financial need. **donor**: The Woodstock Museum Inc.

Leslie E. Bruce Environmental Scholarship
field: Unrestricted. **value**: $10,000. number: 1 or more. **duration**: 1 year. **conditions**: Open to full-time undergraduate and graduate students in any discipline, from any UNB campus. Recipients must show promise of becoming the leaders of tomorrow in the environmental **field** and demonstrate that they have either been accepted into an accredited post-secondary institution or course of study outside of UNB, or alternatively, be enrolled in a UNB course or internship that takes place elsewhere. awarding agency: The University. **donor**: Friends and Family of the late Leslie E. Bruce, a UNB student who was tragically killed in December 2006.

Elizabeth Burton Bursary
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who have completed at least the normal requirements for the first year of the program in which they are registered and have demonstrated successful academic performance. **donor**: Mrs. Elizabeth Burton.

Calgary Alumni Bursary
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of an undergraduate degree program and is from southern Alberta. The recipient must demonstrate successful academic achievement and involvement in extracurricular activities and/or community involvement. **donor**: Calgary Alumni.

Ian R. Cameron Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to a student entering second year of studies in any program on the Saint John campus who has completed the first year of studies (minimum 30 ch) with high academic standing. Financial need will be taken into consideration. **donor**: Ian & Heather Cameron and friends. Dr. Cameron is a Professor Emeritus in Physics and a retired former Dean of Faculty.

Canadian Council for Public Affairs Advancement (CCPAA) Scholarship
field: Unrestricted. **value**: $500. number: 2. **duration**: 1 year. **conditions**: Awarded to UNB Saint John students who are enrolled in the third year of any degree program and are active members of the Golden Key International Honour Society. Selections are made on scholastic attainment and leadership in community service organizations or campus politics, such as student government. awarding agency: The University, on the recommendation of the Faculty Advisor for the Golden Key International Honours Society. **donor**: Dr. Craig S. Fleisher, on behalf of the Canadian Council for Public Affairs Advancement (CCPAA).

Canadian Federation of University Women - Fredericton Scholarship
field: Unrestricted. **value**: $3,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a mature female Fredericton campus student who has completed at least the normal requirements for the first year of the program in which the student is registered at the University. The recipient must be a New Brunswick resident, as defined by Student Financial Services. Selection is based on academic achievement and financial need. awarding agency: The University, in consultation with the CFUW-Fredericton. **donor**: Canadian Federation of University Women-Fredericton and the New Brunswick University Opportunities Fund.

Michael Cavanagh Memorial Award
field: Unrestricted. **value**: $800. number: 1. **duration**: 1 year. **conditions**: Awarded to a student on UNBs Fredericton campus who has completed at least the normal requirements for the first year of the degree program in which the student is registered. The recipient must have demonstrated a special athletic ability in the sport of mens varsity hockey at UNB, successful academic performance (minimum 2.5 assessment year grade point average), and, in keeping with the character of Michael Cavanagh, the capacity to experience life to its fullest. This award is open to transfer students. awarding agency: The University on the recommendation of the Faculty of Kinesiology and the Director of Athletics. **donor**: Friends of Michael Cavanagh.

Ellen S. Chambers Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the requirements for the first year of an undergraduate degree program. Selection will be based on academic achievement. **donor**: The late Ms. Ellen Sanders Chambers.

Chinese New Year Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a UNB Saint John international student from the People's Republic of China with the highest standing entering fourth year. **donor**: Proceeds from the Chinese New Year Celebration.

Alden R. Clark Scholarship (IODE)
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have completed at least the normal requirements for the second year of a degree program in which they are registered, and are graduates of a New Brunswick High School. Selections are made on the basis of scholastic attainment and financial need. **donor**: IODE Clark House Trust Fund and the New Brunswick University Opportunities Fund.

Canon WJ Clarke Award in Men's Soccer
field: Unrestricted. **value**: $750. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program, has demonstrated academic achievement and special athletic ability in the sport of men's varsity soccer. This award is also open to transfer and graduate students. awarding agency: The University, on the recommendation of the Director of Athletics in consultation with the Men's Soccer Coach. **donor**: Clarke Family.

Class of 1935 Scholarship
field: Unrestricted. **value**: Minimum of $1,000. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to students on the basis of scholastic attainment and financial need, with consideration given to participation in extracurricular activities.**donor**: The Class of 1935.

Class of 1942 War Memorial Scholarship
field: Unrestricted. **value**: Minimum $1,500. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have just completed the normal requirements for the first year of the degree program in which they are registered at UNB. Selections are made primarily on the basis of scholastic attainment. **donor**: Members of the Class of 1942, on the occasion of their 50th reunion, in memory of those classmates killed in the Second World War.

Class of 1945 Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who is entering the second year of studies at the University of New Brunswick with preference given to a student attending the Fredericton campus. Selection is made on the basis of scholastic attainment and financial need. **donor**: The Class of 1945.

Class of 1948 Red n'Black Revue Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed the requirements for the first year of his/her degree program. Selection will be based on academic achievement, financial need and participation in extra-curricular activities. Preference will be given to a student who is involved in UNB's Red n' Black Revue. **donor**: The Class of '48, originators of the Red n' Black Revue.

Class of 1982 Bursary
field: Unrestricted. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students who have completed at least the requirements for the first year of an undergraduate degree program and have demonstrated successful academic performance. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Class of 1982 and the New Brunswick University Opportunities Fund.

Class of 1992 Scholarship
field: Unrestricted. **value**: Approximately $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who is entering the final year of a degree program. Selection will be based on scholastic attainment with consideration given to financial need. **donor**: The Class of 1992.

College Hill Social Club Bursary

field: Unrestricted. **value**: $500. number: 2. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students - one male, one female - who are members of a Varsity Reds team and have demonstrated campus involvement beyond playing their sport such as volunteering with children's programs involving the Varsity Reds, residence fund-raisers or other university community activities. The recipients must have completed at least the requirements for the first year of an undergraduate degree program, have demonstrated successful academic achievement and be at least 19 years of age. **donor**: College Hill Social Club.

Dr. Thomas J. Condon International Scholarship

field: Unrestricted. **value**: $1,000. number: 1. **duration**: Spring/Summer Session or 1 year. **conditions**: Open to international visa students on the Saint John campus who have completed at least the normal requirements for the first year of the degree program in which they are registered at UNB. Selections are made primarily on the basis of scholastic attainment. **donor**: Proceeds from Thomas J. Condon Scholarship Dinner October 1996.

Dr. Thomas J. Condon University in the Community Scholarship

field: Unrestricted. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has graduated from a Saint John area high school and has completed at least the requirements of the second year of his/her degree program. Selection will be based on academic achievement, financial need and a demonstrated involvement in extracurricular activities benefiting student life and/or the surrounding community. awarding agency: The University, on the recommendation of the Vice President, UNB Saint John, in consultation with the UNB Saint John Registrar. **donor**: Proceeds from the evening of appreciation, "Hats off to Tom," held May 14, 2003 at the Saint John Trade and Convention Centre and the New Brunswick University Opportunities Fund.

Honoria Conway Memorial Scholarship

field: Unrestricted. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student on the Saint John campus who has completed at least the minimum requirements for the first year of an undergraduate degree program. Selection is based on scholastics attainment (minimum 3.0 scholarship GPA) and financial need. Community involvement will also be considered. **donor**: The Sisters of Charity of the Immaculate Conception, Saint John, NB, to celebrate the spirit of Honoria Conway (1815-1892), foundress of the Sisters of Charity and a pioneer in New Brunswick education.

Ralph Daughney Scholarship

field: Unrestricted. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to worthy UNB students. **donor**: Friends and family of the late Mr. Ralph Daughney.

Walter V. Donahue Memorial Scholarship

field: Unrestricted. **value**: Approximately $300. number: 1 **duration**: 1 year. **conditions**: A deserving student from the County of York, N.B. **donor**: Mrs. Agnes C. Donahue.

Jennifer Douglass Memorial Bursary

field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has graduated from a New Brunswick high school. The recipient should have just completed the requirements for the first or second year of his/her degree program and has demonstrated successful academic performance. Preference will be given to a student who has demonstrated humanitarian qualities. **donor**: Family and friends of the late Jennifer Douglass, a former employee of the MicMac Maliseet Institute, Faculty of Education and the New Brunswick University Opportunities Fund.

Muriel & Percy Dunlap Bursary

field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of need to a mature Fredericton campus student who has completed at UNB at least the normal requirements for the first year of a degree program and has demonstrated successful academic performance. **donor**: Family of Muriel and Percy Dunlap.

Lois Jennie Fairweather Memorial Bursary

field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a female student on the Saint John campus who has completed at least the minimum requirements for the first year of an undergraduate degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. **donor**:Roxanne Fairweather and the New Brunswick University Opportunities Fund.

Dr. Jack T. H. Fenety, C.M. Scholarship

field: Unrestricted. **value**: $500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of an undergraduate degree program at UNB and is an active volunteer with CHSR. Selection will be based on scholastic attainment and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Dr. Jack T. H. Fenety, C.M. (LLD '89) and the New Brunswick University Opportunities Fund.

Ralph L. Finley Scholarship

field: Unrestricted. **value**: Variable. number: 2. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to students who have completed at least the normal requirements for the first year of the program in which they are registered at UNB. **donor**: The late Ralph L. Finley.

Donald & Margaret Fraser Scholarship

field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Open to students on the Fredericton campus who have completed at least the normal requirements for the first year of the program in which they are registered at the University. Selections are made on the basis of scholastic attainment and financial need. **donor**: Donald Fraser and Margaret Fraser Lambert.

Golden Jubilee Scholarship

field: Unrestricted. **value**: $5,000. number: 1. **duration**: 1year. **conditions**: Awarded to a student who has completed the third year of a four-year degree program, or the fourth year of a five-year degree program and is a New Brunswick resident, based on Student Financial Services guidelines for provincial residency. Selection will be based on academic excellence and financial need as defined by Student Financial Services. **donor**: The Province of New Brunswick established this scholarship in 2002 to commemorate the 50th anniversary of Queen Elizabeth's coronation.

Grad Class 2008 Bursary

field: Unrestricted. **value**: $580. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Fredericton campus students who have completed at least the requirements for the first year of an undergraduate degree program and have demonstrated successful academic performance. **donor**: Class of 2008.

Dorothy A. Gregg Memorial Bursary

field: Unrestricted. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded to a female student with preference given to a West Indian woman student who has completed at least the normal requirements for the first year of the program in which she is registered at UNB, and who shows scholastic promise. Financial need will be a consideration in making the award. **donor**: Friends of the late Dorothy A. Gregg, wife of the late Milton F. Gregg, V.C., some time President of the University.

Zula V. Hallett Scholarship (Marysville)

field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Open to students who are permanent residents of Marysville, and have completed the normal requirements for the first year of the degree program in which they are registered at UNB. Selections are made on the basis of scholastic attainment and financial need. awarding agency: The University in consultation with the Associated Alumnae. **donor**: The late Miss Zula V. Hallett and the New Brunswick University Opportunities Fund.

Hamilton Family Athletic Scholarship

field: Unrestricted. **value**: $850. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the requirements for the first year of a degree program, has achieved a minimum 2.5 grade point average in the previous year and is a member of a Varsity Reds athletic team. This award is to be given to a student who has made and will continue to make a positive contribution to the life and spirit of the university and surrounding community.awarding agency: The University, on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics. **donor**: Proceeds from the banquet held in honour of Clint Hamilton, former UNB Director of Athletics and friends of the Hamilton family.

Rupert D. & Jack C. Hanson Memorial Scholarship

field: Unrestricted. **value**: $900. number: 1. **duration**: 1 year. **conditions**: Available to a deserving son of a returned male member of Canada's Armed Services or to a deserving son of a male member of Canada's Armed Service who lost his life in active service. **donor**: The late Mrs. Gussie P. Hanson.

Malcolm Harris Memorial Bursary

field: Unrestricted. **value**: $750. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who has completed at least the requirements for the first year of an undergraduate degree program and has demonstrated successful academic achievement. Preference will be given to a student with a disability. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: The family and friends of the late Malcolm Harris BBA 1976 and the New Brunswick University Opportunities Fund.

Allison Hubert Memorial Merit Award
field: Unrestricted. **value**: Minimum $500. **number**: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus undergraduate students who have completed at UNB a minimum of 60 credit hours in their degree program. Preference is given to those who have made a contribution to the community and exhibited cross-cultural interests. Academic performance (minimum assessment year GPA 3.0) and financial need are considerations in the awarding of this merit award. awarding agency: The University, in consultation with the International Student Advisor. **donor**: Friends of the late Allison Hubert, BScF, Class of 1949.

International Student Health Insurance Scholarship
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an international student who has completed at least the minimum requirements for the first year of an undergraduate degree program. Selection is based on scholastic achievement and financial need. The recipient must be enrolled in the Health and Hospital Insurance Plan for international students. **donor**: etfs Travel and Healthcare Solutions.

Mark Jeffrey Memorial Merit Award
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who has completed at least the normal requirements at UNB for the first year of the degree program in which the student is registered and is returning to UNB. The recipient must have demonstrated a special athletic ability in the sport of hockey at UNB and demonstrated successful academic performance (minimum 2.5 assessment year grade point average).awarding agency: The University on the recommendation of the Faculty of Kinesiology in consultation with the Director of Athletics. **donor**: The Jeffrey family.

Harold E. Kane Memorial - St. Patricks Society Bursary
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student at UNB Saint John who has completed at least the normal requirements for the first year of the degree program in which the student is registered and has demonstrated successful academic performance. An interest in Irish Studies may be a consideration in the awarding of the bursary. **donor**: H.E. Kane Agencies Ltd., and St. Patrick's Society

Walter Wray Williams Keirstead Bursary
field: Unrestricted. **value**: Variable. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student on the Saint John campus who has demonstrated successful academic performance. **donor**: The late Walter Wray Williams Keirstead.

Killam Properties Scholarship
field: Unrestricted. **value**: $1,000. **number**: 2. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the minimum requirements for the first year an undergraduate degree program. One scholarship is to be awarded to a Fredericton campus student and one scholarship is to be awarded to a Saint John campus student. Selection is based on academic achievement. **donor**: Killam Properties.

Dhanraj Persaud Khemraj Memorial Bursary
field: Unrestricted. **value**: Approximately $200. **number**: 1. **duration**: 1 year. **conditions**: Awarded to an international graduate or undergraduate student on the Fredericton campus who has completed at least the requirements for the first year of his/her degree program and has demonstrated successful academic performance. Selection will be based on financial need. awarding agency: The University, on the recommendation of the Director, International Student Advisor's Office. **donor**:Kay Nandlall, in memory of her father.

Joy Wells Kidd Bursary
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the normal requirements for the first year of the degree program in which the student is registered and has demonstrated successful academic performance. **donor**: The late Joy Wells Kidd, former Dean of Women at UNB and friends of Mrs. Kidd.

Kimball & MacDonald Cystic Fibrosis Awareness Scholarship
field: Unrestricted. **value**: $500. **numbers**: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who has completed at least the minimum requirements for the first year of an undergraduate degree program and exhibits dedication and determination despite having a medical impairment or disability. Selection will be based on academic achievement. Preference will be given to a student with Cystic Fibrosis. **donor**: The Kimball Family.

Gilman Leach Award for Swimming
field: Unrestricted. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a male student who is a returning member of the UNB Swim Team and demonstrates hard work and dedication to the sport of swimming. The recipient must have been awarded an AUS medal at previous swim competitions and has achieved at least a 3.0 grade point average in the previous year at UNB. awarding agency: The University, on the recommendation of the swim coach, UNB Fredericton. **donor**: UNB Swimming Alumni.

Louise Graham Lingley Memorial Scholarships
field: Unrestricted. **value**: 3 of equal **value**. **duration**: 1 year. **conditions**: Awarded to Saint John campus students who have completed at least one year of an undergraduate degree program. One scholarship to be awarded to a student in each of the three faculties. Selection is based on scholastic achievement. **donor**: The estate of Louise Graham Lingley.

Marjorie Barberie Logue CFUW Scholarship
field: Unrestricted. **value**: Approximately $3,000. **number**: 2. **duration**: 1 year. **conditions**: Open to female Fredericton campus students with a minimum Scholarship gpa of 3.7 who have completed at least the normal requirements for the first year of an undergraduate degree program in which the student is registered at the University. The recipients must be New Brunswick residents, as defined by Student Financial Services. Financial need is an important consideration. awarding agency: The University, in consultation with the CFUW-Fredericton. **donor**: Canadian Federation of University Women-Fredericton and the New Brunswick University Opportunities Fund.

Josephine Lynam Scholarship
field: Unrestricted. **value**: $7,500. **number**: 2. **duration**: 1 year. **conditions**: Awarded to a female student aged 25 years or older who has completed the requirements for the second year of an undergraduate degree program and is beginning her third year as a full-time student. The recipient must be a resident of New Brunswick according to the NB Provincial Government Student Financial Services guidelines. Selection will be based on academic achievement and financial need. Preference will be given to a single parent. **donor**: Josephine Lynam, Class of 1941 and the New Brunswick University Opportunities Fund.

Don MacAdam Award in Men's Hockey
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program and is a member of the Varsity Reds men's hockey team. Graduate students are also eligible. The successful recipient must possess a high level of physical fitness, have an outstanding work ethic, be community-minded and a team leader on and off the ice. The recipient must have demonstrated successful academic performance (minimum 2.5 scholarship grade point average). Any requirements of Atlantic University Sport and CIS will also apply. awarding agency: The University, on the recommendation of the Athletic Director in consultation with the UNB hockey coach. **donor**: Alumni of the 1983-84 UNB men's hockey team.

Dr. William MacIntosh Chapter I.O.D.E. Scholarship
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to a student who has successfully completed two years of study at the UNBSJ campus leading to a degree to be obtained at UNBSJ. **donor**: Dr. William MacIntosh Chapter IODE, Saint John, NB.

Dr. Norman A. M. MacKenzie Scholarship
field: Unrestricted. **value**: $200. **number**: 1. **duration**: 1 year. **conditions**: Selections are made on the basis of scholastic attainment and financial need. **donor**: Associated Alumni, University of New Brunswick and University of British Columbia Alumni Association.

MacLauchlan McKenzie Student Leadership Scholarship
field: Unrestricted. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Open to a full or part-time student enrolled on the Fredericton campus in an undergraduate degree program who has completed at least the normal requirements for the first year of the degree program in which the student is registered and will attend the Fredericton campus during the tenure of the scholarship. Recipient must be a student in a leadership position in student organizations that would involve the entire student body, such as student government, The Brunswickan, CHSR, etc. The selection is made on the basis of scholastic attainment and financial need. **donor**: Julia MacLauchlan and Warren McKenzie.

Mark McClare Memorial Bursary
field: Unrestricted. **value**: Minimum of $1,000. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to a graduate of a New Brunswick High School who has completed at least the minimum requirements for the first year of an undergraduate degree program at UNB. Selection will be based on financial need as well as a demonstration of successful academic performance. Preference will be given to a student who exhibits dedication and determination despite having a medical impairment or disability. Consideration may be given to a student who has volunteer experience or extra-curricular activities. **donor**: Family and friends of Mark McClare, BA '86 and the New Brunswick University Opportunities Fund.

McLaughlin Family Bursary
field: Unrestricted. **value**: $4,000. **number**: 3 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of an undergraduate degree program and demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Friends and colleagues of UNB Past-President Dr. John D. McLaughlin and the New Brunswick University Opportunities Fund.

Mombourquette Family Basketball Award
field: Unrestricted. **value**: Unrestricted. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program and has demonstrated special athletic ability in the sport of men's varsity basketball. The recipient must have achieved at least a 2.5 grade point average, as per CIS regulations. awarding agency: The University, on the recommendation of the Director of Athletics in consultation with the men's basketball coach. **donor**: Dr. Amber Andrews and Kirt Mombourquette (BED 2002).

Susan G. Montague Bursary
field: Unrestricted. **value**: $3,500. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least the minimum requirements for the first year of an undergraduate degree program and demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. **donor**: Friends and colleagues of Susan G. Montague, former Director of Development and **Donor** Relations (1987-2006) and the New Brunswick University Opportunities Fund.

Florence L. Murray Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Open to a student who has completed at least the normal requirements for the first year of the program in which he/she is registered at the University. **donor**:The late Alexander Ronald Murray.

Ottawa Alumni Chapter Thomas Foulkes Sr. Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student who has completed at least the normal requirements for the first year of the program in which the student is registered at the University. Eligible candidates must be residents from any point in Ontario east of a Deep River -Gananoque line, and areas of Quebec bordering the Ottawa River from Davidson to Grenville. Consideration will be given to participation in extracurricular activities. **donor**:Ottawa Chapter, UNB Alumni.

Rod Pike Award in Men's Hockey
field: Unrestricted. **value**: $5,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least the normal requirements for the first year of an undergraduate degree program and is returning to UNB in the fall. The recipient must be a player on the Varsity Reds Men's Hockey team, have demonstrated a special athletic ability in the sport of men's hockey at UNB and have successful academic performance (minimum 3.0 scholarship grade point average). awarding agency: The University, on the recommendation of the Director of Athletics UNB Fredericton, in consultation with the Coach of the Varsity Reds Men's Hockey Team. **donor**: Friends and Family of Rod Pike (BBA 1980).

Frank & Isa Pridham Memorial Scholarship
field: Unrestricted. **value**: Approximately $1,000. number: 1. **duration**: 1 year. **conditions**: Open to Fredericton campus students who have completed at least the normal requirements for the first year of the degree program in which they are registered at UNB. Preference may be given to residents of Fredericton, NB and to students in the Arts or Science degree programs. **donor**: Mrs. Doreen E. Estey and the Pridham Family, in memory of Frank and Isa Pridham.

Dr. Margot R. Roach Scholarship
field: Physics. **value**: $7,000. number: Up to 3. **duration**: 1 year (may be renewed). **conditions**: Awarded to a Fredericton campus student who has completed the minimum requirements for the second year of an undergraduate degree program and is beginning the third year. Preference will be given to a student who has declared a major in Physics. Selection will be based on scholastic attainment. Consideration will be given to renewing the scholarship for the recipient's fourth year of study as long as the student has achieved Dean's List status in the third year and has declared a major in Physics. In any one year, there may be two scholarships awarded: one renewed for the fourth year student and one for the third year student.awarding agency: The University, upon the recommendation of the Department of Physics. **donor**: Established in 2005 by Dr. Margot R. Roach in celebration of the 50th anniversary of her graduation in Math and Physics in the Class of 1955.

Dr. B. W. Robertson Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year (students may reapply). **conditions**: A student from York County who has completed at least the normal requirements for the first year of the degree program in which registered at UNB. Preference will be given to students from the Mouth of Keswick postal area. Selections are made on the basis of scholastic attainment. Consideration may be given to financial need. **donor**: Family and friends of the late B.W. Robertson.

Steve Robson Memorial Award
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed at least the normal requirements for the first year of a degree program, is a member of the UNBSJ Seawolves men's volleyball team and has demonstrated a special athletic ability in the sport. The recipient must also have demonstrated successful academic performance, maintaining at least a 2.5 GPA. This award is also open to transfer students. awarding agency: The University on the recommendation of the UNBSJ Director of Athletics in consultation with the Seawolves men's volleyball coach. **donor**: Friends and family of Steve Robson.

Marion Fleet Rogers Alumnae Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a female Saint John Student who has completed the minimum requirements for the first year of her degree program. Selection will be based on academic achievement and financial need. awarding agency: The University, in association with the Associated Alumnae. **donor**: The Associated Alumnae.

Royal Canadian Regiment Milton Fowler Gregg VC Memorial Bursary
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student enrolled in an undergraduate degree program who has promise in areas of environmental management or international affairs. The recipient must demonstrate successful academic performance and be a Canadian citizen or permanent resident. **donor**: The Royal Canadian Regiment.

David Bruce Ritchie Schousboe Memorial Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a student on the Fredericton campus who is a graduate of a Fredericton high school and has completed at least the normal requirements for the first year of the degree program in which registered. Selections are made on the basis of scholastic attainment, financial need and participation in extracurricular activities. **donor**: Friends of the late David Bruce Ritchie Schousboe, a former UNB student and the New Brunswick University Opportunities Fund.

Scoudouc River University Awards
field: Unrestricted. **value**: Variable. **duration**: 1 year. **conditions**: Tenable at a university in New Brunswick. May be held elsewhere if the program is not available in New Brunswick. Awards are open to those who have "signal promise" but are especially needy or handicapped in any way; or, to those with unusual direction or promise; or, to those of distinct interest not qualified for other regularly established scholarships. Nominees must be enrolled in undergraduate or graduate programs. At the time of nomination the nominee must be domiciled in the Province of New Brunswick. Candidates taking up a Scoudouc River University Award may not hold, during the tenure of that award, other major financial awards. Candidates will be approved by the President. **donor**: The late Dr. William L. Webster and the New Brunswick University Opportunities Fund.

Dr. Ram and Nirmal Singhal Scholarship
field: Unrestricted. **value**: Approximately $450. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for Year 1 and is beginning Year 2 of an undergraduate degree program, or has completed the requirements for Year 2 and is beginning Year 3 of an undergraduate degree program. Selection will be based on scholastic attainment and financial need. **donor**: Dr. Ram Singhal, MSc '69, PhD '73, and Nirmal Singal, BBA '79.

Joan D. Rogers Scholarship
field: Unrestricted. **value**: $500. number: 1. **duration**: Up to 3 years. **conditions**: Awarded to a student who has completed at least the requirements for the first year of an undergraduate degree program. The recipient must be a New Brunswick resident, according to the NB Provincial Government's Student Financial Services guidelines. Selection is based on academic achievement and financial need.A 3.7 scholarship gpa is required to renew this scholarship. Only one scholarship will be awarded every three years. **donor**: Joan Rogers (BSC 1951, BED 1963) and the New Brunswick University Opportunities Fund.

StartUP Fredericton Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: Up to 3 years. **conditions**: Awarded to a Fredericton campus student who is entering the second year of an undergraduate degree program and has enrolled in or has completed entrepreneurship courses. Selection will be based on academic achievement (minimum 3.0 gpa) and the demonstration of a strong interest in entrepreneurship. The recipient will be required to maintain a minimum 3.0 gpa in order to renew this scholarship each year. awarding agency: The University, on the recommendation of the Director of the Dr. J. Hebert Technology, Management and Entrepreneurship (TME) Centre. **donor**: StartUP Fredericton.

Ste. Anne's Point Chapter I.O.D.E. Bursary
field: Unrestricted. **value**: Minimum $400. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of academic performance and financial need to a female Fredericton campus student who is entering her third year of an undergraduate degree program. **donor**: Ste. Anne's Point Chapter IODE.

Student Union Bursary
field: Unrestricted. **value**: Variable. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need, to a member of the Student Union (i.e. paid the student activity fee), who has completed the normal requirements for the first year of the program in which the student is registered. **donor**: The UNB Student Union.

H. Earle Swim Memorial Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to students who have completed at least the minimum requirements for the first year of a degree program. Selection will be based on academic achievement. **donor**: The Estate of H. Earle Swim.

Wilfred Tong and Rosalind Lee Memorial Scholarship
field: Unrestricted. **value**: $1,500. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed the requirements for the first year of an undergraduate degree program and is beginning second year. Selection is made on the basis of academic achievement and financial need. **donor**: Dr. Marie Tong, in loving memory of her parents.

Dr. Frank Toole and Norah Vernon Barry Toole Scholarship
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who demonstrates excellence in one or more music courses. Selection is based on academic achievement. apply: awarding agency: The University, on the recommendation of the Chair of Culture and Language Studies in consultation with the Director of the Centre for Musical Arts. **donor**: The Estate of Miss Nan V. Gregg.

UNB Alumni Legacy Scholarship
field: Unrestricted. **value**: tuition and compulsory fees. number: 1 **duration**: 2 years. **conditions**: Awarded to a student who has completed at least the minimum requirements for the second year of the student's first undergraduate degree program and has not completed the requirements for the third year. Selection is based on academic achievement and demonstrated involvement in the university. Candidates are required to submit an essay (minimum 500 words) on "Why I am Proudly UNB" and a letter of recommendation from a UNB alumna/us. apply: UNB Associated Alumni. awarding agency: The University, on the recommendation of the UNB Associated Alumni. **donor**: UNB Associated Alumni. deadline: May 15

UNB Associated Alumni Leadership Award
field: Unrestricted. **value**: Approximately half tuition for the year. number: Variable. **duration**: 1 year. **conditions**: Awarded to a student who has completed the normal requirements for at least the first year of an undergraduate degree program, with preference being given to a student entering his/her final year. Selection will be made on the basis of evidence of leadership experiences as demonstrated by involvement in extracurricular activities benefiting student life and the surrounding community which indicate the potential to advance the interests of the Associated Alumni after graduation, and successful academic achievement. The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution.awarding agency: The University, in consultation with the Associated Alumni. **donor**: UNB Associated Alumni.

UNB Hockey Nationals Legacy Award
field: Unrestricted. **value**: Not to exceed tuition and compulsory fees. number: Variable. **duration**: 1 year. **conditions**: Awarded to Fredericton campus undergraduate or graduate students who have demonstrated talent in the **field** of varsity men's hockey. Recipients must have achieved a 2.5 grade point average for continuing students or an 80% average for high school students. This award is open to transfer students as well as students who are enrolled in a minimum of 9 credit hours, as required by the CIS. awarding agency: The University on the recommendation of the Director of Athletics. **donor**: Proceeds from the CIS Men's National Hockey Championship hosted by UNB in 2002-03 and 2003-04.

UNB Saint John 40th Anniversary Celebration Bursary
field: Unrestricted. **value**: Minimum of $500. number: Minimum of 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who has completed at least the minimum requirements of the first year of a degree program and has achieved a minimum cumulative grade point average of 2.5. Consideration will be given to campus and community involvement. awarding agency: The University, on the recommendation of Student Life and Support Services, UNB Saint John.

UNB Saint John SRC Student Leadership Award
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: One award of $1,000 to be awarded annually on the recommendation of the UNB Saint John SRC Student Leadership Committee to a Saint John campus student who has made an outstanding contribution to student life and has demonstrated strong leadership skills in university activities. The recipient must be in good academic standing, has completed a minimum of 2 years (60 ch) of an undergraduate degree on the Saint John campus and plans to return to UNB Saint John in full or part-time studies. Interested students can apply using the form found at http://www.unb.ca/scholarships/continuing.html awarding agency: The University, on the recommendation of the SRC Leadership Award Committee. **donor**: The award is funded by Alumni, friends, and proceeds from UNB Saint John SRC Reunion events.

UNB Third Century Fund Merit Award
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to student demonstrating a special talent and showing successful academic performance. **donor**: Contributors to the Third Century Fund.

UNB Third Century Fund Saint John Scholarship
field: Unrestricted. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded on the basis of scholastic attainment and financial need to a student on the Saint John campus. **donor**: Contributors to the Third Century Fund.

UNB Third Century Fund Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to students on the basis of scholastic attainment and financial need. **donor**: Contributors to the Third Century Fund.

UNBF Student Union Academic Achievement Scholarship
field: Unrestricted. **value**: $1,000. number: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are Student Union members (ie. paid the Student Activity fee). One scholarship is to be awarded to a student who is entering the third year of an undergraduate degree program and the other scholarship is to be awarded to a student who is entering the fourth year of an undergraduate degree program. Selection is based on academic achievement in his/her university career. **donor**: UNB Fredericton Student Union.

UNBF Student Union Bursary
field: Unrestricted. **value**: Variable. number: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who have completed at least the minimum requirements for the first year of the undergraduate degree program in which they are registered. Selection is based on scholastic attainment and financial need. **donor**: UNB Fredericton Student Union.

UNBF Student Union Human Development Scholarship
field: Unrestricted. **value**: $1,000. number: 2. **duration**: 1 year. **conditions**: Awarded to Fredericton campus students who are Student Union members (ie. paid the Student Activity fee) and have completed the requirements for the second or the third year of an undergraduate degree program. Selection is based on academic achievement and a demonstration of exceptional dedication to the betterment of his/her community. **donor**: UNB Fredericton Student Union.

UNBF Student Union Leadership Scholarship
field: Unrestricted. **value**: Variable. number: 2. **duration**: 1 year. **conditions**: Open to a Fredericton campus student who has completed at least the normal requirements for the first year of the undergraduate degree program in which the student is registered. The recipient must be a student in a leadership position in organizations in the community or on campus. The selection is made on the basis of scholastic attainment. **donor**: The UNB Fredericton Student Union.

UNB Saint John 50th Anniversary Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a Saint John campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program. Selection is based on academic achievement and financial need, with consideration given to the student's involvement in extracurricular activities. **donor**: Alumni and Friends of UNBSJ.

UNBSJ International Student Bursary
field: Unrestricted. **value**: $500. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to an international student on the Saint John campus who has completed at least the requirements for the first year of an undergraduate degree program and has demonstrated successful academic performance. Preference will be given to a student who is from Bosnia.

University Faculty & Staff Undergraduate Scholarship
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Open to students who have completed at least the normal requirements for the first year of the program in which they are registered at the University. Selections are made on the basis of scholastic attainment and financial need. **donor**: Contributors to the University Faculty/Staff Fund.

Charlotte Van Dine CFUW-Fredericton Scholarship
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a female Fredericton campus student with a minimum Scholarship gpa of 3.7 who has completed at least the normal requirements for the first year of an undergraduate degree program at UNB. The recipient must be a New Brunswick resident, as defined by the Provincial Government Student Financial Services. Financial need is an important consideration. awarding agency: The University, in consultation with the CFUW-Fredericton. **donor**: Canadian Federation of University Women-Fredericton branch, in honour of Charlotte Van Dine BA 1946, and the New Brunswick University Opportunities Fund.

Richard Laurence Weldon Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded primarily on the basis of scholastic attainment. **donor**: The late Sylvia Thoresen Weldon.

Kate Westman Scholarship
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded to a female student who has completed at least the normal requirements for the first year of an undergraduate degree and is serving on the University Senate or involved with the Brunswickan student newspaper. Selection is made on the basis of academic achievement. **donor**: The estate of Kate Westman.

Frank McLeod Whelpley Scholarship
field: Unrestricted. **value**: Approximately $150. **number**: 1. **duration**: 1 year. **conditions**: Deserving young man who needs financial assistance to complete his university course. **donor**: Mrs. C.W. Whelpley.

Ken Windsor Memorial Scholarship
field: Unrestricted. **value**: $2,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has completed at least one year of study in an undergraduate degree program and lives in residence on campus. Preference will be given to a student living in Harrison House. Selection is based on academic achievement. **donor**: Peter Galoska BSc 1978.

Dr. Wu Yee-sun and Mrs. Wu Ho Man-yuen Memorial Undergraduate Bursary
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who have completed at least the requirements for the first year of an undergraduate degree program and have demonstrated successful academic performance. **donor**: Michael (BScME, 1964; LLD 1989) and Teresa Wu in memory of his father and mother.

Scholarships for Part-Time Students

Part-time students are encouraged to contact the College of Extended Learning UNB Fredericton or Student Life and Support Services, UNB Saint John, for scholarship applications.

OPEN

Erin Maureen Adair Williams Bursary   PT(A)
field: Nursing, Education or Social Sciences. **value**: Approximately $400. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a mature female part-time student enrolled in the **field** of Nursing, Education or the Social Sciences on the Saint John campus. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines and must demonstrate successful academic performance.apply: Student Services UNB Saint John. **donor**: Friends and family of the late Erin Maureen Adair Williams and the New Brunswick University Opportunities Fund.

ALPS Bursaries for Part-time Students   PT(A)
field: Unrestricted. **value**: $500. **number**: Variable. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to part-time students who are enrolled in an undergraduate degree, University certificate or non-degree program at UNB Fredericton and have completed at least 12 credit hours in their current program at UNB Fredericton. Students enrolled as full-time in the previous 12 months are not eligible to be considered. apply: College of Extended Learning. **donor**: Adult Learners, Part-Time Students Organization. (ALPS) deadline: Fall - August 15; Winter - December 1; Summer - April 1.

ALPS Keener Award PT(A)
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to part-time or full-time undergraduate adult learners enrolled on the Fredericton campus. Full-time undergraduate adult learners must be at least 25 years old in order to be considered. Selection will be based on the student's participation in and contribution to the university and/or participation in and contribution to their community at large, and life considerations. Applicants must write a letter to the ALPS university selection committee and address these topics. apply: The College of Extended Learning. Awarding Agency: The University on the recommendation of ALPS. **donor**: The Adult Learners, Part-Time Students (ALPS) Organization. deadline:April 01.

ALPS Scholarships for Part-time Students   PT(A)
field: Unrestricted. **value**: $500. **number**: Variable. **duration**: 1 year. **conditions**: Awarded to part-time students who are enrolled in an undergraduate degree or University certificate program at UNB Fredericton and have completed at least 12 credit hours in their current program at UNB Fredericton. Students enrolled as full-time in the previous 12 months are not eligible to be considered. Selection is based on academic achievement. Financial need may be considered. apply: College of Extended Learning. **donor**: Adult Learners, Part-Time Students (ALPS) Organization. deadline: Fall - August 15; Winter - December 1; Summer - April 1.

Alumnae Continuing Education Scholarship   PT(A)
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: One per calendar year - may be renewed. **conditions**: Awarded to a female part-time student on the basis of financial need and attainment of high academic performance. To be eligible, an applicant must (1) be enrolled in an undergraduate degree or certificate program at the University; (2) be registered as a part-time student in a degree - credit course(s) at the time of receipt of award; and (3) have completed successfully a minimum of 30 ch towards the academic program at UNB. apply: College of Extended Learning. Awarding Agency: The University in consultation with the Associated Alumnae. **donor**: Associated Alumnae. deadline: August 15.

Catherine Earle and her parents Dr. Thomas and his wife, Mary (West) Earle Scholarship for Part-Time Students   PT(A)
field: Arts and Science. **value**: Variable. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a part-time student on the Saint John campus who is a graduate of a New Brunswick high school. Selection is made on the basis of scholastic attainment and financial need. The profile of the recipient must indicate that the recipient is hard working, and consideration may be given to the recipient's participation in extracurricular activities. apply: Student Services, UNB Saint John.Awarding Agency: UNBSJ Part-Time Awards Committee. **donor**: Friend of Catherine Earle.

Muriel McQueen Fergusson Foundation Bursary   PT(A)
field: Family Violence Issues. **value**: Variable. **number**: Multiple. **duration**: 1 per calendar year. **conditions**: Awarded on the basis of financial need to part-time Fredericton campus students who are registered in courses on Family Violence issues, including those in the train-the-trainer program, with preference given to students who are enrolled in the Family Violence Issues certificate program. The recipient must demonstrate successful academic performance. apply: College of Extended Learning, UNB Fredericton. Awarding Agency: The University, in consultation with the Muriel McQueen Fergusson Centre for Family Violence Issues. **donor**: The Muriel McQueen Fergusson Foundation. deadline: Fall-August 15; Winter-December 1; Summer-April 1.

Norman S. Fraser Summer Term Scholarship   PT(A)
field: Education. **value**: $330. **number**: 1. **duration**: 1 Summer Term. **conditions**: Awarded to a Fredericton campus student who is enrolled in the Bachelor of Education (Elementary, Middle or High School concentrations) who is registered in Education courses for the Summer Term. Selection is based on scholastic attainment and financial need. The recipient must be a New Brunswick resident. apply: The College of Extended Learning, UNB Fredericton. **donor**: The late Norman S. Fraser. deadline: April 1.

Dr. Richard Papenhausen Bursary for Part-time Students   PT(A)
field: Unrestricted. **value**: $50 to $300 per course. **number**: Multiple. **duration**: 1 term. **conditions**: Awarded to part-time Saint John campus undergraduate students who were not enrolled in full-time studies in the previous 12 months. Selection will be based on scholastic achievement and financial need. apply: Student Life and Support Services, UNB Saint John. Awarding Agency: Student Life and Support Services, UNB Saint John. **donor**: Student Life and Support Services, UNB Saint John. deadline: August 15 for fall awards, December 1 for winter awards, and April 15 for spring and summer awards.

Roads Scholarship for Part-Time Degree Students   PT(A)
field: Unrestricted. **value**: Variable (approx. the **value** of a 3-ch course). **number**: Multiple. **duration**: 1 term. **conditions**: Awarded to part-time Fredericton campus students who are enrolled degree-credit programs at UNB and have completed at least 30 credit hours in the degree program. Recipients must be residents of New Brunswick and must not have been enrolled in full-time studies during the previous academic semester. Selection will be based on academic achievement and financial need. apply: The College of Extended Learning, UNB Fredericton. **donor**: John and Claire Morris and family and the New Brunswick University Opportunities Fund. deadline: Fall -August 15; Winter - December 1

Saint John Faculty Scholarships for Part-time Students   PT(A)
field: Unrestricted. **value**: $100. **number**: 5. **conditions**: Student must be currently registered in a degree or full-credit certificate program on the Saint John Campus, must have successfully completed at least 30 ch in the degree, or certificate program, and must be registering as a part-time student at UNB during the next academic year. Selection is to be made on the basis of scholastic attainment and financial need. Awards will normally be made in October. apply: Chair, UNBSJ Scholarship Committee, University of New Brunswick in Saint John. **donor**: UNBSJ Faculty Council.

Scoudouc River Continuing Education Awards   PT(A)
field: Unrestricted. Tenable only at post-secondary institution. **value**: Minimum $100 per course, maximum $300 per course. **duration**: A recipient may not receive more than one of these awards in any one calendar year. **conditions**: These awards are intended for part-time students and are open to persons residing in New Brunswick who were not engaged in full-time study during the twelve month period preceding date of application. Awards are open to part-time students with a real need and may be used for study towards credit or non-credit programs. Major consideration will be given to the relationship of the applicant's study plans to present employment or future career aspiration. At the time of application, an applicant must be a New Brunswick resident and a Canadian citizen, or, if a Landed Immigrant, must have resided in New Brunswick for at least twelve consecutive months prior to application. Those who have received in the same year other major financial awards are not eligible for consideration. apply: Application forms are available from the Office of Continuing Education, Extension (or the like) at any New Brunswick university or college, or from any New Brunswick university or college, or from any of the offices of the New Brunswick Community College. Application forms must be completed fully and returned to the institution where the applicant will register for the course(s). Awarding Agency: Applications will be considered by the Scoudouc River Continuing Education Awards Selection Committee. Recommendations for awards will be forwarded to the President of the University of New Brunswick and successful applicants will be notified shortly thereafter. **donor**: The late Dr. William L. Webster. deadline: August 15 for Fall awards; December 1 for Winter awards; April 1 for Summer awards.

Summer Term Award   PT(A)
field: Unrestricted. **value**: Variable. number: Variable. **duration**: Summer Term. **conditions**: Awarded to Fredericton campus students who have completed at least 24 credit hours at UNB Fredericton during the previous academic year and are attending Summer Term. Selection will be based on scholastic attainment and financial need. apply: College of Extended Learning.

UNB Third Century Fund Continuing Education Scholarship   PT(A)
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to part-time student(s) on the basis of scholastic achievement and financial need. To be eligible, applicants must be enrolled in a degree, certificate or diploma program at UNB and have successfully completed at least 30 ch of degree credit courses at UNB towards their academic program. apply: Coordinator of Adult Learner Services, College of Extended Learning, UNB Fredericton, or Director of Student Services, UNB Saint John. **donor**: Contributors to the Third Century Fund. deadline: August 15.

University of New Brunswick Continuing Education Award   PT(A)
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 term. **conditions**: Awarded to part-time undergraduate students enrolled in a degree or University certificate program on the Fredericton campus who have successfully completed a minimum of 30 credit hours at UNB. Awarded on the basis of financial need and high academic achievement. apply: College of Extended Learning. **donor**: Pepsi-Cola Canada Ltd.

UNRESTRICTED

Dr. Robert Love Memorial Scholarship   PT(A)
field: Unrestricted. **value**: Minimum $500. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to a Fredericton campus student who has successfully completed the 5-week summer English Language Programme and has been accepted into an undergraduate or graduate program at UNB. Selection is based on the student's academic achievement in the English Language Programme. apply: College of Extended Learning. Awarding Agency: The University, on the recommendation of the Director of the English Language Programme. **donor**: Friends of Dr. Robert Love, who developed the founding courses for the English Language Programme.

Prizes and Awards
ARTS

Nathan Alberts Memorial Prize   U(DLF)(PVF)
conditions: An award of at least $250 to be awarded annually on the recommendation of the Department of Philosophy to a third year Fredericton campus student having taken at least 24 credit hours in Philosophy, judged to combine academic excellence with significant contribution to the life of the Philosophy Department. The prize is funded by friends of the late Nathan Alberts.

Bernice Alderman Memorial Prize in Psychology   G
conditions: A prize of approximately $150 to be awarded to an outstanding student on the Saint John campus graduating in an honours program in Psychology. The prize is funded by friends of the late M. Bernice (Gorman) Alderman, an honours student.

Alumni Medal   U(DLF)(PVF)
conditions: A medal is offered each year by The Associated Alumni to the most outstanding Latin scholar among the undergraduates. The award is made by the Society upon the recommendation of the Department of Classics and Ancient History. No student may receive the medal twice.

Ambassador of Austria's Prize I   U (DLF) (PVF)
conditions: A book prize to be awarded annually on the recommendation of the Department of Cluture and Language Studies to the best student or students in German. The prize is donated by the Government of Austria.

Ambassador of Austria's Prize II   U
conditions: A book prize awarded annually on the recommendation of the Department of Humanities and Languages (German section) to a student on the Saint John campus, who has shown a high level of achievement and interest in the language and civilization of German-speaking countries. The prize has been funded by the Government of Austria.

Ambassador of France's Prize II   U
conditions: A book prize awarded annually on the recommendation of the Department of Humanities and Languages (French Section) to a student who has shown a high level of achievement and interest in courses taken for upper year credit. The prize has been funded by the Government of France and is open to students on the Saint John campus.

Ambassador of Spain's Prize I   U (DLF) (PVF)
conditions: A book prize to be awarded annually on the recommendation of the Department of Culture and Language Studies to a student on the Fredericton campus who has demonstrated a high level of achievement and interest in first year Spanish. The prize has been funded by the Government of Spain.

Ambassador of Spain's Prize II   U (DLF) (PVF)
conditions: A book prize to be awarded annually on the recommendation of the Department Culture and Language Studies to a student on the Fredericton campus who has shown a high level of achievement and interest in advanced level language and literature courses. The prize has been funded by the Government of Spain.

Ambassador of Switzerland's Prize (French)   U
conditions: A book prize to be awarded annually on the recommendation of the Department of Humanities and Languages (French Section) to the Saint John campus student who has made the greatest progress in mastering the French language since entering the University. The prize has been funded by the Government of Switzerland.

Ambassador of Switzerland's Prize (French)   G(DLF)(PVF)
conditions: A book prize in French awarded annually on the recommendation of the Department of French to the graduating students who have made the greatest progress in mastering the French language since entering the University. The prizes are open to students on the Fredericton campus, are funded by the Government of Switzerland.

Ambassador of Switzerland's Prize (German)   U
conditions: A book prize to be awarded annually on the recommendation of the Department of Humanities and Languages (German Section) to a Saint John campus student who has shown a high level of achievement in either German 1000 or German 2000. The prize has been funded by the Government of Switzerland.

Ambassador of Switzerland's Prize (German)   G(DLF)(PVF)
conditions: A book prize in German awarded annually on the recommendation of the Department Culture and Language Studies to the graduating students who have made the greatest progress in mastering the German language since entering the University. The prizes are open to students on the Fredericton campus, are funded by the Government of Switzerland.

Marion Anderson Memorial Prize   U(DLF)(PVF)
conditions: One or more prizes totalling at least $1200, awarded annually on the recommendation of the Department of English to an outstanding student or students entering the Junior level (61-90 ch) Honours program in English Literature on the Fredericton campus. The prize is funded by Ethel Anderson.

Nels Anderson Prize in Sociology   U(DLF)(PVF)
conditions: A prize of a minimum **value** of $125 to be awarded annually on the recommendation of the Department of Sociology to the student majoring or honouring in Sociology on the Fredericton campus entering final year (completed 90 to 110 ch) with the highest standing in Sociology courses (minimum 24 ch which must include the 3rd year required courses). The prize has been funded by faculty members in the Department of Sociology.

Anthropology Book Prize   U(DLF)(PVF)
conditions: A book to be awarded annually on the recommendation of the Department of Anthropology to the best graduating honours student in anthropology on the Fredericton campus. The prize is funded by the Department of Anthropology.

Archaeology Book Prize   U(DLF)(PVF)
conditions: A book to be awarded on the recommendation of the Department of Anthropology to a graduating honours student on the Fredericton campus who demonstrates successful academic performance in archaeology. The prize is funded by the Department of Anthropology.

Dr. A. G. Bailey Alumni Prize   U(DLF)(PVF)
conditions: A $250 prize awarded annually on the recommendation of the History Department to a student entering the Senior level (91-120 ch) who has attained high academic standing and also demonstrated a wide interest in History. This prize is funded by the Associated Alumni.

Biological Anthropology Book Prize   U(DLF)(PVF)
conditions: A book to be awarded annually on the recommendation of the Department of Anthropology to a graduating honours student on the Fredericton Campus who demonstrates outstanding academic performance in Biological Anthropology. The prize is funded by the Department of Anthropology.

Bruno Bobak Prize in Applied Arts   U(DLF)(PVF)
conditions: A $300 prize awarded annually on the recommendation of the Office of the Dean of Arts to a Fredericton campus student enrolled in the Bachelor of Applied Arts degree program who has the highest cumulative GPA in at least 6ch of Culture Studies and Art History courses completed during the year of the award. The prize is funded by the late Colin B. Mackay.

British High Commissioner's Prize   U
conditions: A book prize awarded annually on the recommendation of the Department of History and Politics. The prize will be awarded alternately to the student with the highest course mark in POLS 2530, The Government of Great Britain, and the student with the highest course mark in HIST 1150, The History of Modern Britain. The prize has been funded by the British High Commissioner and is open to students on the Saint John campus.

Sam & Elenore Budovitch Prize in The Humanities   U
conditions: A prize of approximately $100 to be awarded annually on the recommendation of the Department of Humanities and Languages to an outstanding student who achieves high standing in Classics courses. The prize has been funded by the late Elenore Budovitch.

Sandra Budovitch Memorial Prize   G(DLF)(PVF)
conditions: Mr. and Mrs. Sam Budovitch have established an award in memory of their daughter, Sandra. The prize, having a **value** of approximately $175, will be given annually to the graduating student having the highest average in Honours Sociology.

Edwin Botsford Busteed Memorial Prize   U (DLF) (PVF)
conditions: An annual prize of $675, bequeathed by the late Mrs. Elliott Henderson Busteed, is to be given to a student having the highest standing in Junior level (61-90 ch) Economics.

Bliss Carman Memorial Prize   U/G(S)(DLF)(PVF)
conditions: A $250 prize awarded annually on the recommendation of the Department of English to an undergraduate submitting the best group of six poems of not more than forty lines each. No student may win the prize more than twice. The prize is funded by the late Dr. Lorne Pierce.

Erskine Ireland Carter Memorial Prize in Psychology   U
conditions: A prize of $2,600 to be awarded annually on the recommendation of the Department of Psychology to the student on the Saint John campus who is entering the final year in Psychology and has attained high academic standing, and shown exemplary service to the university community. The prize has been funded by family and friends of the late Erskine Ireland Carter (BA Honours Psychology, UNB, 1992, and was enrolled in MBA). He was an outstanding student in Psychology and Business Administration on the Saint John campus, and who epitomized scholastic excellence and strength of character.

W. S. Carter Memorial Prize   U(DLF)(PVF)
conditions: An annual prize of $240, established by the late Mrs. W.S. Carter, is given to an outstanding student in Freshman level (1-30 ch) English.

Robert Ellis Dieuaide Cattley Prize in Classics   U(DLF)(PVF)
conditions: A prize in memory of the late Dr. R.E.D. Cattley, long-time Professor and Head of the Department of Classics and Ancient History, and Professor Emeritus, to be awarded annually to the undergraduate student or students in the Arts Faculty on the Fredericton Campus who have successfully completed 30 ch of courses with at least 6 ch of introductory Classics courses offered by the Department. The prize will be awarded on the recommendation of the Department of Classics and Ancient History and will be based on the student's overall interest and academic performance. The prize is funded by the family of Dr. Cattley, and by friends, colleagues, and former students.

James K. Chapman Prize in History   U/G(S) (DLF) (PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of the Department of History for the outstanding presentation of a historical topic in such alternative forms as voice recordings, video tapes, games analyses, or computer projects. The prize has been established by Professor James K. Chapman to promote forms of expression in historical study other than written essays.

Rhoda Chapman Memorial Prize   U
conditions: Two prizes of $2,000 each to be awarded annually, on the recommendation of the Undergraduate Committee in the Department of History, to Fredericton campus students who have demonstrated outstanding academic achievement and have shown promise in at least one undergraduate or graduate course in the **field** of art history. At least one annual prize will normally be awarded to a student who has not yet completed more than 66 credit hours at the time of the award. The prize has been established to commemorate Rhoda Chapman's love of art, to reward students for outstanding achievement and to encourage further study in the **field** of art history. Rhoda Chapman was the wife of the late James K. Chapman, Professor of History, UNB Fredericton.

Dr. Anne Compton Creative Writing Prize in Poetry   U
conditions: A $500 prize to be awarded annually on the recommendation of the members of the Discipline of English in the Department of Humanities and Languages to a full-time or part-time student on the Saint John campus who demonstrates excellence in the creation of poetry. The prize is funded by Dr. Gordon Chapman.

Consulate General of the Federal Republic of Germany Prize   U
conditions: Two book prizes to be awarded annually on the recommendation of the Department of Humanities and Languages (German section) to Saint John campus students who have shown a high level of achievement in German 1000 and German 2000 respectively. These prizes have been funded by the Consulate General of the Federal Republic of Germany.

Dept. of Culture & Language Studies U (DLF)(PVF)
        Third Century Award
conditions: A prize of approximately $450 to be awarded annually on the recommendation of the Department of Culture and Language Studies to a Fredericton campus student who has completed second year Spanish courses with distinction and is enrolled in third or fourth year Spanish courses. Preference will be given to students planning to complete Single or Joint Honours or a Single or Double Major in Spanish. The prize has been funded by members of the Department of Culture and Language Studies. A student may receive this award more than once.

Marshall D'Avray Prize in English Literature   U (DLF) (PVF)
conditions: This prize of $500 was made available through a legacy of the late Joseph Whitman Bailey of the class of 1884 to provide a prize in English Literature in memory of his grandfather, Joseph Marshall d'Avray, sometime Professor of Modern Languages at UNB 1848-1872. The prize is to be awarded annually to an undergraduate student in one of the regular courses of the Junior level (61-90 ch) who has shown the most promise in the subject of English Literature. The award is made on the recommendation of the Chair of the Department of English.

Department of English Book Token Prize   U(DLF) (PVF)
conditions: A certificate for the purchase of book(s) to be awarded annually on the recommendation of the Department of English, Fredericton, to the student who produces the best essay in a 1000-level English course and is in the second or higher year of study. The prize is funded by the Department of English.

Dept. of French Prz. Graduates High School U (DLF) (PVF)
        Immersion French
conditions: An annual prize to be awarded to the student on the Fredericton campus, graduate of a High School Immersion Program, whom the Department of French considers to have done the most satisfactory work (6 ch) in French 1184 and French 1194. The prize has been sponsored by the Department of French.

Dept. of Humanities & Languages Prize in English   U
conditions: A prize of $500 to be awarded on the recommendation of the members of the English discipline Saint John campus, to the student who has achieved the highest standing over at least 24 ch of courses in English completed within the first 90 ch. The prize is funded by the Department of Humanities and Languages.

Dept. of Humanities & Languages Prize in Philosophy   U
conditions: A prize of $500 to be awarded annually on the recommendation of the Department of Humanities and Languages (Philosophy Discipline) to the student who has achieved the highest standing over at least 24 ch of courses in Philosophy completed within the first 90 ch. The prize is funded by the Department of Humanities and Languages.

Cyrus and Anne Eaton Prize in American Studies   G(DLF)(PVF)
conditions: Prizes in American History and American Literature, awarded annually to the student or students in the graduating class judged to have done the most distinguished work in American studies. The awards will be determined by a committee of professors from the different Departments offering courses in American studies.

English Departmental Essay Prizes   U(DLF)(PVF)
conditions: Prize I - A prize of $100 to be awarded annually on the recommendation of the Department of English to a student on the Fredericton campus who has completed the normal requirements for the first year of the program in which the student is registered, and has written an outstanding essay in any English course in that year.

Prize II - A prize of $100 to be awarded annually on the recommendation of the Department of English to a student on the Fredericton campus who has completed the normal requirements for the second year of the program in which the student is registered, and has written an outstanding essay in any English course in that year.

Prize III - A prize of $100 to be awarded annually on the recommendation of the Department of English to a student on the Fredericton campus who has completed the normal requirements for the third year of the program in which the student is registered, and has written an outstanding essay in any English course in that year. The prizes have been funded by the English Departmental Prize Fund.

Prize IV - A prize of $100 to be awarded annually on the recommendation of the Department of English to a student on the Fredericton campus who has completed the normal requirements for the fourth year of the program in which the student is registered and has written an outstanding essay in any English course in that year. The prize has been funded by the English Departmental Prize Fund.

Dr. Fred Donnelly Memorial Prize in History & Politics
conditions: A $1,000 prize to be awarded annually on the recommendation of the Department of History & Politics, to a student enrolled in the Faculty of Arts on the Saint John Campus and who has completed at least ten term-courses (30 CH), shows high academic achievement in History and/or Politics courses, and is actively involved in campus life and in the community. The prize is named in memory of Dr. Fred Donnelly PHD, who was a professor of History at UNBSJ from 1979-2012 and recipient of the President's Medal for Outstanding Career Contributions. The prize is funded by family, faculty, staff, friends and former students of Dr. Fred Donnelly.

Barbara Elizabeth Fisher Founder Prize in Psychology G(DLF)(PVF)
conditions: Normally one prize of $500 to be awarded annually on the recommendation of the Saint John Psychology Department to the student who presents the best Psychology Honours thesis. However, the prize may also be awarded to more than one student. The prize has been funded by the Saint John Psychology Department to honour Professor B. E. Fisher, the founder of the Psychology Department on the Saint John campus.

Archdeacon Forsyth Prize   U (DLF) (PVF)
conditions: An award of $200, established by the late Archdeacon David Forsyth, is given to the English Literature student who displays the greatest proficiency in the knowledge of English Literature. Presented on the recommendation of the Chair of the Department of English.

Norman S. Fraser Prize in Arts   G (DLF) (PVF)
conditions: A prize of $340 to be awarded annually on the recommendation of the Faculty of Arts to the student with the highest standing in the Junior and Senior years of Bachelor of Arts program. The prize has been funded by the late Norman S. Fraser.

Ralph St. J. and Charles E. Freeze Prize   U (DLF) (PVF)
conditions: An annual prize of $180 bequeathed by the late J. Arthur Freeze to be given to an outstanding scholar in Sophomore level (31-60 ch) English.

Gilberte Gagnon Memorial Prize   G (DLF) (PVF)
conditions: A prize of $500 to be awarded annually on the recommendation of the Department of French to the graduating student on the Fredericton campus who has, in the opinion of the Department, shown the highest achievement in the study of French linguistics. The prize has been funded by the Department of French.

German Book Prize   U
conditions: A book to be awarded annually on the recommendation of the Department of Culture and Language Studies to an undergraduate or graduate student on the Fredericton campus who demonstrates outstanding performance in German language, literature or translation.

German Language Prize   U (DLF) (PVF)
conditions: A prize of $150 to be awarded annually on the recommendation of the Department of Culture and Language Studies to the best second-year Fredericton campus student (those taking specific full-year courses with 2000 numbers) in German. The prize has been funded by Departmental Faculty members.

Graham Prize in Military History   U/G (DLF) (PVF)
conditions: A $200 prize to be awarded annually on the recommendation of the Department of History, for the best essay by a student on the Fredericton campus in an undergraduate seminar in war history. The prize has been endowed by friends, colleagues, and students of Dr. D.S. Graham in recognition of his contribution to scholarship.

Paul Frederick Graham Memorial Prize   G (DLF) (PVF)
conditions: A prize of $900 to be awarded annually in memory of Paul Frederick Graham, a former student at UNB. The prize is awarded on the recommendation of the Department of Political Science to an outstanding graduating student on the Fredericton Campus who, on graduation in Political Science, has the best academic record in the final year of the program. The prize has been funded by the family of Paul Frederick Graham.

Dr. Vicky Gray Memorial Award   U(DLF)(PVF)
conditions: A $650 prize awarded annually to a woman student on the Fredericton campus student engaged in full - or part-time study who is entering the final year of the current degree program and has a continuing interest in and commitment to Women's Studies. The recipient normally will have completed the introductory course in Gender and Women's Studies and be enrolled in the Minor, Double Major or Joint Honours program in Gender and Women's Studies or a comparable course of studies. A minimum grade point average of 3.0 in the last 30 credit hours undertaken is required. The prize is funded by the Estate and Friends of Dr. Vicky Gray. While students may be nominated by a member of the Gender and Women's Studies faculty, they may also apply for the award. apply: Co-ordinator of Gender and Women's Studies, UNB, by April 15. A Selection Committee composed of the Coordinator of the Gender and Women's Studies Program, a representative of the Estate of Dr. Vicky Gray, and two other members of the Gender and Women's Studies Program will select the recipient.

F. Howard Grimmer Prize   U (DLF) (PVF)
conditions: An annual prize of $200 bequeathed by Miss Bessie T. Grimmer for proficiency in the courses required for the Freshman level in the Faculty of Arts as selected by the University authorities.

Amelia Hall Memorial Prize   U
conditions: A prize of $300 to be awarded annually on the recommendation of the members of the Discipline of English in the Department of Humanities and Languages to a student at the Saint John campus entering the fourth year (90 to 120 ch) who has shown academic promise in prior courses in Dramatic Literature and/or Theatre Arts. The prize has been established by Mrs. M.A. MacDonald in memory of Amelia Hall, distinguished Canadian actress for many years with the Stratford Festival, and one of its founding members.

J. Carlisle Hanson Prize in Rights, Freedoms, U (DLF) (PVF)
                    and the Media
conditions: An $800 prize awarded annually, on the recommendation of the Arts Council Committee on Prizes, to a Fredericton campus student enrolled in an undergraduate Arts program who writes an outstanding essay on a subject related to the intersection of media and law (e.g. freedom of speech, particularly freedom of the press; regulatory policy; media and international human rights; copyright or intellectual property rights in the information age; information technology and privacy). Preference will be given to a paper written by a student in the Law in Society Program. This prize is funded by James Carlisle Hanson, Q.C. (BA '46, BCL '51) of Ottawa, to commemorate his dedication to the protection of free speech.

Richard Burpee Hanson Prize   U(DLF)(PVF)
conditions: A $450 prize to be awarded annually to a male student, other than a Beaverbrook Scholar, who has registered for the full Junior level (61-90 ch) in the Faculty of Arts, having completed the Freshman (1-30 ch) and Sophomore level (31-60 ch) in Arts at the University of New Brunswick or the sophomore level (31-60 ch) in Arts at such University and who has made the highest grades in English and History in the Sophomore level (31-60 ch) in Arts. The prize is funded by Mrs. R.B. Hanson.

W. H. Harrison Prize for Conversational French UNBF   G(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of French to the graduating Fredericton campus student who has shown the highest achievement in the oral skills of French. The prize has been funded by the estate of the late W.H. Harrison. Students whose first language is French are not eligible.

W. H. Harrison Prize for Conversational G(DLF)(PVF)
                    French UNBSJ
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of Humanities and Languages to the graduating Saint John campus student who has shown the highest achievement in the oral skills of French. The prize has been funded by the estate of the late W.H. Harrison. Students whose first language is French are not eligible.

Richard B. Hatfield Prize in Political Science   G (DLF) (PVF)
conditions: The Honourable Richard B. Hatfield (1931-1991), Premier of the Province of New Brunswick from 1970 to 1987, established an endowment fund, the proceeds of which are to be used for awarding annually the Richard B. Hatfield Prize in Political Science to the graduating student who obtains the highest average in the courses required for the Majors or Honours programs in Political Science. The prize is awarded on the recommendation of the Department of Political Science. The recipient must have achieved at least second class standing and may not be a double majors candidate for a degree.

I.O.D.E. Provincial Chapter Prize in History   U (DLF) (PVF)
conditions: Two annual prizes of $100 have been donated by the Imperial Order Daughters of the Empire, Provincial Chapter, to be awarded on each campus to a Junior level (61-90 ch) student with the highest standing in British and/or Commonwealth History.

Institute of Public Admin. of Saint John Branch Prize   U/G
conditions: A prize of books and money to be awarded on an annual basis to a mature or part-time Saint John campus student based on performance in the internship programs such as POLS 4610 - Urban Studies Internship, or POLS 4612 - Urban Government Workshop. Selection of the winner will be based on the recommendation of the instructors of Economics, Political Science and Public Administration. The prize is funded by the Institute of Public Administration of Canada (Saint John Branch).

International Development Studies Essay Book Prize   U(DLF)(PVF)
conditions: A book to be awarded annually on the recommendation of the IDS Faculty Committee to the undergraduate student on the Fredericton campus who has written the best essay in an IDS core course. The prize is funded by the IDS program.

International Development Studies G(DLF)(PVF)
                    Honours Book Prize
conditions: A book to be awarded annually on the recommendation of the IDS Faculty Committee to the undergraduate student on the Fredericton campus who has written the best Honours thesis. The prize is funded by the IDS program.

Dr. Cecil Charles Jones New Brunswick History Prize   U(DLF)(PVF)
conditions: A prize of $500 to be awarded annually to an undergraduate Fredericton campus student, on the recommendation of the Department of History, for an outstanding essay or report focusing on the founders of a New Brunswick community. This project would be completed as part of a History course requirement. Preference will be given to studies on the founders of Monckton township. This prize is funded by Les Bowser, in honour of Dr. Cecil Charles Jones. A former UNB President, Dr. Jones was a descendant of five of the Pennsylvania- German families who founded Monckton township in 1766.

Dr. W. C. Keirstead Memorial Prize in Philosophy   U/G (DLF) (PVF)
conditions: This prize of $250 has been established by the Associated Alumni in memory of Dr. W.C. Keirstead, formerly a professor of Philosophy at the University of New Brunswick. It is awarded to a full or part-time student, who, having completed at least twenty-four credit hours in Philosophy, eighteen of which are at an advanced level, graduates with an undergraduate Bachelor's degree during the academic year of the award, and achieves the highest average of those eligible for this prize. The prize is to be awarded in alternate years to a student either on the Saint John or the Fredericton campus. The award is made on the recommendation of the Department of Philosophy and of the professors of Philosophy in the Department of Humanities and Languages.

Murray Kinloch Memorial Prize in Linguistics   U(DLF)(PVF)
conditions: An annual prize awarded, at the discretion of the Linguistics Committee, to a student on the Fredericton campus with a distinguished record in linguistics. It is not restricted to majors or honours students in Linguistics. The prize is funded by friends and colleagues of the late Dr. Murray Kinloch.

Doris LeBlanc Prize in French   U(DLF)(PVF)
conditions: A $150 prize to be awarded annually on the recommendation of the Department of French to a first- or second-year full-time student on the Fredericton campus whose first language is French and who has completed at least 6 credit hours of courses in French and has obtained grades of A- or above in each course. This prize was established by Doris LeBlanc, the first woman Chair of the Department of French.

Angela Ludan Levine Memorial Book Prize   U/G(DLF)(PVF)
conditions: A book prize to be awarded annually on the recommendation of the Department of English for the most impressive creative work by a Fredericton campus graduate or undergraduate student in the English Department during the academic year. The prize has been funded by Dr. Larry Levine.

Douglas & Susan Leyden Creative Writing Prize
conditions: A $500 prize awarded on the recommendation of the faculty members of the Discipline of English in the Department of Humanities and Languages to a student on the Saint John campus who shows promise in writing in any genre (ie. creative writing or other forms of writing). The prize is funded by Douglas Leyden, BBA 1967 and Susan Leyden BA (History) 1985, BEd 1986.

Susan Kathleen Leyden Memorial History Prize
conditions: A prize of $500 to be awarded annually on the recommendation of the Department of History and Politics at UNB Saint John to a student on the Saint John campus who has attained a high academic standing in history. The prize was created to encourage further study in the **field** of history. The prize is funded by Mr. Douglas Leyden.

Gillian Liebenberg Prize   U(DLF)(PVF)
conditions: A prize of $250 to be awarded annually on the recommendation of the Department of History on the Fredericton campus to a mature female student who has demonstrated scholastic excellence in history.

Prize in Memory of Mary Louise & Francis J. Lynch   U
conditions: A prize of $300 to be awarded annually on the recommendation of the Department of History and Politics in consultation with the History faculty members to the student with the highest standing in introductory Canadian History on the Saint John Campus. The prize has been funded by Miss Mary Louise Lynch, a long-time member of the Board of Governors of the University, in honour of her parents.

John D. MacCallum Memorial Prize   U/G
conditions: A prize with a minimum of $100 awarded to the student on the Saint John campus who attains the highest grade in a course involving Municipal Government (at least A-). Courses to be considered in descending order of priority are Provincial and Municipal relations, the Government of Metropolitan Areas, and Canadian Municipal Government. If none of these courses is offered in any given year, the prize would be awarded for a course closely related to one of these. Funded by friends of the late John D. MacCallum.

William Stuart Macfarlane Prize   G(DLF)(PVF)
conditions: A prize of up to $5000 to be awarded annually to a student or students entering their graduating year on the Fredericton campus who, in the opinion of the Department of Classics and Ancient History is/are the best classical scholar/scholars in Latin and Greek. The prize is funded by Mrs. Annie Macfarlane Logan.

Neil MacGill Prize in Business Ethics   U(DLF)(PVF)
conditions: A prize of $250 to be awarded on the recommendation of the Department of Philosophy (UNBF) to a student with the highest standing (at least A-) in the Philosophy Department's introductory course in Business Ethics. One prize is to be awarded in each of the fall and winter terms when the course is offered. The prize has been funded by friends and colleagues of Professor Neil MacGill.

Fred Magee Prize (UNBF)   U (DLF) (PVF)
conditions: Two annual prizes of $300 each established by the late Dr. Fred Magee. One prize to be awarded in each of the Freshman (1-30 ch) and Junior (61-90 ch) levels, to a Fredericton campus student who is not of French origin, whose work in both conversational and written French is, in the opinion of the Department of French, most satisfactory.

Fred Magee Prize (UNBSJ)   U
conditions: An annual prize of $200 established by the late Dr. Fred Magee to be awarded at the Sophomore (31-60 ch) level, to a Saint John campus student who is not of French origin, whose work in both conversational and written French is, in the opinion of the French Section, Department of Humanities and Languages, most satisfactory.

Malleson Prize in Imperial & Commonwealth Military History   U(DLF)(PVF)
conditions: A $250 prize will be awarded annually on the recommendation of the History department to an honours or majors student in History on the Fredericton campus for the best essay in military history with particular emphasis on the role of imperial and/or Commonwealth military forces for the period commencing with the 20th century. This will encompass the Boer War, the World Wars, the Korean War, peacekeeping missions, and post-Cold War conflicts and operations.

Henry J. Marquis Prize   G
conditions: A prize of $250 to be awarded annually on the recommendation of the Faculty of Arts to a graduating Saint John campus student who achieves high standing in a designated course in the area of law or legal studies. The prize is funded by the family and friends of the late Henry J. Marquis, Q.C. (BCL '54).

Chester Martin Prize in History   U(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of History, to a student entering the History majors or honours program on the Fredericton campus of the University of New Brunswick who, during the first 60 ch, achieves a high average grade in twelve to eighteen credit hours in History, and an overall grade point average of at least 3.50. The prize was named by Dr. Alfred G. Bailey in memory of Chester Martin, a graduate of the University of New Brunswick and Canada's first Rhodes Scholar, who was for many years Head of the History Department at the University of Toronto.

W. A. G. McAndrew Prize   U(DLF)(PVF)
conditions: An annual prize in honour of the late Dr. W.A.G. McAndrew, professor of French and Head of the Department of Romance Languages, to be awarded to the student on the Fredericton campus whom the Department of French considers to have done the most satisfactory work in two courses (six ch) at the sophomore level (31 - 60 ch) in French as a second language. The prize has been sponsored by the French Department.

Peter McGahan Prize in Sociology   U/G(DLF)(PVF)
conditions: A prize of $250 to be awarded annually to a student on the Saint John campus who has completed an honors program in Sociology and has produced the best honours thesis as deemed by the faculty members of the Department of Social Science at UNBSJ. The prize is funded by Elizabeth McGahan.

Nan McLellan Memorial Prize in Art History   U
conditions: A prize of $100 to be awarded annually on the recommendation of the Department of Humanities and Languages based on academic performance to the best student in courses in Art History. The award commemorates a former University librarian, a well-known supporter of community and cultural activities in the greater Saint John area. The prize is being funded by friends of the late Nan McLellan.

Senator Muriel McQueen Fergusson U/G(S)(DVF)(PVF)
Memorial Prize in History
conditions: A prize of $350 to be awarded annually to an undergraduate Fredericton campus student, on the recommendation of the Department of History, for an outstanding essay in Women's History. This essay would be part of a History course requirement. Candidates may be enrolled in any undergraduate degree program. The prize is named in honour of the first woman Speaker of the Senate. The prize has been funded by Dr. Gillian Thompson.

Muriel Miller Award in Creative Writing   U/G (DLF) (PVF)
conditions: A medal and a monetary award to be awarded annually on the recommendation of the Department of English to the most promising undergraduate student on the Fredericton campus in the Department of English in its Creative Writing Program. Preference will be given to residents of Atlantic Canada. The award has been established by Michael and Brian Miner in memory of their mother, the late Muriel Miller, a New Brunswick born creative writer who wrote Bliss Carman's biography, and was a graduate of UNB in English.

Montgomery - Campbell Prize   U/G (DLF) (PVF)
conditions: This prize was awarded for the first time to the Graduating Class of 1880 and has been offered annually since in memory of George Montgomery-Campbell, sometime Fellow of Magdalene College, Cambridge and Professor of Classics in UNB from 1861 until his death in 1871. Through the generosity of the Executors of the Estates of Colonel Henry Montgomery-Campbell and General Herbert Montgomery-Campbell, a trust fund has been established to provide for this prize in perpetuity. This prize has an annual **value** of up to $1,650 and will be awarded to a student or students on the Fredericton campus in the following order of priority: 1) to a student for Junior level (61-90 ch) Latin and Greek or for Junior level Latin only, if there are no eligible students in Greek; 2) to the best qualified student in the Classics Department registered as an Honours or Majors student in Classics; 3) to any other Junior or Senior level student taking courses in the Department of Classics; 4) to the student with the highest standing in the penultimate year of a Bachelor's degree program, regardless of Faculty.

Barbara Pepperdene Essay Prize   G(DLF)(PVF)
conditions: An annual prize of $750 to be awarded at Encaenia on the recommendation of the Department of Sociology to any graduating student on the Fredericton campus for an outstanding essay in any Sociology course. The prize is funded by Dr. Barbara Pepperdene.

Barbara Pepperdene Prize for Substantive Inquiry   U(DLF)(PVF)
conditions: An annual prize of $750 to be awarded in the Fall on the recommendation of the Department of Sociology to a continuing student on the Fredericton campus for an outstanding assignment from the previous academic year which examines issues central to the strengths in the Department. The prize is funded by Dr. Barbara Pepperdene.

Picaroons Essay Prize in History
conditions: A prize of $1000 will be awarded annually on the recommendation of the Department of History to a student on the Fredericton campus for the best essay in a History course dealing with any aspect of the history of beer or brewing in New Brunswick. If no essay is selected on that subject, a $500 prize will be awarded for an essay dealing with any aspect of the history of brewing - industry, consumption, leisure, culture, or regulation – in any **field** of history. This prize is funded by Picaroons Traditional Ales.

Politics Class of 1995 Prize   U(DLF)(PVF)
conditions: A prize of $250 to be awarded annually on the recommendation of faculty in the discipline to an outstanding student in Politics on the Saint John campus who has completed 60 credit hours in the B.A. program. This prize is funded from the proceeds of the sales of "Rebuilding National Political Parties" (1997), a book published by Prof. Don Desserud's senior students.

Douglas R. Pullman Prize in Sociology   G (DLF) (PVF)
conditions: A prize has been established in honour of the contribution of Douglas R. Pullman to the development of Sociology at UNB. It will be awarded annually on the recommendation of the Department of Sociology to the graduating student on the Fredericton campus with a Major in Sociology. The award would be made on the discretion of the Department of Sociology. The prize has been established by colleagues of Dr. Douglas Pullman.

Tom Riesterer Memorial Prize   U (DLF) (PVF)
conditions: A prize of at least $200 to be awarded annually on the recommendation of the Department of English to the student who has written the best undergraduate or graduate essay for the Fredericton campus UNB English Department. The prize has been funded by the family of Tom Riesterer.

Sir Charles G. D. Roberts Memorial U/G(S) (DLF) (PVF) Prize
conditions: An annual prize of $400 to be awarded for the best short story submitted by an undergraduate. The stories are to be submitted to the Chair of the Department of English.

Eunice White Robertson Memorial Prize   U/G(S)(DLF)(PVF)
conditions: A $1000 prize awarded annually to a female student who has made a careful investigation of some subject of local history of the Province of New Brunswick selected by the Department of History of the University, and has submitted a competent essay thereon, and has obtained a high standing in the History courses of the Junior level (61-90 ch) at the University. The essay is to be the principal criterion of the award, although the student's class standing will also be considered. In the event that there are two qualified candidates, the prize may be divided equally between them. This prize is funded by Mrs. Phoebe W. R. Keiffer.

Robert Fulton Ross Memorial Prize in G(DLF)(PVF) Anthropology
conditions: A prize of $90 to be awarded annually on the recommendation of the Faculty of Arts to a graduating Fredericton campus student enrolled in a major or honours program in Anthropology who has submitted the best essay in Anthropology. The prize was donated by Mrs. Ann Hanley class of 1896, in memory of her father.

Russian Book Prize   U
conditions: A book to be awarded annually on the recommendation of the Department of Culture and Language Studies to an undergraduate or graduate student on the Fredericton campus who demonstrates outstanding performance in any course or courses in Russian.

Russian Language Prize   U (DLF) (PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of the Department of Culture and Language Studies to the best second-year Fredericton campus student (those taking specific full-year courses with 2000 numbers) in Russian. The prize has been funded by the Departmental Faculty members.

Saint George Prize   U (DLF) (PVF)
conditions: An annual prize of $180, donated by the late Ellen F.P. Peake, to be awarded each year by the English Department for the highest standing in Sophomore level (31-60 ch) English.

Sainz Family Spanish Award   U (DLF) (PVF)
conditions: An award of $100 to be made annually on the recommendation of the Department of Culture and Language Studies to an outstanding student entering the Senior level (approximately 96 ch) Majors or Honours program in Spanish. Recipients must be Canadian citizens or landed immigrants. The award has been donated by the Sainz Family.

Irma Sainz & Marcia Koven Prize   U
conditions: A prize of $60 to be awarded annually on the recommendation of the Sociology discipline UNB Saint John to a mature student majoring or honouring in Sociology entering the final year at UNBSJ. Funded by Irma Sainz and Marcia Koven.

Alvin J. Shaw Prize in Spanish   U (DLF) (PVF)
conditions: A prize of $500 to be awarded annually on the recommendation of the Department Culture and Language Studies to an outstanding student on the Fredericton campus who achieves high standing in a Majors or Honours program in Spanish and who has completed a minimum of 24 ch in that discipline. The prize has been funded by the late Professor Alvin J. Shaw.

Alvin J. Shaw Prize in Theatre Arts   U (DLF) (PVF)
conditions: A prize of $600 to be awarded annually on the recommendation of the Arts Council Committee on Scholarships and Prizes, to an outstanding student on the Fredericton campus entering the final 30 ch of a Bachelor of Arts program leading to a major in English (Drama) or a Major in English with a Minor in Drama. The prize has been funded by the late Professor Alvin J. Shaw.

James Simonds Prize in History   U/G(S) (DLF) (PVF)
conditions: Sir Charters J. Simonds of London, England, has given to the University an amount to yield an annual income of $575, to establish "The James Simonds Prize in History", in honour of James Simonds, one of the original English settlers at the mouth of the Saint John River. The prize is awarded for the outstanding essay on any historical subject.

Dr. Leonard Campbell Smith Mem. Prize for G(DLF)(PVF) Ancient History
conditions: This prize is established in memory of the late Dr. L.C. Smith, Professor Emeritus of Classics and Ancient History, to be awarded annually to the student on the Fredericton campus with the highest standing in any 12 ch in ancient history and historiography, and classical archaeology. The award will be made on recommendation of the Department of Classics and Ancient History. It is funded by friends and colleagues of the late Dr. Smith.

Snodgrass Honors Prize in Psychology   U(DLF)(PVF)
conditions: A prize of $700 is awarded on the recommendation of the Department of Psychology to the honours Psychology student on the Fredericton campus entering final year in the Honors Programme with the highest standing in Psychology courses (minimum 24 ch). Part-time students are eligible.

Snodgrass Student Travel Awards   U(DLF)(PVF)
conditions: Open to Fredericton campus students with Honours in Psychology who are the first authors of a paper or poster presented at a peer-refereed psychological conference. A committee struck by the Chair of the Department of Psychology will recommend one or more awards to support travel to present an outstanding paper or poster at a national or international conference. The paper or poster must be judged, on the basis of a submitted abstract, to be of strong scholarly merit in terms of innovation, rigour, and potential to make a contribution to the discipline. Students are only eligible to receive one travel award during each academic year. Students must apply prior to attending the conference and must submit the abstract as well as written confirmation that the paper or poster has been accepted with their application. apply: The Psychology Department Chair, UNB Fredericton. Awarding Agency: Psychology Department, UNB Fredericton. **donor**: Snodgrass Fund to commemorate the contributions of Dr. Florence Snodgrass (BA 1924). deadline: May 1 and October 1.

Dr. Florence Snodgrass Essay Prizes   U(DLF)(PVF)
conditions: Two prizes of $300 each to be awarded annually to Fredericton campus students for an outstanding essay submitted in 3000/4000-level Psychology courses. Selection will be based on the quality of the papers in both content (scientific merit and originality) and written expression. These prizes have been funded by the Snodgrass Fund to commemorate the contribution of Dr. Florence Snodgrass (BA 1924).

Dr. Florence Snodgrass Graduating Prize in G (DLF) (PVF) Psychology
conditions: A prize of $900 is awarded on the recommendation of the Department of Psychology for the best Psychology honours thesis on the Fredericton campus. This prize has been established by the Psychology Department in recognition of Dr. Snodgrass's (BA 1924) contribution to the Department and the University.

Dr. Florence Snodgrass Memorial Prizes   U(DLF)(PVF)
conditions: Up to six $100 prizes to be awarded annually to Fredericton campus students for their outstanding achievements and contributions to each of the following second year psychology courses offered on the Fredericton campus: Psychology 2113 Introduction to Research and Statistical Methods in Psychology; Psychology 2203 Foundations of Developmental Psychology; Psychology 2403 Foundations of Social Psychology; Psychology 2603 Foundations of Learning, Memory, & Cognition; Psychology 2703 Foundations of Biological Psychology, and Psychology 2313 Foundations of Clinical Psychology. Students may receive more than one award in any given year. These prizes are funded by the Snodgrass Fund to commemorate the contributions of Dr. Florence Snodgrass (BA 1924).

Department of Social Sciences Prize in Sociology
conditions: A $250 prize to be awarded annually on the recommendation of the faculty members in the discipline of Sociology to a deserving Sociology major/honours student on the Saint John campus. The prize is funded by the faculty members in the discipline of Sociology.

Rabbi David Spiro Essay Prize   U/G(S) (DLF) (PVF)
conditions: A prize of $500 to be awarded annually, on the recommendation of the Arts Council Committee on Honours and Prizes, to a student enrolled in an undergraduate degree program on the Fredericton campus who writes a deserving essay relating to Jewish history, literature or contemporary affairs. The prize is provided by the congregation of the Sgoolai Israel Synagogue.

Willie Stewart Prize in Arts 1000   U(DLF)(PVF)
conditions: This prize of $1,500 has been established by the late Professor Neil MacGill in honour of his teacher, friend and colleague, Dr. W.F.M. Stewart, Head of the Philosophy Department from 1959-1965 and a spectacular lecturer to large classes. It is awarded annually on the recommendation of the Dean of Arts to a student with high standing in ARTS 1000 in the Regular Session on the Fredericton campus.

Willie Stewart Prize in Philosophy   U(DLF)(PVF)
conditions: This prize of $1,500 was established by the late Professor Neil MacGill in honour of his teacher, friend and colleague, Dr. W.F.M. Stewart, Head of the Philosophy Department from 1959-1965. It is awarded annually on the recommendation of the Department of Philosophy to a student with high standing in an advanced level undergraduate course dealing with metaphysics on the Fredericton campus.

The Department of English Form and Format Prize
conditions: One or more prizes totaling no less than $1000 are awarded on the recommendation of the Department of English to a Fredericton campus student or students who has completed the requirements for the first year of the Bachelor of Arts degree program and has demonstrated excellence in at least 6 credit hours of English. A nomination letter from the course instructor and a portfolio of the student's work, including essays and exams, is required in order to be considered for this prize. The prize is funded by the Department of English through proceeds from the sale of Form and Format.

United Empire Loyalists Association of Canada   U
   New Brunswick Branch Prize for History
conditions: One prize with a minimum of $200 awarded to the student with the highest standing in Hist 3365 The Formation of Loyalist Canada. In the event that this course is not offered, the prize will be awarded to the student with the highest standing in the course most appropriate to an understanding of the Loyalists and their part in the development of Canada. This prize has been funded by the United Empire Loyalists Association of Canada New Brunswick Branch.

Harry Velensky Prize   U/G(S) (DLF) (PVF)
conditions: A prize valued at approximately $400 has been made available to the University through the generosity of Mr. Harry Velensky, and is to be awarded annually to an undergraduate for the best essay, other than an Honours Thesis, on the subject of human relations, with a view to the promotion of a better understanding between all peoples at all levels of society.

Viator Award   U/G(A)
conditions: An annual award or awards of up to $2,000 for a student or students in Classics and/or Ancient History on the Fredericton campus who has/have successfully completed at least two years or the equivalent (a minimum of 12 ch or equivalent) in Latin or Greek. The award is to be used for participation in an approved program of overseas summer study, archeology or research, preferably in classical lands. It must be used within nine months of graduation. The award is to be made by the Department of Classics and Ancient History. The award has been established by Mary Ella Milham.

David H. Walker Prize in Creative Writing   U/G(DLF)(PVF)
conditions: A prize of $1,000 to be awarded to a gifted undergraduate or graduate writer on the Fredericton campus. Applicants should submit a sample of their recent work (a short story or chapter of a novel, minimum 1500 words) to the Department of English. Past winners of this award are not eligible to enter the competition, and the work submitted cannot have previously won an award or prize. Finalists will be interviewed by the Selection Committee. The prize is funded by the family of the late David H. Walker.

Mary Louise Whimster Memorial Prize G (DLF) (PVF)
conditions: A prize of $300 to be awarded annually on the recommendation of the Department of French to the graduating student on the Fredericton campus who has, in the opinion of the Department, shown the highest achievement in the study of Literature in the Department. The prize has been funded by the Department of French.

Edna White Prize in Classics   U(DLF)(PVF)
conditions: A prize of up to $800 to be awarded annually to one or more students, graduate or undergraduate on the Fredericton campus, who continue their studies in Classics and Ancient History and are deemed by the Department of Classics and Ancient History to be worthy recipients of these awards. The prize is funded by the late Miss Edna White, Class of 1896 and LLD 1948.

Ernest Allan Whitebone History Prize   U
conditions: A prize of $500 to be awarded annually on the recommendation of the faculty members in History at UNB Saint John to an outstanding student on the Saint John campus who achieves high standing in a designated History course. The prize has been funded by the late Mrs. Elizabeth Whitebone.

D. Gordon Willet Prize in History   G
conditions: An annual prize of $100 and a certificate, to be awarded to a graduating student specializing in History at UNBSJ who has shown proficiency in his/her studies.

BPHIL

James Pataki Memorial Award   U(DLF)(PVF)
conditions: A $500 prize awarded annually to a student who has just completed the requirements for the first year of the Bachelor of Philosophy degree program and has developed and demonstrated his/her interest in musical or visual arts with plans to improve, promote and/or pursue their chosen artistic endeavours. The prize is funded by the family and friends of the late James Pataki.

BUSINESS ADMINISTRATION

Business Administration Society Outstanding   G(DLF)(PVF)
                    Student Award
conditions: A prize donated by UNB Business Administration Society to be awarded annually to the outstanding student, studying on the Fredericton campus, in the fourth year of Business Administration. The prize is awarded on the basis of the student's participation in campus activities, scholastic standing, character and attitude.

Erskine Ireland Carter Memorial Prize in Business Admin.   G
conditions: A prize of $2,600 to be awarded annually on the recommendation of the Faculty of Business to the graduating student in Business on the Saint John campus who has attained high academic standing, and has shown exemplary service to the university community. The prize has been funded by family and friends of the late Erskine Ireland Carter (BA Honours Psychology, UNB, 1992, and was enrolled in MBA). He was an outstanding student in Business Administration and Psychology on the Saint John campus, and he epitomized scholastic excellence and strength of character.

Certified Management Accountants (CMA) Prize   U (DLF) (PVF)
conditions: Two prizes of $1,000 each are awarded annually to students, one on the Fredericton campus and one on the Saint John campus, who have achieved the highest grade point average in the following courses: UNB Saint John - BA3235 Intermediate Accounting I, BA3236 Intermediate Accounting II, BA3224 Accounting for Managers III, BA2858 Introduction to Human Resource Management; UNB Fredericton -ADM3215 Intermediate Accounting I, ADM3216 Intermediate Accounting II, ADM3225 Cost Accounting, ADM3573 Organizational Design. Preference will be given to students intending to pursue the CMA designation. The recipients must not have received any other accounting award. Donor: CMA Canada. (The Society of Management Accountants of New Brunswick).

CPMS Prize   U(DLF)(PVF)
conditions: A $1000 prize awarded annually on the recommendation of the Faculty of Business Administration to Fredericton campus students enrolled in ADM 4450 or MBA 6450. Selection will be based on academic achievement, presentations, leadership, initiative, and commitment to teamwork. The recipients must demonstrate skill in the use of the CPMS Canadian Equity Market Service. This prize is funded by C.P.M.S. Computerized Portfolio Management Service Inc.

Deloitte Prize in Accounting   U (DLF) (PVF)
duration: conditions: Two prizes of $1,000 each for students in the Business Administration degree program: one prize awarded to a full-time student on the Fredericton campus, and one prize awarded to a full-time student on the Saint John campus. Recipients must have high standing in Accounting courses, including Intermediate Accounting I (ADM 3215 - UNBF, BA 3235 - UNBSJ), and Intermediate Accounting II (ADM 3216 - UNBF, BA 3236 - UNBSJ), and have completed 90 ch of the BBA degree program at UNB. The prize is funded by Deloitte & Touche.

Exmoor Prize   U(DLF)(PVF)
conditions: A prize of $500 is awarded annually to the Fredericton campus student enrolled in the Business Administration (BBA) program who attains the highest grade point average in the required courses in Finance and in Managerial Accounting. (Currently these are ADM 2413, ADM 3415 and ADM 2223). The courses must be taken at UNB but may be taken at any time during the year. All students who complete the final course of the group in the twelve months ending in May will be considered for this prize. (In the event of a tie, the student with the highest cumulative grade point average will be selected.) The prize has been funded by Mr. S.S. Mullin.

Faculty of Business Prize   U
conditions: A prize of $450 to be awarded annually on the recommendation of the Faculty of Business, on the basis of academic achievement and overall contribution to campus and community life, to an outstanding student, who is enrolled in the BBA program on the Saint John campus and has completed two years of study towards the BBA degree. The prize is being funded by faculty members and friends of the Faculty of Business.

Bernard and Lillian Freeman Prize
conditions: A $750 prize to be awarded annually on the recommendation of the Faculty of Business Administration to the Fredericton campus student who achieves the highest standing after completing the first year of studies in the Bachelor of Business Administration degree program. The prize is funded by the estate of Lillian Freeman.

Paul Hazelhurst Memorial Prize   U (DLF) (PVF)
conditions: A prize of $110 to be awarded annually on the recommendation of the Faculty of Business Administration, to a student entering the second year of the Bachelor of Business Administration degree program on the Fredericton campus. This award will be made to an outstanding student who, at the end of the regular academic year in which he or she completes 30 ch, has achieved the highest sessional grade point average. This prize has been funded by the friends of the late Paul Edward Hazlehurst.

Irving Supply Chain Case Competition Prize   (DLF)(PVF)
duration: A $2500 prize is awarded annually on the recommendation of the Faculty of Business to a team of Saint John campus students who present the best solution to a supply chain problem. The prize is funded by J.D. Irving, Limited.

R. Wayne Jollineau Prize in Business   G(DLF)(PVF)
conditions: A $1,500 prize to be awarded annually on the recommendation of the Faculty of Business, to a student graduating from the Faculty of Business on the Saint John Campus showing high academic achievement and overall contribution to campus life, in particular to the enhancement of student life in this program. The prize is named for Professor R. Wayne Jollineau, who in his 25 years on the Saint John Campus was instrumental in the establishment of the four-year BBA and the Business Co-op program, as well as ensuring UNBSJ's participation in the MBA program. The prize is funded by faculty, staff, family, friends and former students of Professor Jollineau.

Peter Jollymore Award in E-Business and Commerce   U
conditions: A prize of $1,000 to be awarded annually on the recommendation of the Faculty of Business to a Saint John campus student enrolled in the Electronic Commerce program. The prize is awarded to the student who has the highest overall average in BA2123 and BA 2663 and any two additional e-commerce electives. The prize is funded by Peter Jollymore as well as friends and colleagues. He is a prominent business member in the community as well as internationally. He served as Acting Dean of Business at the Saint John campus.

Herbert E. Jones Accounting Prize   U
conditions: A prize to be awarded annually on the recommendation of the Faculty of Business to the student with the highest standing in the area of Accounting at UNB Saint John, who is in receipt of no other awards. The prize has been funded by the late Herbert E. Jones.

Liana Jones Prize in Accounting
A $250 prize to be awarded annually on the recommendation of the Faculty of Business to the Saint John campus student enrolled in the Bachelor of Business Administration who is a Canadian citizen or permanent resident with the highest standing in a first year accounting course (such as BA1216) at UNB Saint John. The prize has been funded by Liana Jones BBA 1989.

Blanche and Percy M. Levine Memorial Prize   U (DLF) (PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Faculty of Business Administration to the full-time Fredericton campus students in the Business Administration degree program who attains the highest assessment year grade point average in the penultimate year of the degree program. The prize has been donated by the family of the late Mr. & Mrs. P. M. Levine.

Mary Louise Lynch Prize in Memory of Harriet L. Irving   U
conditions: A prize of $300 to be awarded annually on the recommendation of the Faculty of Business at UNBSJ to the student in Business Administration who has attained the highest grade point average in a minimum of 30 ch at the second year level. The prize has been funded by Miss Mary Louise Lynch.

E. D. Maher Prize   U (DLF) (PVF)
conditions: A prize of $200 to be awarded annually to a full-time student enrolled in the penultimate year of the undergraduate Business Administration program. (The student must have successfully completed a minimum of 60 ch toward the BBA degree.) The award is made to the student who attained the highest grade point average in the business courses required in the first 60 ch of the business program. The prize has been funded by graduates, faculty, staff, organizations, and friends in recognition of E.D. Maher's many contributions to the University community and, in particular, to the undergraduate business program.

William B. Nase Memorial Prize   U(DLF)(PVF)
conditions: A $400 prize awarded annually on the recommendation of the Faculty of Business Co-op Program and the Work Term Report Evaluator to a Saint John campus student enrolled in the Business Co-op program who achieves the highest standing on the Co-op work term report. The prize is funded by family, friends and colleagues of the late William B. Nase.

New Brunswick Institute of Chartered U (DLF)(PVF)
                    Accountants Prize
conditions: A prize of $1,000 is awarded annually to the student currently enrolled in the regular Business Administration degree program on each UNB campus, who has attained the highest weighted average grade in introduction to Business Finance, Intermediate Accounting 1 and Intermediate Accounting II. The courses must be taken at UNB but may be taken at any time during the year.

Saint John Investors Group Prize   U
conditions: Two prizes **valued** at $250 each will be awarded to Saint John campus students as follows: A $250 prize to the student with the highest academic standing in BA3421 (Personal Financial Planning) and a $250 prize to the student who has achieved the highest academic standing in BA4437 (Investment Analysis and Portfolio Management). These prizes have been funded by the Investors Group Inc. Saint John.

Dr. Anthony Smith Memorial Prize   U(DLF)(PVF)
conditions: A $300 prize to be awarded annually on the recommendation of the Faculty of Business to a Saint John campus student who has the highest grade in Introduction to Industrial Relations course (BA3813). The prize is funded by family and friends in memory of Dr. Anthony Smith who taught at UNB Saint John (1991-1993) and UNB Fredericton (1994 to 1998).

Xiaoqing Prize   U
conditions: A prize of $400 is awarded annually on the recommendation of the Faculty of Business Administration to a student graduating from the Bachelor of Business Administration program on the Fredericton campus, who has completed honours in Finance and has the highest grade point average computed using the mandatory Finance courses. In case of a tie, the prize is awarded to the student with the highest grade point average computed using all Finance courses. If the tie is still not resolved then the prize is awarded to the student with the highest cumulative grade point average in the program. The prize is funded by Xiaoqing Fang, BBA 2005.

COMPUTER SCIENCE

Computer Science Prize for Best Senior U(DLF) (PVF)
                    Honours Thesis
conditions: A prize of $200 to be awarded annually on the recommendation of the Faculty of Computer Science to the Fredericton campus BCS student (or BCS concurrent degree student) whose senior honours thesis (CS4997) is judged to be the best in that academic year.

Computer Science Prize for Best Senior U(DLF) (PVF)
        Technical Report
conditions: A prize of $100 to be awarded annually on the recommendation of the Faculty of Computer Science to the Fredericton campus BCS student (or BCS concurrent degree student) whose senior technical report (CS4983) is judged to be the best in that academic year.

Computer Science Prize I   U (DLF) (PVF)
conditions: A prize of $250 to be awarded annually to the best student who has just completed one year of study with a minimum of 35 ch on the Fredericton campus in an undergraduate degree program in the Faculty of Computer Science. The prize is awarded on the basis of academic performance in the first year of studies in the degree program.

Computer Science Prize II   U (DLF) (PVF)
conditions: A prize of $250 to be awarded annually to the best student on the Fredericton campus who has just completed three years of study with a minimum of 100 ch in an undergraduate degree program in the Faculty Computer Science. The prize is awarded on the basis of academic performance in the third year of studies in the degree program.

Govind and Lakshmi Gujar Computer Science Prize   G(DLF)(PVF)
conditions: A prize to be awarded annually on the recommendation of the Faculty of Computer Science to the outstanding graduating student in Computer Science on the Fredericton campus with the highest cumulative grade point average. The student must have completed a minimum of three quarters of the degree program at UNB. The student receiving this prize may or may not be the same person who receives the Lieutenant-Governor of New Brunswick Silver Medal (since the selection criteria are different). The prize has been funded by Mrs. Sarita U. Gujar and Professor Uday G. Gujar to honor Prof. Gujar's parents.

Harry Levine Prize in Computer Science   G (DLF) (PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of the Faculty of Computer Science to a deserving student graduating in the Computer Science program. The prize has been donated by the Levine Family.

Dr. W. Dana Wasson Prize in Computer Science   U(DLF)(PVF)
conditions: A prize of $1,000 to be awarded annually in recognition of Dr. Dana Wasson's lifetime contribution to computer science in New Brunswick. This prize is awarded to the best student who has just completed two years of study on the Fredericton campus with a minimum of 70 ch in an undergraduate degree program in the Faculty of Computer Science. The prize is awarded on the basis of academic performance in the second year of studies in the degree program. The prize has been donated by IBM, NB Tel, and interested benefactors.

EDUCATION

Tom Acheson Prize in Art Education G (DLF) (PVF)
conditions: A prize of $750 to be awarded annually on the recommendation of the Faculty of Education to a graduating student who has demonstrated outstanding talent in the **field** of Art Education. The recipient will have attained both a high overall academic standard and an acceptable level of competence in at least three Art Education courses. The prize has been sponsored by the Provincial Department of Education through the Fred Magee Fund.

Viscount Richard Bedford Bennett U(DLF)(PVF)
Prize (Education)
conditions: A $500 prize to be awarded annually on the recommendation of the Faculty of Education to an outstanding Bachelor of Education (School Years) student. This prize was established by the late Viscount Bennett.

Sherry Budovitch Prize in Elementary Education G (DLF) (PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of Curriculum and Instruction, to an outstanding graduating student in the Bachelor of Education (Early Years) program based on student teaching performance. The prize has been funded by Sherry (Budovitch) Rioux.

Norman S. Fraser Prize in Education G (DLF) (PVF)
conditions: A prize of $340 to be awarded annually on the recommendation of the Faculty of Education to a graduating student in the Bachelor of Education program who has shown potential for a high degree of professional ability as a teacher. The prize has been funded by the late Norman S. Fraser.

Mary Grey Memorial Prize G (DLF) (PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of the Faculty of Education to a student in the Special Education area of the DAUS program. Preference may be given to those who have demonstrated an interest in working with persons with mental disabilities. The prize has been funded by the New Brunswick Association of Auxiliary Teachers and will be presented at the Graduation reception.

Fred Magee Prize in Technology Education G (DLF) (PVF)
conditions: A prize of approximately $1,000 to be awarded annually, on the recommendation of the Faculty of Education, to a graduating student in the Technology Education Section, Faculty of Education, who has demonstrated academic excellence, qualities of leadership, and professional promise in technology education. The prize is funded by the Fred Magee endowment fund to the NB Department of Education.

Ingrid J. Peterson Memorial Prize G(DLF)(PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of the Faculty of Education, to the graduating student specializing in English of Literacy, who has maintained the highest grade point average. Funded by friends of the late Ingrid J. Peterson.

Second Language Research Institute Prize G(DLF)(PVF)
conditions: Two prizes of $200 each to be awarded annually on the recommendation of the Second Language Research Institute of the Faculty of Education to two graduating students on the Fredericton campus who have demonstrated outstanding ability in the **field** of English Second Language (ESL) or French Second Language (FSL) Education. The recipients will have attained both a high overall academic standard, will have excelled in second language courses, and will have completed a successful practicum in a FSL or ESL context. The prizes are funded by the Second Language Research Institute.

Anne & Allen Selby Prize for the Performing Arts U(DLF)(PVF)
conditions: A prize of variable **value** (minimum $1,000) to be awarded annually on the recommendation of the Faculty of Education to a Fredericton campus student in the Bachelor of Education program, who demonstrates outstanding achievement in the study and presentation of one of the categories of written, movement, spoken, musical and dramatic arts. This prize is funded by Anne and Allen Selby.

Congregation of Sgoolai Israel Synagogue Prize
conditions: A prize of $100 is awarded annually on the recommendation of the Faculty of Education to the student having the highest standing in Education. The prize is funded by Congregation of Sgoolai Israel Synagogue.

Agnes Nevers Shaw Memorial Award U/G(S) (DLF) (PVF)
conditions: An annual prize of $100 established by Mr. Wendell B. Shaw to be given to an undergraduate student in the Faculty of Education for the best essay on the Magna Carta.

Lorne Joseph Simon Prize U/G(DLF)(PVF)
conditions: A prize of $1,750 to be awarded annually to an outstanding full-time Fredericton campus First Nations student, with preference given to a promising writer. The prize will be awarded on the recommendation of the Faculty of Education (Mi'kmaq-Maliseet Institute) in consultation (where appropriate) with the Prize Committee of the Department of English. The prize has been funded by family and friends of the late Lorne Joseph Simon, an outstanding student in the Faculty of Education, and an accomplished writer.

ENGINEERING

AECL Pilkington Prize U(DLF)(PVF)
conditions: A $500 prize to be awarded annually on the recommendation of the Departments of Chemical or Mechanical Engineering to a Fredericton campus student enrolled in the Nuclear Option program or the Energy Conversion Engineering Option program who has achieved the highest grade point average in two or more nuclear-related courses. This prize is funded by the AECL and the friends of Bill Pilkington.

Andrin-Mathis Prize in Management G/U(DLF)(PVF)
conditions: A $250 prize to be awarded annually on the recommendation of the Faculty of Engineering to the student who has successfully completed the Technology Management and Entrepreneurship Diploma program who demonstrates repeated leadership skills in the area of conflict resolution and situational management amongst their peers during the TME diploma program. Graduate students as well as undergraduate students may be considered for this prize. The prize is funded by George Andrin, BScEng (Mechanical), Class of '58 with supporting funds from 3M, Mathis Instruments and others.

APEGNB Prize I U
conditions: Two prizes of $2,000 each, one prize may be awarded annually on each campus, on the recommendation of the Faculty of Engineering and Geoscience to a student who has completed the first year of the Engineering or Geoscience degree program, and has attained a high academic standing. The prize is funded by the Association of Professional Engineers and Geoscientists of New Brunswick Foundation for Education.

Sam Budovitch Memorial Prize U (DLF) (PVF)
conditions: A prize of $600 to be awarded annually on the recommendation of the Department of Civil Engineering to the student with the highest standing in first year Civil Engineering (35-40 ch). Funded by the late Mr. Sam Budovitch.

Harold H. Bulmer Memorial Prize U(DLF)(PVF)
conditions: Two prizes are awarded annually to students participating in the Technology Innovation Pitch (TIP) competition hosted by the Dr. J. Herbert Smith Centre in Technology Management and Entrepreneurship (TME), Faculty of Engineering. First place prize is **valued** at $500, second place $200. A book selected by the TME Chair will also be presented to the prize recipients. The prize is open to students from all participating institutions. The prize is funded by members of the Bulmer family, the Dr. J. Herbert Smith Centre, Radian6 Technologies, and others.

Canadian Society for Chemical Engineering Prize U(DLF)(PVF)
conditions: A certificate of merit, engraved medal and a cash award of $50 are donated annually by the Canadian Society for Chemical Engineering, to be awarded to a student completing the penultimate year of Chemical Engineering with the highest standing.

Canadian Society for Civil Eng. G(DLF)(PVF)
Certificate of Achievement
conditions: An award of a certificate and a one-year associate membership in the Canadian Society for Civil Engineering, to be awarded on the recommendation of the Department of Civil Engineering to the top graduating Civil Engineering student, based on the regular work in the final two years (greater than or equal to 48 ch) of the student's regular program. The award is provided by the Canadian Society for Civil Engineering, Atlantic Region.

Chemical Engineering Faculty Prize G (DLF) (PVF)
conditions: An annual prize of $500 has been established by the faculty members of the Department of Chemical Engineering to be awarded to the student who has attained the highest standing in the final year of Chemical Engineering.

K. R. Chestnut Memorial Prize U (DLF) (PVF)
conditions: An annual prize of $1,650 was bequeathed to UNB by the late Mrs. Annie H. Chestnut. It is to be awarded to an outstanding student in the Faculty of Engineering on the recommendation of the Engineering Awards Committee.

Eugene E. Derenyi Alumni Prize in U(DLF)(PVF)
Remote Sensing
conditions: A $500 prize to be awarded annually on the recommendation of the Department of Geodesy and Geomatics to the Fredericton campus student who achieves the highest grade in the remote sensing course GGE 3342: Imaging and Mapping I. The prize is funded by contributions from Alumni at the GGE (SE) 40th Anniversary Reunion held June 22-23, 2001.

L. A. Gale Prize U(DLF)(PVF)
conditions: A $545 prize awarded annually on the recommendation of the Department of Geodesy and Geomatics Engineering to a Canadian student upon completion of six terms of Geodesy and Geomatics Engineering who shows academic promise and is in need of financial assistance.

Garson Memorial Prize U(DLF)(PVF)
conditions: The late Abram I. Garson bequeathed the sum of $2,000 to the University, the investment earnings therefrom to be awarded annually to the student registered in the Faculty of Engineering who, in the first year, attains the highest standing. The amount will be approximately $300.

Gerhard Gloss Prize in Cartography   U/G (DLF) (PVF)
conditions: A prize to be awarded annually on the recommendation of the Department of Geodesy and Geomatics Engineering to a student in any faculty on the Fredericton campus who has designed and published a map of high technical and artistic merit. The map may be produced using traditional or computer-assisted cartographic techniques. The prize has been funded by friends and colleagues of Professor Gerhard Gloss.

Allan K. Grimmer Prize   U(DLF)(PVF)
conditions: Four prizes of $1200 each awarded annually on the recommendation of the Department of Civil Engineering to students who have completed two years of study of the regular program in the Department of Civil Engineering. Preference will be given to applicants with high academic qualifications, who are not already in receipt of a major scholarship. The prize is funded by the late Allan K. Grimmer.

Ronald C. Hurley Award in Chemical Engineering   G (DLF) (PVF)
conditions: An award of $800 to be awarded annually on the recommendation of the students and faculty members of the Department of Chemical Engineering to a graduating student in the Department of Chemical Engineering. Made on the basis of scholastic attainment and participation in department, university and community activities. Donated by family members as well as students and faculty members in the Department of Chemical Engineering.

Brydone Jack Prize   G (DLF) (PVF)
conditions: An annual prize of $540 donated by the Associated Alumni of the University of New Brunswick. It is to be awarded to the full time student who obtains the highest standing in the final two terms of the Electrical or Computer Engineering program.

D. Malcolm Jeffrey Memorial Prize   G (DLF) (PVF)
conditions: The family of the late D. Malcolm Jeffrey has established a prize of $225 to be awarded annually to the Civil Engineering student who obtains the second highest standing based on the regular (full time student) work in the final two years of the student's regular program.

Ketchum Memorial Medal   G (DLF) (PVF)
conditions: A silver medal to be known as the "Ketchum Medal" has been founded according to the will of the late H.G.C. Ketchum, Esq., and is to be awarded to the top graduating student in Civil Engineering based on the regular (full time student) work in the final two terms of the student's regular program.

Gottfried Konecny Survey Award   U(DLF)(PVF)
conditions: A $1500 prize awarded annually on the recommendation of the Department of Geodesy and Geomatics Engineering to a student with high academic standing, creative abilities, and a constructive attitude towards the surveying profession who has completed six terms of the Geodesy and Geomatics Engineering program. Financial need will also be considered. The prize is funded by the Gottfried Konecny Survey Award Fund.

Duane Logan Award   U(DLF)(PVF)
conditions: An award to be made annually on the recommendation of the Department of Chemical Engineering to the Chemical Engineering student on the Fredericton Campus who has completed 110 to 135 ch in the program, and who in the opinion of the Department best demonstrates the qualities of tenacity and fellowship. Preference will be given to those students who are not, during the same year, recipients of other awards and scholarships **valued** at over $500. The award has been funded by the Chemical Engineering Class of 1966 in memory of their fellow classmate, Duane Logan.

Purves Loggie Prize   U (DLF) (PVF)
conditions: A $250 prize awarded annually on the recommendation of the Department of Geodesy and Geomatics Engineering to the student having the highest standing in the introductory surveying course. The prize is funded by the family of the late Mr. Purves Loggie.

Ian Scott MacDonald Prize   (DLF)(PVF)
conditions: A prize of $100 is awarded each term to the student enrolled in Bachelor of Science in Engineering (Civil Engineering) degree program on the Fredericton campus who has submitted the Senior Report which is judged to be best in terms of creativity in design. Selection is made by a panel of judges consisting of faculty members within the Department of Civil Engineering. The prize is funded by an endowment established by the late Ira M. Beattie.

Louis R. Seheult Prize   U(DLF)(PVF)
conditions: A prize of $1,000 to be awarded annually on the recommendation of the Department of Civil Engineering to a UNB student who is a Canadian high school graduate and, upon the completion of the penultimate year of the Bachelor of Science in Engineering, exhibits: academic excellence, qualities of leadership, managerial potential, and a demonstrated understanding of the interactions of finance, human resources and technology required for a prominent role in the design, and/or construction of quality Canadian infrastructure. The prize will not be awarded to a student who is the current beneficiary of a prize or scholarship with an annual **value** exceeding $2,000 dollars. The prize has been funded by family and friends of the late Professor Louis R. Seheult.

R.H.B. McLaughlin Prize in Civil Engineering   U
conditions: A prize of $250 to be awarded to the graduating student who has obtained the highest average in the courses in building and construction offered by the Department of Civil Engineering. Only those who have successfully completed 75 per cent of the electives in the designated areas will be eligible. **Donor**: Prof. R.H.B. McLaughlin, Class of 1943.

Dr. Alan Y. McLean Memorial Prize   U(DLF)(PVF)
conditions: A prize of $550 to be awarded annually on the recommendation of the Chair of the J. Herbert Smith/ACOA Chair in Technology Management and Entrepreneurship to the student attaining the highest grade point average within the 15 ch of the TME Diploma Program. A book to be selected by the Chair will be presented to the recipient and a copy placed in the library in the Centre. The name of the student will be placed on a plaque in the Dr. J. Herbert Smith Seminar Room.

**John F. Murphy Prize in Electrical & Computer G(DLF)(PVF)
                 Engineering**
conditions: A $800 prize to be awarded annually on the recommendation of the Department of Electrical and Computer Engineering to the Fredericton campus student in the Electrical, Computer or Software Engineering programs whose senior undergraduate project best displays outstanding technical merit. The prize has been funded by friends of John Murphy, an Electronics Technologist who served the University with distinction for 26 years, 1968-1994.

NACE International Prize in Corrosion Prevention   U(DLF)(PVF)
conditions: A $300 prize to be awarded annually on the recommendation of the Department of Chemical Engineering to a Fredericton campus student who demonstrates superior knowledge in corrosion prevention through studies in CHE 5824 (Corrosion Processes). The prizes is funded by the National Association of Corrosion Engineers (NACE).

Sasi Mohan Pal Prize   U (DLF) (PVF)
conditions: A prize of approximately $200 to be awarded annually on the recommendation of the Department of Chemical Engineering to a Fredericton campus visa student, who achieves the highest standing at the completion of second or third year of the Chemical Engineering degree program at UNB (minimum 80 ch). The prize has been funded by Mrs. Purabi Pal in memory of her husband, Sasi Mohan Pal, a graduate of UNB.

Samuel Leonard Peters Prize   U (DLF) (PVF)
conditions: The late Miss Marianne Grey Otty has bequeathed $900 to UNB, the income therefrom to be used to establish a prize in memory of Flying Officer S. Leonard Peters, of Queenstown, N.B., who was killed in action, August 1944, while serving with the RCAF over France. The prize will be awarded to the student who has the highest standing in the first year of the Mechanical Engineering program.

Pulse Derringer Excellence Award   U(DLF)(PVF)
conditions: A $250 prize to be awarded annually on the recommendation of the Department of Chemical Engineering to the student who has attained the highest standing in their third year (80-128 ch) of the Bachelor of Science in Engineering (Chemical) degree program. The prize is funded by Robin Chaplin.

**Society of Chemical Industry Merit G(DLF)(PVF)
                 Award – Chemistry**
conditions: The Canadian Section of the Society of Chemical Industry will award three plaques, one each for Chemistry, Biochemistry and Chemical Engineering, to students with the highest standing in the final year of their course. In the case of a conflict, the award may be given to the student with the highest standing in an alternate Chemistry course, e.g. Environmental Geo-Chemistry, Physics/Chemistry. In the event that a student performs exceptionally well in an alternate Chemistry course, he/she may be considered as a candidate for one of the three awards. There will be only three categories and only one nomination in each "category". Awards apply only for four year programs.

**Dr. Rudolf Starkermann Prizes in Mechanical U(DLF)(PVF)
                 Engineering**
conditions: Six prizes are to be awarded annually on the recommendation of the Department of Mechanical Engineering to Fredericton campus students as follows: Two prizes of $600 each are to be awarded to students who have the highest Cumulative Grade Point Averages after completing between 100 and 135 credit hours in the Bachelor of Science in Engineering (Mechanical) degree program; two prizes of $600 each to be awarded to students who have the highest Cumulative Grade Point Averages after completing between 75 and 100 credit hours in the Bachelor of Science in Engineering (Mechanical) degree program; one prize of $300 is to be awarded to a student who has the highest standing in Automatic Controls I; one prize of $300 is to be awarded to a student who has the highest standing in System Dynamics. The prizes are funded by Dr. Rudolf Starkermann, professor of Mechanical Engineering at UNB from 1970 to 1989.

John Stephens Memorial Prize   G (DLF) (PVF)
conditions: The late Dr. John Stephens, a graduate of Trinity College, Dublin, was an eminent engineer and for many years the distinguished and beloved professor of Mechanical Engineering at this University. In 1954 the Associated Alumni established the John Stephens Memorial Prize to perpetuate his memory and to encourage scholarship in the Department of Mechanical Engineering. This prize, which has a cash **value** of $250, is awarded annually upon the recommendation of the head of the department to the leader of the graduating Mechanical Engineering students.

Paul Stewart Prize   G(DLF)(PVF)
conditions: A prize of $100 to be awarded to the graduating student who has obtained the highest average in courses in transportation offered by the Department of Civil Engineering. Only those students who have completed at least two technical electives in transportation will be eligible. The prize is funded by an endowment established by Paul Stewart.

Dr. E. O. Turner Prize   G (DLF) (PVF)
conditions: A $250 prize awarded annually on the recommendation of the Faculty of Engineering to a Fredericton campus student who demonstrates qualities of leadership and breadth of horizon, coupled with a good academic standing, that should lead to a high station in future life. One candidate from each of the Departments of Civil, Electrical and Mechanical Engineering shall be nominated by each of the departments. This prize is funded by the Associated Alumni in honour of Dr. E.O. Turner, former Head of the Department of Civil Engineering and Dean of the Faculty of Engineering at UNB.

Francis Vanicek Prize in Civil Engineering   U(DLF)(PVF)
conditions: An annual prize of $100 to be awarded, on the recommendation of the Department of Civil Engineering, to a student who has shown a high level of achievement in structural analysis and design and has completed between 90-120 ch of the regular program. The prize has been funded by colleagues of Professor Ralph M. Francis.

The Late Richard Laurence Weldon Prize in U (DLF) (PVF)
                         Mechanical Eng.
conditions: A $1715 prize awarded annually on the recommendation of the Department of Mechanical Engineering to a student with high academic standing who is entering the seventh term of a Mechanical Engineering program. The applicant is not eligible should he/she hold another major award tenable during his/her final year. The prize is funded by the late Mr. Richard Laurence Weldon.

Eric E. Wheatley Memorial Medal   G (DLF) (PVF)
conditions: A medal to be awarded annually on the recommendation of the Mechanical Engineering Student-Faculty Liaison Committee (from nominations submitted by members of the faculty) to a graduating Mechanical Engineering student, who has demonstrated both practical ability and strong academic achievement. The medal has been endowed by friends of the late Professor Eric E. Wheatley, professor and developer of Mechanical Engineering at UNB from 1945 to 1973.

FORESTRY

Viscount Richard Bedford Bennett Prize (Forestry)   U (DLF) (PVF)
conditions: Two annual prizes of $250 has been established by the late Viscount Bennett to be given to two outstanding students selected by the Faculty of Forestry and Environmental Management, one to be entering third year and one to be entering fourth year.

Canadian Institute of Forestry Gold Medal Award   G(DLF)(PVF)
conditions: A CIF gold medal is awarded annually to the student graduating with either a Bachelor of Science in Forestry degree or a Bachelor of Science in Forest Engineering degree who, in the opinion of the Committee of Award, has been outstanding in his class, taking into consideration academic standing and participation in faculty activities.

Simon and Dora Chippin Award   U(DLF)(PVF)
conditions: A prize of $250 awarded to a worthy student in need of financial assistance entering the second year of a program leading to a bachelor's degree in the Faculty of Forestry and Environmental Management. The prize is funded by the late Simon and Dora Chippin.

CIF/UNB Joint Professional Development U(DLF)(PVF)
              Forestry Award
conditions: Awards to be used to help defray travel expenses for attending the Annual General Meeting of the Canadian Institute of Forestry, to be awarded annually on the recommendation of a committee made up of representatives of the CIF Maritime Section and the Faculty of Forestry and Environmental Management, to continuing students after completion of at least 30 ch in the BScF or BScFE degree programs. The award has been funded by the Maritime Section of the CIF and the Faculty of Forestry and Environmental Management.

G.D. Estey Memorial Prize   G (DLF) (PVF)
conditions: A book prize was established by the late Mrs. Estey in memory of her husband Gerald D. (Jake) Estey of the class of 1949. This prize is awarded to a deserving graduating student in Forestry or Forest Engineering, who, in the opinion of the Faculty of Forestry and Environmental Management, is most interested in practicing sound principles of forestry.

Faculty of Forestry Senior Project Award   G (DLF)(PVF)
conditions: A book prize given to the student who presents the best senior project in Forestry or Forest Engineering. The recipient will be determined by a committee of the Faculty of Forestry and Environmental Management. The book is provided by courtesy of John Wiley & Sons Canada Ltd.

B. W. (Barney) Flieger Memorial Prize   U(DLF)(PVF)
conditions: One prize of at least $2,000 to be awarded annually on the recommendation of the Faculty of Forestry and Environmental Management to an outstanding student in the third year of the program leading to the degree of Bachelor of Science in Forestry who achieved high academic standing in the second year. The prize has been funded by Forest Protection Limited.

Lucien J. Forcier Prize in Silviculture   G (DLF) (PVF)
conditions: A prize of $175 is offered from a fund established in memory of Lucien J. Forcier by his friends and colleagues to be awarded annually on the recommendation of the Faculty of Forestry and Environmental Management to an outstanding graduating student who has demonstrated achievement in Silviculture.

Forest Products Research Society Award   U/G (DLF) (PVF)
conditions: A prize of $100 and a one year society membership established by the Forest Products Research Society, Eastern Canadian Section, to be awarded annually, on the recommendation of the Faculty of Forestry and Environmental Management, to an undergraduate student for academic achievement in the **field** of wood science.

Foresters' Excellence Award   U(DLF)(PVF)
conditions: A $1000 prize to be awarded annually to a student enrolled in the fourth or fifth year of the Bachelor of Science in Forestry or Bachelor of Science in Forest Engineering degree program. Candidates are required to submit an essay on the role of the professional forester. The prize is funded by alumni and friends of the Faculty of Forestry.

J. Miles Gibson Forestry Award   U(DLF)(PVF)
conditions: A prize awarded annually on the recommendation of the Gibson Award Committee to one or more students entering the second year of a program leading to the degree of Bachelor of Science in Forestry or Forest Engineering. The prize is funded by the friends of J. Miles Gibson.

Jason Herron Memorial Award   U (DLF) (PVF)
conditions: A prize with a minimum **value** of $1,500 to be awarded annually to a student in good academic standing who has completed at least 90 credit hours in the Bachelor of Forest Engineering or Bachelor of Forestry degree program on the Fredericton campus. The recipient must have demonstrated professionalism, commitment to fellow students, and academic leadership. Nominations from students, staff and faculty will be received by the Faculty Scholarship committee. This award is funded by family, friends and colleagues of Jason Herron, Forest Manager for Georgia-Pacific in New Brunswick for many years, and a UNB lecturer, 2000-03.

Peter J. Hughes Sustainable Forestry Award   U(DLF)(PVF)
conditions: Awarded on the recommendation of the Faculty of Forestry and Environmental Management to a full time student on the Fredericton campus in the Faculty of Forestry and Environmental Management after the completion of at least 60 ch in the BScF or BScFE degree program. The recipient must have demonstrated a commitment to sustainable forestry practices. Preference will be given to students from Atlantic Canada who have been involved in private woodlot management. The award has been funded by family, friends and business associates in memory of the late Peter J. Hughes who was a long-time employee of the NB Federation of Woodlot Owners.

Schlich Memorial Prize   G (DLF) (PVF)
conditions: The trustees of the Sir William Schlich Memorial Prize fund offer an annual prize to a graduating forester or forest engineer at one of the Canadian forestry schools. The recipient is to be a deserving student selected by the Dean of the Faculty of Forestry and Environmental Management.

Dr. L. P. Sebastian Prize   U (DLF) (PVF)
conditions: Awarded annually based on the recommendation of the Faculty of Forestry and Environmental Management to an outstanding full-time student in the Faculty of Forestry and Environmental Management on the Fredericton campus who displays excellence in wood technology, wood products or wood engineering upon entering the final year of the Forestry program (approximately 140 ch completed) or the Forest Engineering degree program (approximately 163 ch completed). The prize has been funded by G. and M. Daugharty with matching funds from Northern Telecom, and friends of L.P. Sebastian.

Merlyn Stillwell Memorial Prize   U(DLF)(PVF)
conditions: A prize to be awarded annually upon the recommendation of the Faculty of Forestry and Environmental Management to a Forestry student with high academic standing and creative abilities who has demonstrated an interest in bioethics in forestry. The award is funded by family and friends of the late Merlyn A. Stillwell, a graduate of UNB in Science (Bio), 1949 and Masters in Science (Arts) 1957. Mr. Stillwell was a research scientist with the Canadian Forestry Service, and a part-time lecturer in the Faculty of Forestry at UNB until his untimely death in 1977. His research was aimed at gaining a better understanding of the forest environment with emphasis on tree diseases.

Videto-Hadley Memorial Prize   U (DLF) (PVF)
conditions: Friends of the late Mr. B.W. Flieger of the Canadian International Paper Company, Montreal and Professor of Forest Engineering at the University of New Brunswick from 1927 to 1950, have offered a prize of $250 in memory of Professors H.E.D. Videto and C. Graham Hadley of the Forestry Faculty, who lost their lives in a drowning accident in October 1951. This prize will be awarded by the Students Forestry Association to a member for outstanding performance during the year.

W. T. Whitehead Memorial Prize   U (DLF) (PVF)
conditions: An annual prize of $195 was established by Mrs. W.T. Whitehead to be awarded to the student having the highest standing in the third year of a program leading to a bachelor's degree in the Faculty of Forestry and Environmental Management.

KINESIOLOGY

CSEP/SCPE Undergraduate Student (PVF) (DLF)
Award
conditions: A medallion and a citation is awarded annually on the recommendation of the Faculty of Kinesiology to the student graduating with a Bachelor of Science in Kinesiology who has achieved the highest academic standing in the scientific portion of the curriculum. This award is provided by the Canadian Society for Exercise Physiology/Société Canadienne de Physiologie de l'Exercice.

Amby Legere - Pete Kelly Prize   U(DLF)(PVF)
conditions: A prize of $1250 is awarded to the student who has completed three years (at least 75%) of the Bachelor of Recreation and Sport Studies. The award will be made to the student who has demonstrated the highest academic achievement (Cumulative Grade Point Average). The student can receive this award only once The prize is funded by Physical Education and Recreation/ Kinesiology Alumni and Supporters.

Bill MacGillivary Prize   U(DLF)(PVF)
conditions: A prize of $750 is awarded annually to the student who has completed 2 years (between 50% and 74%) of the Bachelor of Science of Kinesiology Program. The award will be made to the student who has demonstrated the highest academic achievement (Cumulative Grade Point Average). The student can receive this award only once. The prize is funded by Physical Education and Recreation/ Kinesiology Alumni and Supporters.

John Meagher Prize   U(DLF)(PVF)
conditions: A prize of $1250 is awarded annually on the recommendation of the Faculty of Kinesiology to the student who has completed three years (at least 75%) of an undergraduate degree program in the Faculty of Kinesiology and who intends to pursue a Bachelor of Education degree. The award will be made to the student who has demonstrated the highest academic achievement (Cumulative Grade Point Average). The student can receive this award only once. The prize is funded by Physical Education and Recreation/ Kinesiology Alumni and Supporters.

Anne Murray Prize
conditions: A prize of $1250 is awarded to the student who has completed three years (at least 75%) of the Bachelor of Science in Kinesiology Program. The award will be made to the student who has demonstrated the highest academic achievement (Cumulative Grade Point Average). The student can receive this award only once. **Donor**: Physical Education and Recreation/ Kinesiology Alumni and Supporters.

Barry Thompson Prize   U(DLF)(PVF
conditions: A prize of $750 is awarded annually to the student who has completed 2 years (between 50% and 74%) of the Bachelor of Recreation and Sport Studies Program. The award will be made to the student who has demonstrated the highest academic achievement (Cumulative Grade Point Average). The student can receive this award only once. The prize is funded by Physical Education and Recreation/ Kinesiology Alumni and Supporters.

Robert F. Watters Memorial Award   U/G(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of a committee from the Faculty of Kinesiology to a student with special needs, or a student pursuing a career working with individuals with special needs such as those who are physically or mentally challenged or the elderly. The prize is funded by friends of the late Robert F. Watters.

Agnes Grey Wilson Prize   U (DLF) (PVF)
conditions: A prize of $250 to be awarded annually on the recommendation of the Faculty of Kinesiology to an outstanding female student who has completed the normal requirements for the first two years of the Bachelor of Science in Kinesiology degree program at UNB. The prize has been funded by the Associated Alumnae.

MULTIPLE PROGRAMS

City of Fredericton Award   G (DLF) (PVF)
conditions: The City of Fredericton offers a sum of money, not less than $200, for competition in the Department of Civil Engineering and Chemistry and in the Faculty of Forestry and Environmental Management in rotation. The prize, which heretofore took the form of a gold medal, was offered for the first time in 1908.

Arun Datta Prize   U(DLF)(PVF)
conditions: A prize of approximately $250 to be awarded annually on the recommendation of the Department of Economics to an outstanding student on the Fredericton campus who achieves high standing in ECON 3401 International Economics: Trade. The prize has been funded by colleagues, family and friends of the late Dr. Arun Datta.

Christena Estey Memorial Award   U(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of Social Sciences, to an outstanding Saint John campus student enrolled in the Bachelor of Kinesiology, the Bachelor of Recreation & Sports Studies, or the Bachelor of Arts majoring in Sport and Exercise Psychology. The prize is being funded by family and friends of the late Christena Estey, former manager of the Bookstore and avid supporter of athletics on the Saint John campus.

Thomas Harrison Memorial Prize   U (DLF) (PVF)
conditions: An annual prize of $750, given to a student who has completed two years (at least 60 ch) of the program in which the student is registered, and in the opinion of the Mathematics Department, shows the greatest promise in Mathematics. This prize was established by the late Mrs. Ida G.W. Harrison.

H.H. (Mike) Mikaelian Memorial Prize   U(DLF)(PVF)
conditions: A $500 prize to be awarded to a Fredericton campus undergraduate research student in Psychology. The recipient must be in good academic standing, have intentions of pursuing a career in Psychology, be involved in research activities and actively demonstrate curiosity, commitment, and passion for the search of knowledge and understanding in the **field** of Psychology. The prize is funded by the family, friends and colleagues of the late Dr. H. H.(Mike) Mikaelian.

Philip W. Oland Prize in Chemistry
conditions: A $250 prize awarded annually on the recommendation of the course instructor to an outstanding Saint John campus student who achieves academic excellence in sophomore level Inorganic Chemistry. Funded by Moosehead Breweries Limited, the prize honours the late Philip W. Oland, D. Litt '78, a member of the first class graduating from UNB with a BSc in Arts in 1930.

Prize in Actuarial Science   U(DLF)(PVF)
conditions: A prize of $300 to be awarded annually on the recommendation of the Department of Mathematics and Statistics to a Fredericton campus student who has passed at least one examination given by the Society of Actuaries and is taking appropriate courses. Students should have demonstrated a continuing interest in actuarial science. The prize has been funded in part by a grant from the Society of Actuaries.

Dr. Stefan Rinco Memorial Prize in Statistics   U (DLF) (PVF)
conditions: A prize of approximately $1,000 dedicated to the memory of Stefan Rinco, Professor of Statistics at UNB, 1974-87. The prize is to be awarded annually on the recommendation of the Department of Mathematics and Statistics, to a Fredericton campus student who has excelled in statistics courses and is on the Dean's List. The student must have completed a minimum of 12 ch of upper-level statistics courses. In the event that no undergraduate student is eligible for this prize, graduate students may be considered. The prize is being funded by the family, friends and colleagues of the late Dr. Stefan Rinco.

Snodgrass Best Honours Conference U(DLF)(PVF)
Presentation Award
conditions: A committee struck by the Chair, in collaboration with the Coordinator of the Honours Programme in Psychology, will recommend one $200 award to be conferred on the student who delivers the most outstanding presentation at the Honours Conference in Psychology held once per year on the Fredericton campus at the end of the winter semester. To be eligible for the award, students must have completed a research project to meet the requirements of the Honours degree in Psychology. The award is based on the scholarly merit of the presentation and on the effectiveness, organisation, and visual impact of the presentation. The prize is funded by the Snodgrass Fund and commemorates the contributions of Dr. Florence Snodgrass (BA 1924).

William Somerville Prize   U (DLF) (PVF)
conditions: A prize of approximately $200 to be awarded annually on the recommendation of the Department of Mathematics and Statistics to an outstanding student enrolled in a degree or joint degree program in Mathematics. The student should have successfully completed a minimum of 90 ch toward meeting the degree requirement. The prize was funded by the late Ella Somerville Foster.

Louis Weisner Memorial Prize in Mathematics   G (DLF) (PVF)
conditions: A prize dedicated to the memory of Louis Weisner, Professor of Mathematics at the University from 1955-1988. It is to be awarded on the recommendation of the Department of Mathematics and Statistics to an outstanding student on the Fredericton campus graduating in Mathematics. The Prize has been established by the family, students, friends, and colleagues of the late Dr. Weisner.

NURSING

Augusta Barter Prize in Psychiatric Nursing
conditions: A $500 prize awarded annually on the recommendation of the UNB mental health nursing instructors to a nursing student on the Saint John campus who has completed the course on mental health nursing. The recipient must have achieved high academic grades in mental health nursing theory; demonstrate thorough critical thinking ability to integrate knowledge into the clinical setting and exhibit a passion and a natural aptitude for the **field** of mental health nursing. This prize is funded by Dr. Laurie Potter, Department of Psychiatry, Saint John Regional Hospital in honour of her grandmother who was a registered nurse.

M. D. B. Burt Prize for Biology in Nursing   U(DLF)(PVF)
conditions: A $500 prize to be awarded annually to the graduating student at the Moncton site who has the highest overall standing in Biology courses completed as part of his/her Bachelor of Nursing degree. This prize is funded by Andy S. Didyk.

T. G. Dilworth Prize for Biology in Nursing   U(DLF)(PVF)
conditions: At least one $500 prize to be awarded annually to the graduating student at the Bathurst site who has the highest overall standing in Biology courses completed as part of his/her Bachelor of Nursing degree. This prize is funded by Andy S. Didyk.

C. H. Gibson Prize for Biology in Nursing   G(DLF)(PVF)
conditions: A $500 prize to be awarded annually to the graduating student at the Fredericton site who has the highest overall standing in Biology courses completed as part of his/her Bachelor of Nursing degree. This prize is funded by Andy S. Didyk.

Dr. Satya Paul Handa Prize in Medical Nursing
conditions: A $500 prize to be awarded annually on the recommendation of the Department of Nursing to a Saint John campus student graduating from the Bachelor of Nursing degree program who has demonstrated excellence in the theory and practice of medical nursing in the care of patients and families experiencing kidney disease, hypertension, kidney transplantation or other chronic illnesses. The prize is funded by Dr. Satya Paul Handa, recipient of an Honorary Doctor of Science degree from UNB Saint John May 2003.

Margaret Burton Innes Award   U(DLF)(PVF)
conditions: An award of $250 to be awarded annually on the recommendation of the Faculty of Nursing to a full-time BN student at the Moncton site. The recipient is selected on the basis of academic ability and demonstrated excellence in nursing. The award has been funded by the family of the late Margaret Burton Innes, a graduate of the former Moncton Hospital School of Nursing.

Elsie Dianne Younker Longley Memorial Prize   P(DLF)(PVF)
conditions: A $200 prize awarded annually on the recommendation of the Faculty of Nursing to a Fredericton campus student who best demonstrates leadership in the area of maternal child nursing. The prize is funded by the family and friends of Elsie Dianne Younker Longley, BN 1986.

Dr. Katherine MacLaggan Memorial Prize   U(DLF)(PVF)
conditions: A $1900 prize awarded annually on the recommendation of the Faculty of Nursing to the student obtaining a high academic average in the Junior year (having successfully completed 131-136 ch) with demonstrated excellence in nursing practice and who is enrolling in the Senior year for full-time study. The prize is funded by friends of the late Dr. Katherine MacLaggan.

Margaret McPhedran Prizes   U (DLF) (PVF)
conditions: (I) An annual prize of $200 awarded to a student enrolled in full-time study in the basic degree program in the Faculty of Nursing who has obtained the highest standing in the Theory and Practice of Nursing in the Junior Year.(II) An annual prize of $200 awarded to a student enrolled in the degree program for Registered Nurses in the Faculty of Nursing who has obtained the highest standing in the Theory and Practice of Nursing in the Junior Year.

New Brunswick Nurses' Union Prize   G (DLF) (PVF)
conditions: A prize of $100 to be awarded annually on the recommendation of graduating Nursing students, to a graduating Nursing student exemplifying high academic standards, leadership skills, involvement in extracurricular activities, and commitment to enhancing the interests and status of classmates. The prize has been provided by NBNU and will be presented at the Pin Dinner for Nursing graduates.

Theresa P. Totton Memorial Prize   U (DLF) (PVF)
conditions: A prize of $1,250 to be awarded annually on the recommendation of the Faculty of Nursing for clinical and academic competency in Nursing at the completion of the second year of the basic program (92-98 ch). Funded by the Nursing Class of 1982 and friends of Theresa.

Fanny Velensky Memorial Prize in Nursing   G (DLF) (PVF)
conditions: Mr. Nathan Velensky has established an endowment fund of $1,000 in memory of his wife, Fanny Velensky. The income of this fund is to be awarded to a student who has successfully completed the four year basic program and who has demonstrated the most expertise in nursing practice in the penultimate and final years.

SCIENCE

C. W. Argue Prize   U(DLF)(PVF)
field: Science. **value**: Up to $2,000. **number**: 1 or more. **duration**: 1 year. **conditions**: A Science student having high academic standing and entering either the third or the fourth year. ("Year" refers to the particular year of the program as specified in the calendar description of the various BSc degree options.) When two scholarships are given, they will be awarded as follows: (a) the first one to a Science student, other than one majoring in Biology, (b) the second one to a Biology Major student. The selection of the recipient(s) will be made by the Dean of Science and the heads of the Science Departments.

Loring Woart Bailey Prize in Science   U (DLF) (PVF)
conditions: This prize of $500 was established by the late Joseph Whitman Bailey of the class of 1884 in memory of his father, Loring Woart Bailey, LLD, Professor of Science in the University for nearly fifty years (1861-1907). The prize is to be given alternately in the Departments of Biology and Earth Sciences. The award is made on the recommendation of the Department concerned.

Walter Baker Memorial Prize in Physics   G (DLF) (PVF)
conditions: This prize has been established by the faculty members of the Department of Physics in memory of Professor Walter Baker, formerly a professor of Physics at the University from 1955-1970. It is awarded on the recommendation of the Department of Physics to a deserving student graduating in Physics. The number of the awards and their **value** will be at the discretion of the department but there will normally be one prize annually to the **value** of $100.

Dorothy Bennett Elson Prize   U (DLF) (PVF)
conditions: An annual prize of $250 has been established by the Associated Alumnae and is awarded to the female student on the Fredericton campus who achieves the highest standing in first year Physics.

John Storrs Brookfield Prize   U (DLF) (PVF)
conditions: A prize of $1,400 has been established by the late Dr. J.S. Brookfield to be given to a student entering the third year deemed by the professors of Science to be the most promising student in Natural Science. ("Year" refers to the particular year of the program as specified in the calendar descriptions of the various BSc degree options.)

Kingsbury Browne Sr. Memorial Prize U (DLF) (PVF)
conditions: An annual award **valued** at approximately $800 has been established in memory of Kingsbury Browne Sr., a founding director of the Miramichi Salmon Association, Inc., by the Browne family, friends, and members of the Association. It is awarded to a student, majoring in Biology, entering the final year, who has excelled in the general area of vertebrate zoology. Preference is given to a resident of New Brunswick.

Canadian Society for Chemistry Silver Medal   U (DLF) (PVF)
conditions: A certificate of merit and an engraved medal are donated annually by the Canadian Society for Chemistry, to be awarded to the student with the highest standing in Chemistry and related subjects in the penultimate year.

Dr. Philip Cox Memorial Prize   U (DLF) (PVF)
conditions: A $200 prize awarded annually to a student entering the third year and majoring in Biology who, in the opinion of the staff of the Department of Biology, shows the greatest promise. ("Year" refers to the particular year of the program as specified in the calendar descriptions of the various BSc degree options.)

Dr. A. Wilmer Duff Memorial Prize   U/G (DLF) (PVF)
conditions: Dr. Ella Duff Good has given a prize of $100 in memory of her father, Dr. A. Wilmer Duff, who was a graduate of the University and later taught with distinction at the institution. It is to be awarded to a deserving student in the final year of Physics, but may be given in any other science if there is not a qualified student in Physics.

Norman S. Fraser Prize in Science   G (DLF) (PVF)
conditions: A prize of $340 to be awarded annually on the recommendation of the Faculty of Science to the student with the highest standing in the Junior and Senior years of the Bachelor of Science program. The prize has been funded by the late Norman S. Fraser.

Dr. Donald "Digger" Gorman Prize in   U(DLF)(PVF)
Earth Sciences
conditions: A $500 prize to be awarded annually on the recommendation of the Department of Earth Sciences to an outstanding Fredericton campus student entering the second year of the Bachelor of Science degree program who achieves high standing in Earth Sciences. The prize has been funded by Donald "Digger" Gorman.

Herbert S. Lipsett Memorial Award in Biology   U (DLF) (PVF)
conditions: This award has been given by Mr. And Mrs. Nathan Liphshetz in memory of the late Herbert S. Lipsett, a graduate of UNB. This award is made annually to a student in Biology, who has demonstrated academic excellence. The amount of the award is approximately $250.

Derek L. Livesey Memorial Prize in Physics   U(DLF)(PVF)
conditions: A prize of a minimum of $2,000 to be awarded annually on the recommendation of the Department of Physics to an outstanding Science student on the Fredericton campus who achieves high standing in first year physics. The prize has been funded by the family of the late Derek L. Livesey, a former UNB Physics Professor and Department Chair, who extensively developed first year instruction during his time in the department.

Shuyuan Meng Prize   G(DLF)(PVF)
conditions: A $1000 prize awarded annually on the recommendation of the Faculty of Science to a Fredericton campus student who is graduating from the Bachelor of Science degree program and has been accepted to Medical School. Selection is based on scholastic attainment and financial need. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. Proof of acceptance to Medical School must be received by the Faculty of Science before April 25. The prize is funded by friends and family of the late Shuyuan Meng and the New Brunswick University Opportunities Fund.

Science Atlantic-CIC Chemistry Conference (ChemCon) Award
conditions: A $100 award is provided on the recommendation of the Chair of the Chemistry Department to each undergraduate student presenting at the Science Atlantic - CIC Chemistry Conference (ChemCon). The prize is funded by Dr. James. P.K. Tong.

Noel Stone Memorial Prize   U (DLF) (PVF)
conditions: An annual prize of $485, donated by the late Dr. H.S. Stone, to be given to a student of the fourth year who, during the third year, has shown the most promise in the study of Biology and Chemistry. ("Year" refers to the particular year of the program as specified in the calendar description of the various BSc degree options.)

Lowell Trembath Memorial Award   U (DLF) (PVF)
conditions: The Lowell Trembath award, comprised of a book and a monetary component for the purchase of textbooks, is presented, on recommendation of the Department of Earth Sciences, to the student exhibiting the highest scientific and professional potential in mineralogy and the theory of solid state materials through achievement in courses previously taught by Professor Trembath. It has been made possible through the support of Lowell's students and friends who remember his humour and devotion to teaching, as well as his enduring interest in personal and professional development. The award is intended to encourage the continuation of his standards of learning and fundamental scientific endeavour.

SCIENCE, APPLIED SCIENCE, & ENGINEERING

Dorrie Award for Nursing   G(DLF)(PVF)
conditions: A prize of $1,000 to be awarded annually, on the recommendation of the Department of Nursing, to an outstanding graduating student who achieves the highest cumulative grade point average in the BN/RN Nursing Program on the Saint John campus. The prize has been funded by MindCare New Brunswick.

APEGNB Saint John Branch Wallace Rupert Turnbull U   Memorial Prize
conditions: A prize of $1,000 to be awarded annually to a deserving student who is enrolled in the second year of studies in the Engineering program at UNB Saint John, who is from the A.P.E.G.N.B. Saint John district (Sussex to St. Stephen), who has achieved high academic standing and who has not received a major prize. An award presentation may be made at an A.P.E.G.N.B. event in addition to the UNBSJ ceremony. The prize is funded by the Saint John Branch of the Association of Professional Engineers & Geoscientists of New Brunswick, and named to honour the late Wallace Rupert Turnbull, the Rothesay inventor of the variable pitch propellor and member of the Canadian Science and Engineering Hall of Fame.

Cherry Brook Zoo Prize in Zoology   U
conditions: An annual prize of $200 awarded to the student entering the final year of the BSc Biology major program at UNBSJ who has achieved the highest grade point average in at least 14 credit hours of the upper-level Zoology courses completed at UNBSJ. The prize is funded by the Cherry Brook Zoo, Saint John, and will be awarded on the recommendation of faculty teaching Zoology courses.

Christopher Cusack Computer Science & Data Analysis Prize   G
conditions: A prize of $300 to be awarded annually on the recommendation of the Department of Computer Science and Applied Statistics to a Saint John campus student graduating with a Bachelor of Information Sciences or a Bachelor of Science in Computer Science degree who has demonstrated academic excellence in upper-level courses in data analysis, statistics, mathematics and computer science. The prize is funded by friends of the late Christopher Cusack BSc(DA)'81.

Jean Crawford Flemming Memorial Prize   U
conditions: A prize of $750 to be awarded in the Fall term on the recommendation of the Dean of SASE to a Saint John campus student who has completed the minimum requirements for the first year of the BCS, BScCS or BISc. Student who have completed the minimum requirements for the first year of Arts or Science and have indicated their intention to Major in Mathematics or Statistics will also be considered. Selection will be based on academic achievement. The prize is funded by J. Archie Flemming, a former Professor of Mathematics and Statistics at UNB Saint John.

Pauline Graham Prize   U
conditions: A $400 prize to be awarded in the Fall term for a student in the BISc or BScCS program who upon completion of at least 30 ch has an outstanding average in the required first level Mathematics, Computer Science and Statistics courses. The award is made on the recommendation of the Dean of SASE. The prize has been funded by friends of Pauline Graham, former Professor of Mathematics and Statistics at UNB, Saint John.

Miles A. Keirstead Prize in Physics   U
conditions: A prize of $250 to be awarded annually on the recommendation of the Physics faculty members on the Saint John campus to an outstanding student who achieves high standing in a full-year Freshman level Physics course on the Saint John campus. The prize has been funded through the University Faculty Fund.

Leslie Kelly Memorial Prize   U
conditions: A prize to be awarded annually, on the recommendation of the appropriate faculty member in Chemistry, to the student who achieves the highest standing in second year Organic Chemistry at UNB Saint John. The prize has been funded by Dr. Ronald B. Kelly, Professor Emeritus of Chemistry, in memory of his late wife.

Prize in Memory of Ellen J. and M. Josephine Lynch   G
conditions: A prize of $300 to be awarded annually on the recommendation of the Biology faculty members to the graduating student with the highest standing in a Biology program at UNBSJ. Preference will be given to a student in the Marine Biology option. The prize has been funded by Miss Mary Louise Lynch, a long-time member of the Board of Governors of the University, in honour of her aunts.

Microbiology Prize UNBSJ   U
conditions: A prize of $200 to be awarded to a Saint John campus student who achieves high standing in BIOL 2485 Introduction to Microbiology. The prize is funded by the Saint John Laboratory Services.

Organic Chemistry Prize UNBSJ   U
conditions: A prize of $200 to be awarded to a Saint John campus student who achieves high standing in CHEM 2401/2422 (Organic Chemistry I & II). The prize is funded by Saint John Laboratory Services Ltd.

Saint John Computer Science Prize   U
conditions: A prize of $200 to be awarded annually on the recommendation of the Department of Computer Science and Applied Statistics to a Saint John campus student enrolled in the Bachelor of Information Sciences or Bachelor of Science in Computer Science degree who has completed at least 60 credit hours of required courses and has demonstrated superior academic achievement in computer-related and statistics courses. The prize is funded by the members and staff of the Department of CSAS.

Dr. John F. H. Teed, Q.C., Memorial Prize in Science   U
conditions: A prize of not less than $250 to be awarded annually to a student on the Saint John campus who achieves the highest standing in one of the following courses, in this order of preference: GEOL 2212 (Sedimentology I), GEOL 2201 (Biogeology I), GEOL 2045 (Introductory Geology for Biologists), or BIOL 2585 (Introductory Ecology). The prize is funded by the family of the late Dr. Teed from moneys obtained for the use of Mary's Point Island, N.B., sandstone quarry for historical reconstruction of buildings in Nova Scotia.

John ("Jack") Terhune Prize in Marine Biology   G
conditions: A $400 prize to be awarded annually on the recommendation of the Biology Department on the Saint John campus to the student graduating at Spring Convocation with the highest CGPA in the Bachelor of Science (Marine Biology) degree program on the Saint John campus. This prize is funded by the Biology Department in recognition of Dr. Jack Terhune's distinguished service to the Biology Department and UNBSJ, and his outstanding career as a Marine Biologist.

Dr. Carl K. Tompkins Prize   U(DLF) (PVF)
conditions: An annual prize to be awarded on the Saint John campus to the student with the highest mark in 1st year Science Chemistry lecture (term 2 CHEM 1072). The prize has been funded by colleagues & friends upon the retirement in 1999 of Dr. C.K. Tompkins, who taught Chemistry at UNB for over 30 years.

UNB Saint John Engineering Prize   U
conditions: A prize of $1,500 to be awarded annually on the recommendation of UNBSJ Engineering faculty members to an academically outstanding student who has completed the normal four terms of Civil, Chemical, Electrical, Computer or Mechanical Engineering (approximately 90-95 ch) at UNBSJ and who will continue the degree at UNB. The prize has been funded by the Department of Engineering alumni and friends.

UNB Saint John Science Prize   U
conditions: A prize of $250 to be awarded annually to the Saint John campus student with the highest assessment year grade point average at the completion of the normal requirements for the first year of a B.Sc. Program in the Faculty of Science, Applied Science and Engineering. The student must continue in Science on the Saint John campus. The prize has been funded by the Science faculty members.

UNBSJ Nursing Prize   U
conditions: A prize of $250 to be awarded annually to an outstanding BN or BN/RN student on the recommendation of the Faculty of Nursing, UNB Saint John.

Walter C. & Marion (Waring) White Biology Prize   U
conditions: A prize of the annual earnings of the endowment to be awarded annually on the recommendation of the Biology Department of the Faculty of Science, Applied Science and Engineering at UNBSJ to a UNBSJ student who has shown promise in first year Biology in theoretical and laboratory studies. The prize is established in memory of Walter C. and Marion J. (Waring) White by their daughter, Nancy W. MacLeod.

UNRESTRICTED

Alumni Prize   U (DLR) (PVF)
conditions: Up to four prizes of $250 each awarded to the students on both campuses who make the highest grade point average on the examinations in the required subjects of the Freshman year. The prize is funded by the UNB Associated Alumni.

Applied Statistics Centre Prize I   U(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Applied Statistic Centre to Fredericton campus students for outstanding achievement in STAT 3083. The prize is funded by the UNB Applied Statistics Centre.

Applied Statistics Centre Prize II   U(DLF)(PVF)
conditions: A prize of $200 to be awarded annually on the recommendation of the Applied Statistic Centre to Fredericton campus students for outstanding achievement in STAT 3093. The prize is funded by the UNB Applied Statistics Centre.

Athletic Achievement Awards
conditions: A fund has been established by R.H.B. McLaughlin (CE'43), student athlete and long-time professor of Civil Engineering at UNB. The objective of the fund is to provide a means whereby the Alumni and the University can recognize achievement by individual athletes or athletic teams representing the University in National or International competition in the category of major sports. The awards consist of suitable memorabilia or functions to honor or recognize those who have achieved special recognition. An on-going committee has been established by the **donor** with the funds being administered by the Alumni director who is the permanent member of the Awards committee.

Adam and Dora Cameron Prize   U (DLR) (PVF)
conditions: An annual prize of $750 to be awarded to a student who, upon completion of the Freshman year, has made the highest standing in the work of the Freshman year.

CIS Academic All-Canadian   U(DLF) (PVF)
conditions: Certificates and a monetary prize will be awarded annually on the recommendation of the Director of Athletics to the student-athletes who have achieved at least a 3.5 assessment grade point average and have contributed significantly to a varsity sport on the Fredericton campus. This prize is supported by the Canadian Interuniversity Sport and funded by the Friends of the Varsity Reds.

City of Saint John Award   G
conditions: A prize of $500 and a plaque to be awarded annually at Spring Convocation on the Saint John Campus to the academically outstanding graduating student who completes his/her degree while registered in a Saint John Campus program. The prize has been funded by the Saint John Faculty.

Class of 1909 Prize   G (DLR) (PVF)
conditions: Through the generosity of graduates of the class of 1909, a prize of $2,800 will be given annually to a member of the graduating class who has shown distinction in the final year, but who has not qualified for an award otherwise.

Michael R. Cochrane Memorial Medal   U
conditions: A medal donated by UNB, Fredericton campus SRC to be awarded annually to a student enrolled in the final year on the Fredericton campus and maintaining a satisfactory academic standing. The medal is awarded on the basis of contributions to improving human and community relations.

Dr. Ann Gorman Condon Academic Athletics Achievement Award
conditions: Two $500 prizes will be awarded annually on the recommendation of the Director of Athletics to students who have demonstrated academic excellence and have contributed significantly to a sport on the Saint John campus. Consideration will be given to the student's involvement in extra-curricular activities such as Howl with the Wolves and Adopt a School. One prize will be given to a male student and one prize will be given to a female student. The prize is funded by the friends and family of Dr. Ann Gorman Condon.

Department of Mathematics Prizes in Enriched U(DLF)(PVF)
Calculus
conditions: Two prizes of $450 each to be awarded annually to students enrolled in enriched calculus on the Fredericton campus. The prizes will be awarded to the top students who, in the opinion of the Department of Mathematics and Statistics, show the greatest promise in Mathematics. The prize has been established by Dr. Kuldip Singh.

Douglas Gold Medal   G
conditions: A gold medal is offered for competition every year among undergraduates. This medal was founded by the late Sir Howard Douglas, Lieutenant-Governor of the Province of New Brunswick and first Chancellor of King's College. It is awarded for the best composition in prose or verse in the Greek, Latin or English languages, on any subject within the regular course of study pursued in the university. Undergraduate theses or reports may be considered along with essays or verse compositions produced as part of regular class work. They may be revised by the student on the basis of instructors' comments. Compositions are submitted by instructors, with the consent of the student, through the department to a committee appointed by the Dean of Graduate Studies and Research. The medal is awarded at Encaenia.

Sir Howard Douglas Award
conditions: Open to full and part-time undergraduate students who have completed the equivalent of at least year two of an undergraduate degree program, have achieved Dean's List in the previous year, and are nominated by their Faculty. Selection will be based on two factors: scholastic attainment and involvement in extra-curricular and/or co-curricular activities. Scholastic attainment will be measured by the student's GPA. The nature of the students' extra-curricular and/or co-curricular activities will be assessed on the basis of the significance of the student's contribution, any innovation related to the activity, amount and time of involvement, its independence from actual course or program work, its independence from remuneration, and its linkage to the student's overall growth as a human being.

Dr. James Downey Student Leadership Award   U
conditions: Awarded on the basis of "outstanding contribution to student life" to a student who is a member of the UNB Student union (ie. Paid the student activity fee). The recipient must be in good academic standing. The award is made on the basis of nominations. Advertisements for the award and a call for nominations or applications will be made annually by the Office of the Director of Student Affairs and Services. Ideally, the award is to be presented at the Annual Student Union Banquet. Should there be no banquet, the Director of Student Affairs and Services may select another appropriate forum. Awarding Agency: A Committee formed by the Director of Student Affairs and Services to include representation from the Undergraduate Awards Office.

Craig S. Fleisher Award for Scholarship & Voluntarism G
conditions: A prize of $250 awarded annually upon graduation to a UNBSJ student who has served as an executive member of the Golden Key International Honour Society and who has demonstrated outstanding performance in both scholarship and in giving of themselves in voluntary service to the broader community. The selection of the recipient will be made by the Faculty Advisor of the Golden Key International Honour Society. The prize is funded by Dr. Craig S. Fleisher, on behalf of the Canadian Council for Public Affairs Advancement.

Dr. Berton C. Foster Memorial Prize U (DLR) (PVF)
conditions: An annual prize of $800 to be given to a student from a Fredericton high school-other than a Beaverbrook Scholar-who has made the highest standing in the work of the Freshman year. The scholarship has been established by Mrs. Agnes S. Foster.

Governor General's Silver Medal   G
conditions: A silver medal to be awarded annually to the undergraduate student who achieves the highest academic standing in an undergraduate Bachelor's degree program. The medal is awarded at Encaenia.

Barry Hoyt Student Leadership Award   U
conditions: An award of $1,000 and a plaque or certificate is awarded annually on the recommendation of the Office of Student Services to a Saint John campus student who has made an outstanding contribution to student life and school spirit. The recipient has completed a minimum of one year (a minimum of 24 ch) of his or her degree on the Saint John campus and returns to UNB Saint John to study full-time; must be in good academic standing (min. 2.5 cumulative gpa); and has demonstrated outstanding leadership in student activities and/or university activities. These activities could include but not be limited to: orientation, peer mentoring and student government. This award is funded by friends and family of Barry Hoyt, the UNB Saint John Student Union and the Class of 2002.

Dr. C. C. Jones Prize   U(DLF)(PVF)
conditions: Two $125 prizes, one on each campus, are awarded on the recommendations of the Mathematics Departments at UNB to a student who has completed the normal requirements for the first year of the program in which he/she is registered. Awarded on the basis of the record of the student in first year at the University as follows: (1) First division standing in either Mathematics 1003/1013 or 1053/1063. (2) General standing in all other subjects of the first year. (3) The worthiness of the student. Holders of a major scholarship are ineligible. The prize is funded by the UNB Associated Alumni.

Thomas Allen Levy Memorial Prize   U(DLF)(PVF)
conditions: A prize of $125 is awarded annually on the recommendation of the Department of Political Science to the Fredericton campus student who has completed the normal requirements for the second or third year and has written the best paper for a Canadian Politics course. The prize is funded by the Department of Political Science.

Lieutenant Governor of New Brunswick Silver Medal   G
conditions: Fourteen medals are to be awarded annually to the outstanding graduating student in each Faculty. The selection is to be made in each case by the appropriate Faculty. The medals are awarded at Encaenia on the Fredericton campus and the Spring Convocation on the Saint John campus, with the exception of the Faculty of Education medal which is awarded at Fall Convocation on the Fredericton campus. Awarded to the full-time or part-time student judged to be the most outstanding student based primarily on the last half of his/her program as decided by the Faculty in consultation with the Registrar. Students enrolled in a concurrent program are eligible to be considered for the medal in each of the degree programs so represented.

Linguistics Book Prize   U
conditions: A book prize will be awarded on the recommendation of the Coordinator of the Linguistics Program, UNB Saint John, to a Saint John campus student who demonstrates outstanding performance in linguistics courses. This award is open to all students enrolled in a linguistics program (Minor, Double Major, Joint Honours). The prize has been funded by Dr. Virginia Hill.

Linguistics Prize   U
conditions: A prize of $200 to be awarded on the recommendation of the Coordinator of the Linguistics Program, UNB Saint John, to a Saint John campus student who demonstrates a deep understanding of linguistic concepts in upper level linguistics courses. The recipient must be a continuing student enrolled in a linguistics program (Minor, Double Major or Joint Honours). The prize has been funded by Drs. Virginia and Rod Hill.

Mary Louise Lynch Prize in Memory of Annie McGuiggan   U
conditions: A prize of $300 to be awarded annually on the recommendation of the Registrar to a graduate of St. Vincent's High School or St. Malachy's High School, with preference given to the St. Vincent's graduate, who has the highest standing after completing the first and second years of full-time study at the Saint John Campus of the University of New Brunswick. The prize has been funded by Miss Mary Louise Lynch, a long-time member of the Board of Governors of the University, in honour of her former teacher at St. Vincent's, who was an inspiring teacher over her many years of distinguished service.

Miramichi Historians' Prize in New Brunswick History   U(DLF)(PVF)
conditions: A $1,000 prize awarded annually on the recommendation of the Department of History to a Fredericton campus undergraduate student who submitted an outstanding essay or report on New Brunswick history or biography to satisfy a regular course requirement. Preference will be given to studies done on Miramichi or Northumberland County topics. In the event that no qualifying essay or report on such topics is submitted in a given year, the award will be granted for superior achievement in similar work for a course on New Brunswick, Atlantic, or Canadian history. This prize is funded by Professor Emeritus Willis D. Hamilton, author of the Dictionary of Miramichi Biography and other works, in honour of Robert Cooney, Louise Manny, W.Harold Davidson, James A. Fraser and others whose writings have helped preserve Miramichi and provincial history.

Nancy Nason-Clark Essay Priz   U(DLF)(PVF)
conditions: A prize of $200 to be awarded annually at Fall Convocation on the recommendation of the Muriel McQueen Fergusson Centre for Family Violence Research to a continuing or graduating student who has written an outstanding undergraduate essay on family violence issues at UNB in the previous academic year in any discipline. The prize is jointly funded by the Muriel McQueen Fergusson Centre for Family Violence Research and the Muriel McQueen Fergusson Foundation.

Dean D. Kermode Parr Prize in English UNBF   G (DLF) (PVF)
conditions: A prize of at least $1,000 to be awarded annually, on the recommendation of the English Department to an outstanding Fredericton campus student who achieves high standing in fourth year English. This prize recognizes the contributions of D. Kermode Parr, a published author and former dean of the University of New Brunswick's Alexander College, the home to many WWII veterans pursuing a UNB education. This prize is funded by Dr. Frank E. Webb (BSF 1949).

Dean D. Kermode Parr Prize in English UNBSJ   G (DLF) (PVF)
conditions: A prize of at least $1,000 to be awarded annually, on the recommendation of the Division Department of Humanities and Languages to an outstanding Saint John campus student who achieves high standing in fourth year English. This prize recognizes the contributions of D. Kermode Parr, a published author and former dean of the University of New Brunswick's Alexander College, the home to many WWII veterans pursuing a UNB education. This prize is funded by Dr. Frank E. Webb (BSF 1949).

Political Science Book Prize   G
conditions: A book prize to be awarded annually on the recommendation of the Department of History and Politics (Politics Discipline) to a graduating student on the Saint John campus who has shown a high level of achievement and interest in the area of Political Science. The prize is funded by the Politics Discipline of the Department of History and Politics.

**Jamie Reid Prize for History of the Military in U(DLF)(PVF)
                    New Brunswick**
conditions: A $200 prize to be awarded annually, on the recommendation of the Department of History, to an undergraduate or graduate student for the best essay on the history of the military in New Brunswick written by a student on the Fredericton campus. The prize has been established by Major Jamie Reid of the Princess Patricia's Canadian Light Infantry.

Saint John Campus Silver Anniversary Prize   U(DLF) (PVF)
conditions: The $700 Saint John Campus Silver Anniversary Prize is to be awarded on the recommendation of the Faculty to an exceptional student who has completed 90 credit hours of courses at the Saint John Campus. The prize is to be awarded to one student each year on a rotating Faculty basis. Each Faculty will elect its own selection committee with the Registrar as an ex-officio member. The funding for this prize was provided by members of the Saint John Faculty in commemoration of the 25th Anniversary of the campus in 1989.

Student Union Activity Award   G
conditions: Awarded to Fredericton campus students who have made an outstanding contribution to student life during their time at UNB. Gold, Silver and Merit level awards are given to students on the recommendation of the Vice-President Student Services according to their level of participation.

UNB Geomatics Day Award U(DLF)(PVF)
conditions: A $200 prize to be awarded biennially on the recommendation of the Data and Maps Department of the Harriet Irving Library to an undergraduate or graduate student at UNB who submits the most outstanding map of New Brunswick. The subject and type of the map are not restricted in any way. The prize is funded by Elizabeth Hamilton.

UNBSJ Student Leadership Award   U
conditions: Awards to be given annually at spring convocation to students on the Saint John campus who have demonstrated outstanding campus leadership in student activities and/or university activities. Notation to appear on student transcript. Nominations received and selections made by a committee of students and administration, headed by Student Services.

Bradley Michael Whipple (BMW) Memorial Award
An award of at least $500 is provided annually on the recommendation of the instructors at the Saint John College to a full-time Saint John College student who has demonstrated commitment and enthusiasm for language learning in the classroom and has exemplary attendance. The recipient must have completed at least one term at SJ College and achieved a final grade of 80% or higher. The prize is funded by family, friends and colleagues of the late Brad Whipple, and Saint John College.

Scholarships Administered by Outside Agencies
Students are encouraged to contact the sponsoring agency directly for application forms.

OPEN

Paul Wm. Alexander Scholarship
field: Unrestricted. value: $1,650 over life of award; $400 a year for 3 years, and $450 for year 4. duration: 4 years. conditions: Recipient must intend to enter a YMCA career. Selections are made primarily on the basis of academic achievement and financial need. apply: Area Director, Paul W. Alexander Scholarship Fund, International Association of Y's Men's Clubs, Box 56, Kensington, P.E.I. donor: International Association of Y's Men's Clubs.

ALICA Scholarship (Atlantic Land Improvement Contractors Scholarship)
field: Forestry value: $1,000 number: 1 duration: 1 year conditions: Awarded to a Fredericton campus student from the Atlantic Provinces who has completed the normal requirements for the first year of the Bachelor of Science in Forestry or Bachelor of Science in Forest Engineering degree programs. Selection is made on the basis of scholastic achievement. Preference will be given to students undertaking senior projects dealing with environmental issues related to forest lands, or equipment development for the forest industry. apply: Faculty of Forestry and Environmental Management. donor: Atlantic Land Improvement Contractors Association.

Association of Universities and Colleges of Canada
conditions: The AUCC administers more than 150 scholarship programs on behalf of the federal government, domestic and foreign agencies and private sector companies. For a complete listing of the AUCC scholarships, visit their website at http://www.aucc.ca or contact the AUCC at 350 Albert Street, Suite 600, Ottawa, ON K1R 1B1, tel: (613)563-1236.

Bank of Montreal Centre for Entrepreneurial Leadership Scholarship
field: Administration - Entrepreneurial Studies value: $2000 number: 5 duration: 4 years conditions: Awarded to BBA students who are graduates of New Brunswick high schools. The successful applicants must complete a business plan to be judged by a committee of three business participants and three educators. This scholarship will be applied toward tuition costs for any student entering UNB. apply: Department of Education, Attention: Jacques Theriault, P.O. Box 6000, Fredericton, NB E3B 5H1. Awarding Agency: Centre for Entrepreneurial Leadership. donor: Bank of Montreal.

Jeanette Robinson Belyea Scholarship
field: Unrestricted value: Up to $1300. number: 1. duration: 1 year. conditions: Awarded every year to a student of the public schools of the Town of St. Stephen or the County of Charlotte, preference being given always to a student of the public schools of the Town of St. Stephen. Consideration will be given to scholastic attainment, character, ability, and financial need. apply: Student Services Supervisor, School District 10, 11 School St., St. Stephen, NB E3L 2N4. Awarding Agency: School District 10. donor: The late Jeanette Robinson Belyea. deadline: May 01.

V.C. Blackett Scholarship
field: Engineering. **value**: $300 number: 1 **duration**: 1 year. **conditions**: Regularly enrolled Engineering student in the year prior to graduation at a Maritime Province University. Must be a resident of Westmorland, Albert, or Kent County, or the Parish of Havelock. Financial need shall be a prime consideration as well as scholastic promise. apply: The Secretary, Moncton Branch, P.O. Box 2424, Station "A",Moncton, N.B. Awarding Agency: Moncton Branch, Engineering Institute of Canada and Association of Professional Engineers of New Brunswick.

C.I.M. New Brunswick Branch, Earth Science Scholarship
field: Geology, Mining or Metallurgy. **value**: $1,500. **number**: 1 **duration**: 1 year. **conditions**: Students who have completed at least one year of studies in a program leading to a degree in the earth sciences. The award is made on the basis of interest in a career in the earth sciences, scholastic ability, need and outside interests. The scholarship is tenable at the Canadian University of the recipient's choice. Applicants should have been born or resided in New Brunswick for a total of seven years or have immediate family resident in the Province of New Brunswick. apply: Ronald Shaw, c/o NB Department of Natural Resources & Energy, Mines Branch, P. O. Box 6000,Fredericton, NB, E3B 5H1 prior to April 15. Awarding Agency: C.I.M. New Brunswick Branch.

Cal Callahan Memorial Bursary
field: Unrestricted. **value**: Up to $5,000. **number**: Multiple. **duration**: 1 year. **conditions**: To be eligible a student must be the child or legal ward of a person whose principle income is derived from the pipeline industry and whose employers are members of the Association. The student must be beginning undergraduate studies in a full program leading to a degree or certificate in any **field**. Selection is made on the basis of scholastic record and financial need. Deadline for receipt of applications is 30 September. Applications must be accompanied by proof of enrolment. apply: Pipe Line Contractors Association of Canada, Suite 720, 5915 Airport Rd., Mississauga, Ontario, L4V 1T1. Awarding Agency: Executive Committee of Pipe Line Contractors Association of Canada.

J.A.D. Campbell Memorial Scholarship
conditions: Applications are invited for the J.A.D. Campbell Memorial Scholarship which was established under the terms of the Last Will and Testament of the late J.A.D. Campbell in March 1983. Eligible Applicants: Charlotte County students pursuing literary endeavors at any recognized College or University. Available for either undergraduate or graduate studies. Scholarship Committee: Consists of the Mayors of the Towns of St. George, St. Andrews and St. Stephen who will advise Royal Trust with respect to the name and address of the successful applicant. Amount of Award: Approximately $1,000 non-renewable. Application Procedure: A letter of application containing, (1) the applicants full name, address and SIN number; (2) details of the applicant's program of study; (3) applicant's statement of need or relevant information and (4) three references may be contacted, should be sent to: Town of St. Stephen, 34 Milltown Blvd., St. Stephen, N.B. E3L 1G3, Attention: Janet McAuley, Executive Secretary. deadline: June 22

Canadian Armed Forces Sponsorship Plans (General)
conditions: The Department of National Defence sponsors programs of university education and leadership training for selected young men and women who have the potential to become officers in the Canadian Armed Forces. The programs sponsored are the Regular Officer Training Plan (ROTP), Medical Officer Training Plan (MOTP) and Dental Training Plan (DOTP). Training is divided into normal attendance during the academic year and military training each summer. A period of obligatory military service is a **condition** of acceptance to any of these plans. For further details, contact: Canadian Armed Forces Recruiting Office, 189 Prince William Street, Saint John, N.B., E2L 2B9, (506) 636-4973 or 1-800-222-9506 (in NB).

Canadian Federation of University Women - Saint John Scholarship I
field: Unrestricted **value**: $1000. **number**: 1 **duration**: 1 year. **conditions**: Female student entering her final year of university. The student must have graduated from a high school in N.B. School Districts 6,8 or 1. Awarded on the basis of academic standing and financial need. apply: Chair of the Scholarship Committee, CFUW Saint John, PO Box 6233, Station A, Saint John NB, E2L 4R7 Awarding Agency: Canadian Federation of University Women - Saint John

Canadian Federation of University Women - Saint John Scholarship II
field: Unrestricted. **value**: $500. **number**: 1 **duration**: 1 year. **conditions**: Awarded to a mature female student of Saint John entering a university in New Brunswick either for a degree program or part thereof, for extension courses or post-graduate work. The award will be presented only to applicants who are in need of financial assistance. No application forms are needed, but an informative letter stating previous and intended education and the applicant's financial situation is required by April 30. apply: Chair of the Scholarship Committee, CFUW Saint John, PO Box 6233, Station A, Saint John NB, E2L 4R7 Awarding Agency: Canadian Federation of University Women - Saint John

Canadian Legion Bursary Fredericton Branch
field: Unrestricted. **value**: $1,000 **number**: up to 20 **duration**: 1 year. **conditions**: Awarded to children or grandchildren of ex-service personnel residing in the Fredericton Area or descendants of veterans who held membership in Branch No. 4, Fredericton Branch, Royal Canadian Legion. Awards made based on need. apply: The Secretary, Fredericton Branch, Royal Canadian Legion, P.O. Box 132, Fredericton, N.B. E3B 4Y2 Awarding Agency: Fredericton Branch, Royal Canadian Legion.

Canadian Legion Scholarship, Auxiliary Provincial Command
field: Unrestricted. **value**: $200 per annum. **number**: 4 **duration**: 3-1 year awards; 1-4 **conditions**: Available from nearest N.B. Legion Branch. Awarding Agency: N.B. Auxiliary Command, Royal Canadian Legion.

Canadian Legion Scholarship, Provincial Command
field: Unrestricted. **value**: $150. **number**: 1 **duration**: 1 year. **conditions**: Available from Provincial Command. apply: The Secretary-Treasurer, New Brunswick Provincial Command, The Royal Canadian Legion, P.O. Box 3426, Station B, Saint John, N.B.

Central Branch New Brunswick Society of Retired Teachers Scholarship
conditions: Scholarships to provide financial assistance for worthy students enrolled in the education degree program at the University of New Brunswick. Graduates from high school in School Districts 17 and 18 and Ecole Ste. Anne who have been accepted into the Education Program at UNB are eligible to apply. The **value** and number of awards will be contingent on the amount of the annual interest from investments. Award money will be paid to the University of New Brunswick during the second term of the academic year. **donor**: Central Branch New Brunswick Society of Retired Teachers.

Certified General Accountants Scholarship
field: Business Administration. **value**: $1,200. **duration**: 1 year. **conditions**: Students interested in entering the CGA Program of Studies can apply to the Association for a scholarship of $1200. apply: Applications for this scholarship are available from your Business Administration Department. **donor**: Certified General Accountants Association of New Brunswick.

Charlotte County Overseas Soldiers' Scholarship
field: Unrestricted. **value**: $300. **number**: 1 **duration**: 3 years. **conditions**: A student who is a descendant of a member of the Carleton and York Regiment, residing in Charlotte County, N.B. apply: Montreal Trust Company, Box 695, Saint John, N.B. Awarding Agency: Montreal Trust Company.

Florence Christie Memorial Bursary
field: Unrestricted. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a full or part-time UNB student. Financial need and volunteer experience will be considered. apply: The Saint John Volunteer Center, P.O. Box 7091 Station A, Saint John, NB E2L 4S5 (506)658-1555 Awarding Agency: Saint John Volunteer Centre. **donor**: The Greater Saint John Community Foundation.

Class of 1995 Faculty of Forestry and Environmental Management Award
field: Forestry/Forest Engineering. **value**: $500. **number**: 1 **duration**: 1 year. **conditions**: Awarded to a student in Forestry or Forest Engineering on the Fredericton campus who has successfully completed four years of study (120 credit hours). Consideration will be given to participation in extra-curricular activities within the Faculty of Forestry & Environmental Management. Presentation of award - October 1 of each year. apply: Dean, Faculty of Forestry & Environmental Management.Awarding Agency: Graduating Class of the Faculty of Forestry & Environmental Management and a representation from the Faculty. **donor**: Forestry and Forest Engineering Class of 1995.

Co-Op Atlantic McEwen Scholarship
field: Unrestricted. **value**: $1,000 per annum. **number**: 2 **duration**: Up to four years. **conditions**: Applicants must be a) a full-time employee or the dependent of a full-time employee of Co-Op Atlantic or one of its member co-operatives or b) applicants must submit an essay of not less than 500 words regarding past experience and aspirations and the concept of co-opertion. apply: Manager, Corporate Administrative Services, Co-Op Atlantic, P.O. Box 750, Moncton, NB, E1C 8N5.Awarding Agency: Co-Op Atlantic.

Isabel Adams Coburn Memorial Scholarships
field: Unrestricted. **value**: Up to $2000 **number**: 2 **duration**: 1 year **conditions**: Awarded in memory of New Brunswick educator Isabel Adams Coburn to students residing in certain areas of the parishes of Bright and Queensbury (Keswick Ridge/Mactaquac area), York Co., N.B., who are entering or attending the University of New Brunswick as candidates for an undergraduate or graduate degree. Award money will be paid to the University during the second term of the academic year. (Contact the awarding agency for a precise definition of areas of eligibility). apply: Isabel Adams Coburn Scholarship Trust, c/o W.T. Walker, 200-320 Maple Street, Fredericton, N.B. E3A 3R4 by June 15. Awarding Agency: Isabel Adams Coburn Scholarship Trust.

Donald E. Curren Scholarships
field: Unrestricted. **value**: Variable. **number**: Up to 8 awards. **duration**: 1 year. **conditions**: Open to mobility impaired students who have been accepted by a University in the Atlantic Provinces, with preference to paraplegics and quadriplegics. The scholarships will be awarded on the basis of academic standing and on such other criteria as the Selection Committee may determine. Recipients must be Canadian citizens, or landed immigrants, and residents of the Atlantic Provinces. apply: Donald E. Curren Scholarship Fund, c/o Canadian Paraplegic Association, Nova Scotia Division, 1310 Hollis Street, Suite 150, Halifax, N.S., B3J 3P3 by July 10. Awarding Agency: The Donald E. Curren Scholarship Fund.

Electrolux Canada Award of Excellence
field: Business Administration Marketing Management **value**: $1,000. number: Variable. **duration**: 1 year. **conditions**: Open to students entering the third or fourth year of an undergraduate degree program relating to Marketing Management. Candidates must be Canadian citizens or have held landed immigrant status for one year prior to submitting application. apply: Mr. Patrick W. Tolbert, Executive Vice President, Electrolux Canada, 2 Sheppard Ave., East, Willowdale, Ontario, M2N 6C1.

Terry Fox Humanitarian Award Program
field: Unrestricted. **value**: up to $7,000. **duration**: Up to a maximum of 4 years or until first undergraduate degree is obtained. **conditions**: In keeping with the spirit of his achievements, the Terry Fox Humanitarian Award Program is intended to encourage Canadian youth to seek the high ideals represented by Terry Fox by the granting of commemorative scholarships for the pursuit of higher education. Terry Fox scholars are evaluated on their sport and fitness involvement, citizenship, academic potential, community service, humanitarian works, and their courage in overcoming personal obstacles. apply: Visit their website: www.terryfoxawards.ca deadline: February 1.

Fredericton Rotary Club Memorial Scholarships
value: $1,000. number: 3. **duration**: 1 year (may be renewed. **conditions**: Scholarship recipients must have successfully completed, as a minimum, one year of undergraduate study at a recognized university and be enrolled as a student at a university in the academic year for which the scholarship is awarded. Recipients must be disabled persons or person who are enrolled in a course of study the purpose of which is to assist or work with disabled persons. In the latter case, previous experience working with the disabled will be considered. Preference will be given to applicants from the Greater Fredericton area. apply: Memorial Scholarship Committee, Fredericton Rotary Club, P.O. Box 301, Fredericton, NB, E3B 4Y9 or visit their webpage: http://www.frederictonrotary.ca/ Awarding Agency: Memorial Scholarship Committee, Fredericton Rotary Club deadline: March 14th.

Fredericton Society of Saint Andrew Scholarship
field: Unrestricted. number: 1. **duration**: 1 year. **conditions**: -**Value**: Recent award amounts have been approximately $1,000- $1,500 -Students who are native of Scotland or who are of Scottish descent having completed a minimum of one year undergraduate study in a first degree program on the Fredericton campus. -The course must lead to a degree to be conferred by the university. apply: For more information and application procedures, email Barbara MacKinnon barb.mackinnon@nb.lung.ca Awarding Agency: The Fredericton Society of St. Andrew. deadline: November 1.

Fredericton Women's Executive Club
field: Unrestricted. **value**: $1,000. number: 2. **conditions**: The Women's Executive Club is giving a scholarship to a female student in the Fredericton area that is continuing her education after high school. Criteria: Female candidate requiring financial assistance for post secondary education, can be any year of study. In your application please include the name of the educational institute you are entering and also some of your interests, hobbies, etc. Candidates will be interviewed by the end of May 2006. Confirmation of your registration is required from the school you will be attending to further your education prior to the scholarship being paid out. apply: Please apply in writing to: Fredericton Women's Executive Club, 527 Beaverbrook Court Suite 140, Fredericton, NB E3B 1X6. **donor**: Fredericton Women's Executive Club. deadline: May 1, 2006.

Gilbert W. Ganong Scholarship
field: Unrestricted. **value**: $1300. number: 1. **duration**: 1 year. **conditions**: Awarded every year to a deserving student entering from the County of Charlotte. apply: Student Services Supervisor, School District 10, 11 School St., St. Stephen, NB E3L 2N4 Awarding Agency: School District 10. **donor**: The late Mrs. Maria F. Ganong. deadline: May 01.

Ralph Gustafson Poetry Prize
conditions: The Fiddlehead through an annual competition for the best poem or suite of poems written originally in English and previously unpublished. The competition will be open to writers from any country. Submission will be judged by a panel of three judges. The winner will be announced in The Fiddlehead and suitable publications such as Books in Canada, the newsletter of the League of Canadian Poets, and UNB Perspectives. Candidates should apply to The Fiddlehead, Campus House, University of New Brunswick, Fredericton, NB, E3B 5A3. Phone: (506) 453-3501; Fax: (506) 453-4599. The prize has been funded by Elisabeth Renninger Gustafson and the Estate of Ralph Barker Gustafson.

J. Harper Kent Charitable Foundation Inc. Scholarship
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year (may be renewed). **conditions**: Candidates must be Canadian citizens. Preference will be given to candidates entering university at the first year level, with continued support on to the first degree, subject to satisfactory achievement. Priority will be given firstly to residents of the City of Bathurst, N.B. or secondly to residents of the County of Gloucester, N.B., or thirdly to residents of the Province of New Brunswick. Selections will be made on the basis of scholastic attainment and financial need. Scholarships will be granted for attendance at university of candidate's choice, with preference given to universities in the Atlantic provinces. apply: The Selection Committee, J. Harper Kent Charitable Foundation Inc., P.O. Box 1177, Bathurst, N.B. E2A 4H9. **donor**: J. Harper Kent Charitable Foundation Inc.

Ladies Auxiliary of the Fairvale Outing Association Bursary
field: Unrestricted. **value**: $1000. number: Var. **duration**: 1 year. **conditions**: Applicant must be a resident of the village of Fairvale and a second, third or fourth year student. Selection will be based on scholastic standing and financial need.apply: Mrs. R. Isaacs, 7 Brook Drive, Fairvale, Rothesay, N.B. E0G 2W0 or Mrs. Foster, 158 Gondola Pt. Road, Fairvale, E2E 2C2 not later than June 7. **donor**: Ladies Auxiliary of the Fairvale Outing Association.

Leonard Foundation Scholarships
field: Unrestricted. **value**: Variable but on average $1,250. number: 140 awards will be made annually across Canada. **duration**: 1 year - students may reapply **conditions**: Awarded to students enrolled in an undergraduate degree program. Preference will be given to sons and daughters of clergy, teachers, military personnel, graduates of Royal Military College, members of the Engineering Institute of Canada and members of the Mining and Metallurgical Institute of Canada. Successful applicants are expected to seek employment during free time to help defray the costs of their education, and to participate in athletics, fitness or military activities, as well as showing qualities of potential leadership ability. apply: Leonard Foundation, c/o The Canada Trust Company, 20 Eglinton Avenue West, Toronto, Ontario, M4R 2E2. deadline: March 15.

Dr. William MacIntosh Chapter IODE Bursary
field: Unrestricted. **value**: $500 **duration**: 1 year. **conditions**: Single Parent, part-time undergraduate student at UNBSJ who has successfully completed a minimum of 20 credit hours at University, financial need. apply: Student Services, UNB Saint John. **donor**: Dr. William MacIntosh Chapter, IODE.

Fred Magee Scholarships
field: Vocational Teacher Education (Business Education, Home Economics, Industrial). **value**: $500. number: 12 **duration**: 1 year. **conditions**: Awarded to students enrolling or enrolled in the four-year Vocational Teacher Education program (Business Education, Home Economics, Industrial). apply: Chair, Division of Vocational Education, UNB by April 15. Awarding Agency: New Brunswick Department of Education. **donor**: The late Fred Magee.

Miramichi Highland Society's Scholarship
field: Arts or Science. **value**: Variable. number: 1. **duration**: To be awarded every year for 4 years or until student fails to maintain a pass standing, at which time they shall forfeit the scholarship. **conditions**: Awarded every four years or whenever a vacancy occurs, subject to the following **Conditions**: 1. Candidate must be a Scot or of Scottish descent. 2. Candidate must have exhibited successful academic performance. 3. Pecuniary circumstances are to be taken into consideration. 4. Appointee who fails to maintain a pass standing shall forfeit the scholarship. apply: Secretary, Highland Society of New Brunswick, Box 303, Miramichi, NB E1N 3A7. Awarding Agency: The Highland Society of New Brunswick, Miramichi.deadline: September 15.

Harvey Moore Wildlife Scholarship
field: Wildlife Conservation. **value**: Variable. number: 1 **duration**: 1 year. **conditions**: Awarded annually with preference to students attending the University of Prince Edward Island and studying Biology or other suitable **field** of study there, and showing a special interest in wildlife conservation and aptitude for its promotion. Apply by January 31 to President, The Prince Edward Island Wildlife Federation (1977), P. O. Box 753, Charlottetown, P.E.I., C1A 7L3.

National Aboriginal Achievement Foundation Scholarships
conditions: The National Aboriginal Achievement Foundation provides educational scholarship assistance to Aboriginal students with the generous support of the federal government and many corporate sponsors. apply: The National Aboriginal Achievement Foundation, Suite 331, 70 Yorkville Avenue, Toronto, ON M5R 1B9. Tel: 1-800-329-9780. Email: naaf@istar.ca. Website: www.naaf.ca]

New York Times-Gaspesia Scholarship
field: Any branch of learning but preference to Faculties of Engineering,Forestry and Science. **value**: $1,000 per year. number: 2 **duration**: 4 years. **conditions**: The Scholarship is available for study in any recognized Canadian university. Applicants must reside in the territory situated between Port Daniel and Rivie Gre au Renard included. The applicant must be attending a university or admitted to attend in the year in which application is made. Basis for selection will be scholastic standing, financial need, extra-curricular activities and personal interviews. The winners will be assured of summer employment during the years they are in receipt of the scholarship. apply: Letter of application to the Personnel Department, Gaspesia Pulp and Paper Company Ltd., Chandler, P.Q. Awarding Agency: Scholarship Committee of Gaspesia Pulp and Paper Co. Ltd.

Dr. Robert M. Pendrigh Memorial Prize
conditions: A prize of $500 to be awarded annually on the recommendation of the Department of Nursing to an outstanding graduating student who has achieved high standing in the Bachelor of Nursing degree program on the Saint John campus. The prize has been funded by the late Dr. Robert Pendrigh and is administered by the Atlantic Health Sciences Corporation. apply: Faculty of Nursing, UNBSJ.

President's Award for Excellence in Nursing
field: Nursing **value**: $200. number: 1 per site **conditions**: A prize of $200 to be awarded annually on the recommendation of the Nursing Faculty, to a graduating nursing student exemplifying high academic standards, leadership skills and clinical competency. The prize has been provided by the Nurses Association of New Brunswick and will be presented at the Graduation Dinner for Nursing graduates. apply: Faculty of Nursing, UNB Fredericton.

Proud to Care Scholarship
field: Health Care Profession **value**: $1,000 number: 2 **duration**: 1 year. **conditions**: To be eligible, a student must be entering the final year leading to a qualifying license or certification in one of the health care professions who demonstrates excellence in their chosen health profession and is a resident of Region 3, New Brunswick. apply: Director of Communications, Region 3 Hospital Corporation, P.O. Box 9000, Fredericton, NB E3B 5N5 deadline: May 15.

Province of New Brunswick Bursaries
conditions: The Province of New Brunswick provides bursaries to New Brunswick students who require financial assistance toward their university education. The program operates in conjunction with the Canada Student Loan Plan, which is administered by the Department of Advanced Education and Training. Applications for student loans are considered on the basis of need, and approvals are made such that part of the financial support is by way of a loan, repayable under the terms of the Canada Student Loan Plan, while the remainder is a bursary and not subject to repayment. Inquiries and applications should be directed to the Student Aid Division, Dept. of Advanced Education and Training P.O. Box 6000, Fredericton, N.B., E3B 5H1.

Queen Elizabeth Scholarships in Education
field: Education. **value**: $500 (per annum). number: Variable. **duration**: 2 years. **conditions**: Awarded to outstanding students entering the third year of the Bachelor of Education degree program. apply: Dean of Education, UNB. Awarding Agency: New Brunswick Department of Education.

Registered Professional Foresters Association of Nova Scotia Student Award
field: Forestry. **value**: $750. number: 1. **duration**: 1 year. **conditions**: Open to 3rd or 4th year full time students who are graduates from a Nova Scotia high school and are enrolled in an undergraduate Canadian Forestry Accreditation Board (CFAB) approved forestry degree program at any university in Canada. The recipients must be active in faculty or university events and make a positive contribution to student life on campus. apply: Faculty of Forestry and Environmental Management. Awarding Agency: Registered Professional Foresters Association of Nova Scotia. deadline: September 30.

Regular Officer Training Plan
conditions: This plan combines university subsidization with career training as an officer in the Regular component of the Canadian Forces. Successful applicants are enrolled and are required to maintain a good standing both academically and militarily while being sponsored. All tuition and other essential fees are paid by the Department of National Defence. As well, a monthly salary is paid to cover living expenses. Free medical and dental care is provided and annual leave is provided generally before and after the summer training period. Upon graduation, Officer Cadet is commissioned as an Officer in the rank of 2nd Lieutenant.The normal obligatory service for ROTP is five years following graduation. Undergraduate students are eligible to apply for this program provided they have at least one full year remaining before graduation. For further details, contact: Canadian Armed Forces Recruiting Office, 189 Prince William Street, Saint John, N.B., E2L 2B9, (506) 636-4973 or 1-800-222-9506 (in NB).

Reserve Entry Scheme Officer (RESO)
conditions: This plan provides an opportunity for a limited number of suitable candidates attending Canadian universities to serve as Officers. Training is primarily during the summer months. Officer Cadet in RESO are paid for participating in training and are provided with uniform, rations and quarters. They are not subsidized for their post-secondary education nor are they obliged to serve in the Reserve Force after graduation. Diversified military training leads to promotion as a commissioned Office in the Primary Reserve of the Canadian Forces. For further details, contact: Canadian Armed Forces Recruiting Office, 189 Prince William Street, Saint John, N.B., E2L 2B9, (506) 636-4973 or 1-800-222-9506 (in NB).

Residence Representative Board Award
conditions: An annual award of $100 presented by the UNB Residence Representative Board to a student living in residence who remains active in residence life and who best promotes house spirit and community involvement. This student must be living in residence for not less than 2 years and be in good academic standing. For more information, contact your house president.

Rotary Foundation Scholarships
field: Unrestricted. **value**: Air fare to and from the country of study, incidental travel expenses, tuition and other educational fees, room and board plus incidental living expenses, $300 (U.S.) for limited educational travel. **duration**: 1 year. **conditions**: Tenable in a country other than that in which the candidate lives or studies. Scholarships are awarded to promote understanding and friendly relations between peoples of different nations through study abroad by outstanding students. Candidate must have maintained high standards in academic studies, have a good knowledge of his/her country, have demonstrated qualities of leadership, and be prepared to act as an "ambassador of good-will". Awards may be made for any **field** of study by a candidate for an undergraduate or graduate degree: Undergraduate Scholarship (Ages 18 through 24 inclusive): Have two years or more of university level study but not have achieved a bachelor's degree. Must not be married. Graduate Scholarship (Ages 18 through 28 inclusive): Must hold a bachelor's degree, or equivalent. May be married. apply: Through a Rotary Club, in the Rotary district in which the student either lives or studies. Awarding Agency: Rotary Foundation of Rotary International. deadline: March 1.

Royal Canadian Naval Benevolent Fund
conditions: Dependents of former members of the Naval Forces of Canada, and the Canadian Merchant Navy Veterans. Limited assistance also for grandchildren. The fund only provides "LAST DOLLAR" assistance. Students should obtain the results of applications for student loan, bursaries, scholarships, etc. prior to making application to the fund. Academic documentation required in addition to details on naval service. For specific requirements on this fund as well as other funds administered through this program, contact: Royal Canadian Naval Benevolent Fund,P.O. Box 505, Stn. "B", Ottawa, Ontario, K1P 5P6. Tel: 613-996-5087, Toll Free: 1-888-557-8777 or Fax: 613-236-8830.

Saint Joseph's Hospital Foundation Bursary
conditions: A bursary **valued** at $100 to be awarded annually to a Saint John campus student entering the second year of the BN degree program who has successfully completed a minimum of 30 credit hours. Selection is made on the basis of financial need and promise in nursing. The bursary has been funded by the Saint Joseph's Hospital Foundation. apply: Faculty of Nursing, UNBSJ.

Saint Paul's Wark Scholarship
field: Unrestricted. **value**: $400 or $500 ($100 per annum). number: 1 **duration**: 4 or 5 years. **conditions**: A deserving student attending UNB who is during his college course a member or adherent of Saint Paul's United Church of Canada, Fredericton, N.B. apply: Minister of Saint Paul's United Church of Canada, Fredericton, N.B. Awarding Agency: Scholarship Committee of the session of Saint Paul's Church. **donor**: Saint Paul's United Church of Canada, Fredericton, N.B.

Jack Scovil Scholarship
field: Nursing. **value**: $250. number: 2 **duration**: 1 year. **conditions**: Awarded to two BN/RN students on the Saint John campus who have successfully completed 30 ch towards their BN/RN degree. Applicants will be assessed on the basis of their community experience(s) and nurses currently employed with the Victoria Order of Nurses (Saint John) will receive preference. apply: Applications are available at the Office of Student Services, Saint John campus. **donor**: V.O.N., Saint John.deadline: December 1.

Cindy Seaman Memorial Award in Nursing
conditions: An award **valued** at $500 to be awarded annually to a Saint John campus student entering the third year of the BN degree program who has successfully completed a minimum of 65 credit hours. Selection is made on the basis of scholastic achievement and financial need. The award is dedicated to the memory of Cindy Seaman, former secretary of the Saint John Medical Society. apply: Faculty of Nursing, UNBSJ. **donor**: The Saint John Medical Society.

Thelma Sewell Memorial Scholarship
field: Home Economics. **value**: $1,295. number: 1 **duration**: 1 year. **conditions**: Open to graduates of a high school in the Province of New Brunswick with evidence of a genuine interest in Home Economics or related subject areas, who have achieved good results in a variety of high school subjects including the applied sciences. Applicant must have applied for admission to a Bachelor's degree program in Home Economics in any Province of Canada. apply: Margaret McCormack, 9 Firwood Cres., Moncton, N.B. E1A 5W9, prior to 31 May. Awarding Agency: New Brunswick Home Economics Association. **donor**: The family of the late Thelma Sewell.

Frank H. Sobey Fund for Excellence in Business Studies
field: Business. **value**: $6,000 **duration**: 1 year. **conditions**: Applicants must have completed one year of undergraduate business studies at an Atlantic Provinces university and be enrolled for full-time study for the next year, also at an Atlantic Canadian University. apply: Faculty of Administration, UNBF, and Faculty of Business, UNBSJ.

St. Vincent's Alumnae Association Scholarships
conditions: St. Vincent's Alumnae Association, Saint John, N. B. offers several scholarships to graduates of St. Vincent's High School. To be eligible a student must be a female graduate of St. Vincent's High School who is currently enrolled in or applying to attend a recognized post-secondary institution. Available scholarships are: (1) Sister M. Francesca Memorial Scholarship; (2) Sister M. Angela Memorial Scholarship; (3) Mrs. M. Muriel Corkery-Ryan Q.C. Memorial Scholarship; (4) The Dolan-McGuiggan Memorial Scholarship; (5) The Katherine Louise Roderick Memorial Scholarship; (6) The Mary M. Chaisson Memorial Scholarship; (7) The Edward L. & M. Clare Broderick Morris Memorial Scholarship; (8) The Helen G. Hurley Family Scholarship; (9) The Deborah Montague Bursary; (10) The M. Geraldine Carleton & Class of 1908 Bursary.(11) The M. Loretta MacKinnon Award. apply: St. Vincent's Alumnae Scholarship Committee, P.O. Box 27133, Saint John, N.B. E2M 5S8; e-mail: alumnae@stvincents.ca; website: www.stvincents.ca deadline: August 30th.

Wajax Fire Control Technical Report Award
conditions: Wajax Limited will award three cash prizes for reports on forest fire control, management or use written as part of an undergraduate forestry curriculum. One report will be selected from and by each of the six forestry faculties in Canada and forwarded to Wajax Limited by January 31. An independent three man committee will judge the reports. Graduating senior theses are excluded. apply: Dean of Forestry and Environmental Management.

Walter W. White Scholarship
field: Unrestricted. **value**: Up to $900 per annum number: 1 **duration**: 4 years, provided student passes each year **conditions**: The most promising male student from the Saint John High School who requires financial assistance to attend the University of New Brunswick. Tenable from the time the recipient enters university until he graduates. apply: The Principal, Saint John High School, Saint John, N.B. Awarding Agency: Canada Permanent Trust Company, 53 King Street, Saint John, N.B. **donor**: The late Douglas V. White.

Sophia Wood Education Fund
field: Geology and/or Geological Engineering **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Open to students in Geology and Geological Engineering who have completed at least the normal requirements for the first year of their degree program. apply: Check with the Faculty of Engineering. Awarding Agency: The Women's Association of the Mining Industry of Canada.

Loans

Unless otherwise stated, applications forms for loans may be obtained from the UNB Financial Aid Office, Alumni Memorial Building, Room 3, (506) 453-4796.

Note: Students are not considered for University loans until they have successfully completed one term full-time at UNB.

OPEN

Benefits to Children of War Dead
conditions: Children of War Dead (Education Assistance) Act provides fees and monthly allowances for children of veterans whose death was attributed to military service. Inquiries should be directed to the nearest district office of the Department of Veterans Affairs.

Canadian Institute of Surveying Student Loan Fund
conditions: The Canadian Institute of Surveying has established a loan fund for the purpose of assisting students registered in the fourth and fifth year Surveying course at this University. Applicants must be students in good academic standing. No loan to any single approved applicant shall in any one year exceed $500. Normally, students will only qualify for one Surveying loan, but at the discretion of the awarding committee, applications for a second loan may be considered.

University Loans
conditions: Low-interest university funded loans are available to applicants with demonstrated financial need. Eligibility is restricted to full-time students who have successfully completed one term (full-time) of studies at UNB and are maintaining a satisfactory academic standing. The maximum loan available for an academic year is $800.

Veterans Loan Fund
conditions: This fund has been established at the University by Veteran Students to assist deserving and needy students in obtaining the benefits of a university education. Loans may be obtained to the **value** of $800 per year for any one student.

Fred and Dixie Beairsto Emergency Aid Fund
conditions: An emergency aid fund which provides limited assistance for undergraduate students at UNB Fredericton administered through the UNB Financial Aid Office. This aid would be a short term loan to meet unforeseen financial needs. Application for the Beairsto Emergency Aid Fund can be made at the UNB Financial Aid Office in the Alumni Memorial Building. The Fund has been established through the generosity of Fred Beairsto, BScCE 63, his wife Dixie and their family.

Harry F. Bennett Education Fund
conditions: A fund established in 1946 by subscription from membership of the Engineering Institute of Canada as a memorial to Harry F. Bennett, M.E.I.C. The purpose of the Fund is to make loans available to deserving students who need financial assistance to enable them to complete their engineering studies. Money is available to students who have completed their first year in Engineering. The maximum loan for one year is $250 and the maximum total for all years is $450. The interest rate is 4% per annum applied from date of graduation. Application may be made through the Dean of Engineering or to the Harry F. Bennett Education Fund, 2050 Mansfield Street, Montreal 2, Quebec.

Canada Student Loan Plan
conditions: The Canada Student Loan Program was established in 1964 by the Federal government to financially assist Canadian students registered in or accepted by a Canadian university. Each province administers a student aid program offering combined Federal/Provincial student loan funding (exception is Quebec which offers only provincial loan funding) to eligible applicants. Students interested in making application for funding should contact their designated provincial department of education (located in the "blue pages" of the phone book). New Brunswick students can contact 1) Student Financial Services,Department of Education, P.O. Box 6000, 548 York Street, Fredericton, New Brunswick, E3B 5H1; 2) web site: www.studentaid.gnb.ca. Students intending to use the Student Aid Program to fund their educational expenses should file their applications with the provincial authorities at least three months prior to their first day of classes. Further information/questions concerning the provincial loan programs can be discussed with the UNB Financial Aid Office by telephone at (506)453-4796 or fax (506)453-5020.

Canadian Forces Personnel Assistance Loan Fund
conditions: The Canadian Forces Personnel Assistance Fund offers an Education Assistance Loan Program to assist serving and former members and their departments with costs of post-secondary education. To be eligible for a low interest loan of $1,200, $1,500, $2,000 or $2,500 the serving or former member must have served in the Canadian Army, after 1st October 1946, or in the Canadian Forces, after 31 January 1968, and have a minimum of one year Regular Forces military service. The loans are repayable over 12 or 24 months. Application forms are available from Canadian Forces Base Financial Counsellors, district offices of Veterans Affairs Canada, and the Provincial Command offices of the Royal Canadian Legion or by writing to CFPAF, 234 Laurier Avenue West, Ottawa, Ontario, K1P 6K6, telephone (613)760-3447 or toll free 1-888-753-9828. For those who wish to obtain their loan in time for the semester beginning September, your submission should arrive at CFPAF by 30 June. Otherwise, applications will be accepted throughout the year until the funds allotted for the EALP are exhausted.

Ken Fuller Memorial Emergency Aid Fund
conditions: An emergency aid fund for undergraduate students at UNB established through the efforts of UNB Counselling Services, and co-ordinated with the UNB Financial Aid Office. This aid would be a short term loan to meet unforeseen financial needs. Application for the Ken Fuller Emergency Aid Fund can be made at the UNB Financial Aid Office. The Ken Fuller Memorial Emergency Aid Fund has been established in commemoration of Ken Fuller, who from 1969 to 1978, served the University of New Brunswick as Director of Counselling Services.

Dr. Frank Gannett Loan Fund
conditions: A loan fund has been established through the generosity of the late Dr. Frank Gannett, of Rochester, N.Y., to assist deserving students in the Business Administration course who require financial assistance. This aid would be a short-term loan to meet unforseen financial needs.

Joe Kaiser Memorial Loan Fund
conditions: This fund has been established at the University through the efforts of the Engineering undergraduates to provide financial assistance to Engineering students. Applications from third year students will be given preference. The maximum loan is $800. The loans are awarded on the basis of need, with scholastic standing of the student a secondary consideration.

The Fred Magee Endowment Loan Fund
conditions: The late Dr. Fred Magee, of Port Elgin, N.B., Class of 1897, founded a loan fund through the means of a most generous bequest to the University. The income from this bequest shall be lent to undergraduate students of UNB who are in need of funds to continue their courses of study. Applicants must be Canadian citizens by birth or naturalization.

Beth Christie McAlpine Emergency Loan Fund
conditions: An emergency aid fund for undergraduate students at UNB has been established by family and friends of the late Beth Christie McAlpine, a graduate of the class of 1984. This fund will provide limited assistance to deserving students. This aid would be a short term loan to meet unforeseen financial needs. Applications for the Beth Christie McAlpine Emergency Loan Fund can be made at the UNB Financial Aid Office.

Oscar D. Morrill Loan Fund
conditions: The late Oscar D. Morrill of Ann Arbor, Michigan, U.S.A., bequeathed the sum of $5,000 to the University to provide loans for worthy young men unable to obtain a university education without financial assistance. Preference is given to students from Yarmouth, Digby or Shelburne Counties of Nova Scotia. Loans may be made to students from other sections of the Maritime Provinces.

C. Alexander Pincombe Memorial Loan Fund
conditions: A loan fund has been established through the generosity of the late C. Alexander Pincombe to assist UNB students who are in need of funds to continue their course of study. Applicants must be Canadian citizens by birth or naturalization and preference is to be given to students from southeastern New Brunswick. The loan fund is administered through the UNB Financial Aid Office.

Florence T. Snodgrass Loan Fund for New Brunswick Students
conditions: An emergency aid fund for full-time students of UNB Fredericton campus who have graduated from a New Brunswick high school. Administered through the UNB Financial Aid Office, this aid is normally in the form of a short-term loan to meet unforeseen financial needs. The maximum loan is $600 annually but under extenuating circumstances may be increased to $800.

Garnet Strong Loan Fund
conditions: This Loan Fund has been established by a friend interested in Forestry. Loans, not exceeding $800 each, are available to Forestry students. The student s financial need, character, academic standing and year at the University will be taken into consideration.

Bursaries

COMPUTER SCIENCE

Tom Austin Bursary
field: Computer Science. **value**: Minimum $400. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program in the Faculty of Computer Science and has demonstrated successful academic performance with a gpa of 2.7 or higher. apply: Financial Aid, UNB Fredericton Awarding Agency: The University. **donor**: Friends and former students of Tom Austin, Professor of Computer Science from 1970 to 1999.

Stephen Peppin Memorial Bursary
field: Computer Science. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who is enrolled in a degree program in the Faculty of Computer Science. The recipient must demonstrate successful academic performance and be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. apply:Financial Aid Office, UNB Fredericton. **donor**: Mrs. Audrey Knowles and the Peppin Family along with the New Brunswick University Opportunities Fund.

EDUCATION

Bachelor of Education Bursary
field: Education. **value**: $500. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to full-time undergraduate students enrolled in the Bachelor of Education (11-month program) on the Fredericton campus. Recipients must have successfully completed at least one term of full-time study in the program with a GPA of 2.0 and higher. apply: Financial Aid Office, UNB Fredericton Awarding Agency: The University. **donor**: Faculty of Education.

Paul Martin B.Ed. Bursary
field: Education. **value**: $500. **number**: 3. **duration**: 1 year. **conditions**: Three $500.00 bursaries have been established to assist full-time Fredericton campus students who are experiencing financial difficulty. Eligible candidates must be enrolled in the 11 month K-12 B.Ed. program and are a First Nation, metis or an Innu community member. apply: Financial Aid Office, UNB Fredericton. **donor**: John and Judy Bragg Family Foundation.

MULTIPLE

Robert (Bob) Young & Pat Neill Bursary
field: Business Administration or Arts. **value**: $2,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has successfully completed two years of the Bachelor of Business Administration or Bachelor of Arts degree program on the Saint John campus. The recipient must have demonstrated successful academic performance and must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. apply: Student Services, UNB Saint John. **donor**:Robert Young & Pat Neill and the New Brunswick University Opportunities Fund.

RENAISSANCE COLLEGE

Renaissance College International Internship Bursary
field: Leadership Studies. **value**: Variable. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students enrolled in the Bachelor of Philosophy in Leadership Studies. The award is to be held during the student's international internship. The recipient must demonstrate successful academic achievement. apply: Financial Aid Office, UNB Fredericton. Awarding Agency: The University. **donor**: Friends of Renaissance College.

SAINT JOHN COLLEGE

Saint John College Bursary
field: English for Academic Purposes. **value**: Tuition for one term. **number**: 1 or more. **duration**: One term. **conditions**: Awarded on the basis of financial need to a student enrolled in the English for Academic Purposes Program in the Saint John College. The recipient must demonstrate successful academic achievement and be enrolled in the program on a full-time basis (minimum 20 hours per week.) A student can receive a maximum of three bursaries per year. apply: Saint John College.Awarding Agency: The University, on the recommendation of Saint John College. **donor**: Saint John College.

SCIENCE, APPLIED SCIENCE & ENGINEERING

Health Disciplines Bursary
field: Nursing or Health Sciences. **value**: $1,000. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Saint John campus student who has completed the minimum reqirements for the second year of the Bachelor of Nursing or Bachelor of Health Sciences degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident according to the definition of the Provincial Government's Student Financial Services guidelines. The recipient may retain this scholarship while enrolled in a UNB articulated degree program and attending the partnering institution. apply: Student Services, UNB Saint John. Awarding Agency: The University. **donor**: Roberta & Tom Clark and the New Brunswick Universities Opportunity Fund.

UNRESTRICTED

Daniel Arnold Study Abroad Off-campus Study Award
field: Unrestricted. **value**: $1,500. **number**: 1. **duration**: 1 year. **conditions**: Awarded to a UNB Saint John student who has completed at least two years of the degree requirements for his/her program and has been accepted into another university as a full-time student as part of an exchange program with a UNB-approved institutional partner outside of Canada. Preference will be given to students studying in Germany. Selection will be based on academic achievement, cost of living and travel expenses. apply: Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of the Student Abroad Office in consultation with the Student Abroad Advisory Committee. **donor**: Daniel Arnold.

Associated Alumnae Bursary
field: Unrestricted. **value**: $500. **number**: 3. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate female students on the Fredericton campus who have dependent(s) and are experiencing financial need in relation to child care costs during the pursuit of their undergraduate degree program. Recipients must be Canadian citizens or landed immigrants, and have successfully completed a minimum of one full-time term of study at UNB with a grade point average of at least 2.0 or higher. apply: Financial Aid Office, UNB Fredericton. **donor**: The Associated Alumnae.

Canada-US Off-Campus Study Award
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate students at UNB, St. Thomas University, Mount Allison University or Université de Moncton who have been accepted to the Global Trade & Regional Integration Program at the Washington Center in Washington, DC and have been nominated by their home university. Recipients must be New Brunswick residents who have completed at least 60 credit hours of their undergraduate degree program and have achieved a minimum grade point average of 2.7. apply: Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of the Student Abroad Office. **donor**:Government of New Brunswick (Department of Post-Secondary Education and Training, Business New Brunswick, Intergovernmental Affairs).

Derek Carlisle Bursary
field: Unrestricted. **value**: $100. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate students on the Fredericton campus who are experiencing financial difficulty in the pursuit of an undergraduate degree. Recipients must be graduates of a New Brunswick High School and/or residents of the province of New Brunswick as determined by Provincial Government's Student Financial Services guidelines and have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 and higher. apply: Financial Aid Office. awarding agency: The Financial Aid Office of the Univeristy of New Brunswick (Fredericton Campus). **donor**: Derek Carlisle, BA 1989 and the New Brunswick University Opportunities Fund.

Deborah A. Chapman Bursary
field: Unrestricted. **value**: $1,000. **number**: 1. **duration**: 1 or more years. **conditions**: Awarded on the basis of financial need to part-time or full-time Saint John campus students . Preference will be given to students who are middle school graduates of Hazen White or Lorne School enrolled in an undergraduate program at UNB Saint John and demonstrate successful academic performance, community service and good citizenship. apply: Student Services, UNB Saint John. **donor**: The Estate of Deborah A. Chapman

Emera New Brunswick Promise Partnership Bursary
field: Unrestricted. **value**: Variable. **number**: 1 or more. **duration**: 1 or more years. **conditions**: Awarded on the basis of financial need to Saint John campus students enrolled in an undergraduate degree program on a full-time basis. The recipients must have attended the Hazen White St. Frances School and participated in the UNB Saint John Promise Partnership program. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines and demonstrate successful academic performance. apply: Student Services Office, UNB Saint John. **donor**: Emera New Brunswick and the New Brunswick University Opportunities Fund.

Friends of UNB Saint John Off-campus Study Award
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year.
conditions: Awarded to a UNB Saint John student who has completed at least two years of the degree requirements for his/her program and has been accepted into another university as a full-time student as part of an exchange program with a UNB-approved institutional partner outside of Canada. Selection will be based on academic achievement, cost of living and travel expenses. apply: Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of the Student Abroad Office in consultation with the Student Abroad Advisory Committee. **donor**: Friends of UNB Saint John Student Abroad Program.

Tom & Lisa Gribbons Bursary
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a full-time Saint John campus student residing in Greater Saint John who is enrolled in an undergraduate degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. apply: Student Services, UNB Saint JohnAwarding Agency: The University. **donor**: Tom & Lisa Gribbons and the New Brunswick University Opportunities Fund.

Sharon Hicks Bursary
field: Unrestricted. **value**: $2,000. number: 1 or more. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a full-time Saint John campus student who is enrolled in an undergraduate degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial government's Student Financial Services Guidelines. apply: Student Services, UNB Saint John. awarding agency: The University. **donor**: Sharon Hicks and the New Brunswick University Opportunities Fund.

Joyce Foundation Access Bursaries
field: Unrestricted. **value**: $5,000. number: Multiple. **duration**: 4 years. **conditions**: Awarded on the basis of financial need to students who have graduated from a secondary high school within the last 12 months and are beginning an undergraduate degree program. Preference will be given to residents of New Brunswick and then Atlantic Canada. The recipients must demonstrate successful academic performance and commit to work with at least one mentor in an extracurricular activity throughout their program of study. **Donor**: The Joyce Foundation.

Peter C. Kent Travel Study Award
field: Unrestricted. **value**: Up to $4,000. number: 1 or more. **duration**: Summer term. **conditions**: Awarded to a full-time UNB student, from either campus, who is enrolled in a UNB course or internship that takes place outside of Canada or has been accepted into an accredited post-secondary institution or course of study outside Canada. Preference is to be given to the students intending to apply for the Rome Program offered by the Faculties of Arts. Applicants will not be expected to have applied to the Rome Program before applying for this award. Selection is based on academic achievement and financial need. The Selection Committee will conduct interviews of the leading candidates before deciding who is to receive the scholarship.apply: Apply: The International Relations Office, UNB Fredericton and the Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of a committee comprised of one of the directors of the Rome Program and the Deans of Arts of the Fredericton and Saint John campuses or their designates. **donor**: Dr. William S. Lewis and the University of New Brunswick.

Killam American Fund Bursary
field: Unrestricted. **value**: Minimum $1,000. number: 1 or more. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate students on any campus of the University of New Brunswick who are experiencing financial difficulty in the pursuit of their degree program. Recipients must be residents of the United States of America as determined by state residency guidelines, and have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 or higher. apply: The Financial Aid Office of the University of New Brunswick (Fredericton Campus). Awarding Agency: The University. **donor**: Established in memory of Izaak Walton Killam of Nova Scotia by his Massachusetts sisters through their testamentary trusts.

Killam Properties Bursary for Books
field: Unrestricted. **value** Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate students on the Fredericton campus who are experiencing financial difficulty, to help with the purchase of text books. Recipients must have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 or higher. apply: Financial Aid Office, UNB Fredericton. **donor**: Killam Properties.

Oscar Z. LeBlanc Memorial Bursaries
field: Unrestricted. **value**: Approximately $1,875. number: 3 Fredericton Campus, 1 Saint John Campus. **duration**: 1 year. **conditions**: Four bursaries have been established to assist full-time undergraduate students who are experiencing financial difficulty in the pursuit of his/her undergraduate degree program. Recipients must be graduates of a New Brunswick high school and/or are residents of the province of New Brunswick, as determined by provincial Student Aid guidelines, and have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 or higher. Awarding Agency: Financial Aid Office (UNB Fredericton) and Student Life and Support Services (UNB Saint John). **donor**: The late Oscar Z. LeBlanc and the New Brunswick University Opportunities Fund.

Dr. Colin B. Mackay Bursary
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Saint John campus students who demonstrate successful academic achievement. Part-time, full-time, graduate or undergraduate students are eligible to apply. apply: Office of Student Services, UNB Saint John. **donor**: The estate of Dr. Colin B. Mackay, BA' 42, LLD '55, President of UNB, 1953-1969, President Emeritus 1978-2003.

New Brunswick Residence Co-operative (NBRC) Bursary
field: Unrestricted. **value**: $4,000. number: 1. **duration**: 1 year. **conditions**: A $4,000.00 bursary has been established to assist a full-time Fredericton campus student who is experiencing financial difficulty in the pursuit of his/her undergraduate degree program. Eligible candidates must be living independently and not in residence at the University of New Brunswick (UNB). The recipient must have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 or higher and must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Preference will be given to a student who is a child of the NBRC alumnus/-a who is pursuing an undergraduate degree. apply: Financial Aid Office, UNB Fredericton. **donor**: New Brunswick Residence Co-operative (NBRC) and the New Brunswick University Opportunities Fund.

New Brunswick Residence Co-operative (NBRC) Emergency Bursary
field: Unrestricted. **value**: $1,000. number: 1. **duration**: 1 year. **conditions**: A $1,000.00 bursary has been established to assist a full-time Fredericton campus student enrolled in an undergraduate degree program who is experiencing financial difficulty with living costs due to fire, flood and/or any other disaster. Eligible candidates must be living independently and not in residence at the University of New Brunswick (UNB). The recipient must have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 or higher and must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. Preference will be given to a student who is a child of an NBRC alumnus/-a who is pursuing an undergraduate degree. apply: Financial Aid Office, UNB Fredericton. **donor**: New Brunswick Residence Co-operative (NBRC) and the New Brunswick University Opportunities Fund.

Terry Nikkel Bursary
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a student who has completed at least 60 credit hours in an undergraduate degree program. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines. The awarding of the bursary will alternate each year between the Fredericton and Saint John campuses. apply: Financial Aid, UNB Fredericton and Student Services, UNBSJ. **donor**: Terry Nikkel and the New Brunswick University Opportunities Fund.

Albany & Elma Palmer Bursary
field: Unrestricted. **value**: $1,800. number: 1. **duration**: 1 year (may be renewed). **conditions**: Awarded on the basis of financial need to a full-time student on the Saint John campus who has completed at least the minimum requirements for the first year of an undergraduate degree program and has demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. Apply: Student Services, UNB Saint John. **donor**: The Palmer Family and the New Brunswick University Opportunities Fund.

Bernardo & Giovanna Rocca Bursary
field: Unrestricted. **value**: Variable. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a female student who is a single parent enrolled in an undergraduate degree program on the Saint John campus. The recipient must have demonstrated successful academic performance. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services Guidelines. apply: The Financial Aid and Awards Office, UNB Saint John. Awarding Agency: The University. **donor**: Mr. Bernardo Rocca, members of the Rocca family and friends, and the New Brunswick University Opportunities Fund.

John and Gail Rocca Bursary
field: Unrestricted. **value**: $2,000. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a full-time student who is experiencing financial difficulty in the pursuit of an undergraduate degree program on the Saint John campus. The recipient must be a New Brunswick resident, according to the definition of the Provincial Government´s Student Financial Services guidelines and demonstrate successful academic achievement. apply: Student Services, UNB Saint John.Awarding Agency: The University. **donor**: John and Gail Rocca and the New Brunswick University Opportunities Fund.

Joan K. & Royden D. Ryan Memorial Bursary
field: Unrestricted. **value**: $1,750. number: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the first year of an undergraduate degree program and has demonstrated successful academic achievement. The recipient must be a mature student with preference given to a single parent. The recipient must also be a New Brunswick resident, according to the definition of the Provincial Government's Student Financial Services guidelines. apply: Financial Aid Office, UNB Fredericton. Awarding Agency: The University. **donor**: Darlene and Patrick Ryan and the New Brunswick University Opportunities Fund.

Saputo Off-campus Study Award
field: Unrestricted. **value**: Min. $500. **number**: 1 or more. **duration**: 1 year. **conditions**: Awarded to a UNB Saint John student who has completed at least two years of the degree requirements for his/her program and has been accepted into another university as a full-time student as part of an exchange program with a UNB-approved institutional partner outside of Canada. Selection will be based on academic achievement, cost of living and travel expenses. apply: Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of the Student Abroad Office in consultation with the Student Abroad Advisory Committee. **donor**: Saputo Inc.

Scotiabank International Study Awards
field: Unrestricted. **value**: Up to $5,000. **number**: 1 or more. **duration**: 1 year. **conditions**: Open to full-time undergraduate and graduate students in any discipline, from any UNB campus. Recipients must show promise of becoming the leaders of tomorrow in their chosen **field**, demonstrate they have either been accepted into an accredited post-secondary institution or course of study outside Canada, or alternatively, be enrolled in a UNB course or internship that takes place outside of Canada. They must also articulate the benefits of international study not only to themselves but to Canada and society generally. Recipients must be citizens or permanent residents of Canada. Upon return from the time abroad, students will be required to file a comprehensive budget and a report on the activities undertaken while away. Students may be asked to make a public presentation on their experiences and/or to mentor others who will be taking up a Scotiabank International Study Abroad Award in the years following. apply: International Relations Office, UNB Fredericton and the International Liaison Office, UNB Saint John **donor**: Scotiabank.

Dr. Florence Snodgrass Bursary Fund for New Brunswick Students
field: Unrestricted. **value**: Up to $2,000. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to full-time undergraduate students on the Fredericton campus who demonstrate successful academic achievement. The recipients must be New Brunswick residents, according to the definition of the Provincial Government's Student Financial Services guidelines. apply: Financial Aid, UNB Fredericton Awarding Agency: The University. **donor**: Dr. Florence Snodgrass (BA 1924).

TD Bank Financial Group Bursary
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to full-time undergraduate students experiencing financial need in the pursuit of their degree program. Recipients must be Canadian citizens or landed immigrants, and have successfully completed a minimum of one full-time term of study at UNB with a grade point average of at least 2.0 or higher. apply: Financial Aid Office, UNB Fredericton or the Student Services Office, UNB Saint John. **donor**:TD Bank Financial Group.

UNB Associated Alumni Bursary
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: A number of bursaries have been established to assist full-time undergraduate students who are experiencing financial difficulty in the pursuit of his/her undergraduate degree program. Recipients must have successfully completed at least one term of full-time study at UNB with a GPA of 2.0 and higher. apply: Financial Aid Office, UNB Fredericton and Financial Aid & Awards Office, UNB Saint John. **donor**: UNB Associated Alumni.

UNB Faculties of Arts Travel Study Program Award
field: Unrestricted. **value**: $3,000. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded to students who are enrolled in their first undergraduate degree program, are attending UNB Fredericton or UNB Saint John on a full-time basis, according to the definition used by the Government of Canada, and have completed at least one term of study at UNB or in another university. Both domestic and international students are eligible; however, preference will be given to Canadian citizens and permanent residents. Selection will be based on academic achievement. Consideration may be given to financial need and the demonstration of interest in participating in the Travel Study Program. When completing the online application form, students are required to submit a name of one faculty member, from whom a reference may be requested, along with a letter of no more than 500 words explaining how s/he would benefit from the Travel Study Program Award. Recipients must take the Travel Study course for credit and use the award for the Travel Study Program taking place in the next Summer Session; the award will not be deferred. Preference will be given to first-time applicants. apply: College of Extended Learning. awarding agency: The University, on the recommendation of the UNB Faculties of Arts Travel Study Advisory Committee. **donor**: The University.

UNB Faculties of Arts Travel Study Program Bursary
field: Unrestricted. **value**: Variable. **number**: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to students who are enrolled in their first undergraduate degree program, are attending UNB Fredericton or UNB Saint John on a full-time basis, according to the definition used by the Government of Canada, and have completed at least one term of study at UNB or in another university. Both domestic and international students are eligible; however, preference will be given to Canadian citizens and permanent residents. Recipients must demonstrate successful academic performance and use the award for the Travel Study Program taking place in the next Summer Session; the award will not be deferred. apply: Financial Aid Office, UNB Fredericton and Student Support Services, UNB Saint John. awarding agency: The University, on the recommendation of the UNB Faculties of Arts Travel Study Advisory Committee. **donor**: The University.

UNB Fredericton Off-campus Study Award
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded to UNB Fredericton full-time students who have been accepted into another university as part of an exchange program outside Canada with a UNB-approved institutional partner. Selection will be based on academic achievement and financial need. apply: Financial Aid Office, UNB Fredericton. Awarding Agency: The University.

UNB Saint John 225 Bursary
field: Unrestricted. **value**: Variable. number: Multiple. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to Saint John campus students who demonstrate successful academic achievement. Part- time, full-time, graduate or undergraduate students are eligible to apply. apply: Office of Student Services, UNB Saint John. Awarding Agency: The University. **donor**: Supporters of UNB Saint John students.

Saint John College Development Inc. Bursary
field: Unrestricted. **value**: $1,000. number: 1 or more. **duration**: 1 or more years. **conditions**: Awarded on the basis of financial need to a full-time Saint John campus student who is a graduate of Harbour View High School, St. Malachy's Memorial High School or Saint John High School enrolled in an undergraduate program and demonstrates successful academic performance. Preference will be to student who attended Hazen White St. Francis School or Lorne Middle School and participated in the Promise Partnership Program. apply: Student Services, UNB Saint John. Awarding Agency: The University. **donor**: SJ College Deveopment Inc. and the New Brunswick Opportunities Fund.

UNB Saint John Student Abroad Off-campus Study Award
field: Unrestricted. **value**: Variable. number: Variable. **duration**: 1 year. **conditions**: Awarded to a UNB Saint John student who has completed at least two years of the degree requirements for his/her program and has been accepted into another university as a full-time student as part of an exchange program with a UNB-approved institutional partner outside of Canada. Selection will be based on academic achievement, cost of living and travel expenses. apply: Student Abroad Office, UNB Saint John. Awarding Agency: The University, on the recommendation of the Student Abroad Office in consultation with the Student Abroad Advisory Committee. **donor**: Student Abroad Office, UNB Saint John.

Margaret Walker Bursary
field: Unrestricted. **value**: $500. **number**: 1. **duration**: 1 year. **conditions**: Awarded on the basis of financial need to a Fredericton campus student who has completed at least the minimum requirements for the first year of a degree program and has demonstrated successful academic performance with a gpa of 2.0 or higher. apply: Finanicial Aid, UNB Fredericton. awarding agency: The University. **donor**: Family of Margaret Walker.

The descriptions below are brief summaries of the services provided for students. Individuals interested in any of these services are encouraged to contact the relevant department for further information.

ACCOMMODATION

The University maintains thirteen residence halls, including mens, womens, co-ed, suite-style and apartment style houses. Each traditional residence (not suite-style or apartment style) room is furnished with desks, bookshelves, wastebaskets, bulletin boards, single beds, dressers and wardrobes. Pillows are provided but Residents bring all other bedding (sheets, pillow cases, quilt/duvet, etc. for a twin bed) as well as towels. The suite-style residence is fully furnished with each suite having 2 or 3 bedrooms, a full kitchen, and bathroom. Our apartment style building is a mixture of 2 and 3 bedroom apartments (not furnished).

UNB believes in a developmental residential living experience, supporting both academic success and personal development. Living to Learn fosters an academic context within the Residence Community and assist students in their transition to more independent living and the development of transferable skills. As a peer-supported learning environment, Leading to Learn also seeks to develop student leadership skills through wellness programming. Another UNB initiative is the ResNet program, which involves the installation of a hardwired connection to the University network and the Internet, as well as cable TV access, in campus residence rooms. ResNet currently is available in all UNB-F residences . UNB further fosters a positive living environment through attractive common areas, recent infrastructure improvements, and policies such as all residences being non-smoking. Campus dining also is being renewed with the introduction of residential ultimate dining (greater freshness, variety, and personalization of food) and similar retail improvements.

The residences are administered by Residential Life, Campus & Conference Services with a team based approach to life and leadership within the community and houses. Each house is supported by a House Team consisting of a Don plus Student Leaders, both elected by the House (House President and Committee) and selected by the university (Proctors, ResNet Consultants). These House Teams work closely with residence professional support resources including the Residence Coordinator, Residence Office Team, and ResNet Support Administrator

The functions of the resource persons within the residence community are as follows:

Residential Life, Campus & Conference Services: the office has overall responsibility for the Residence Community and concentrates on physical facilities, academic, administrative and quality of life issues and policies with the objective of providing a quality residence experience in a strong academic environment. Two other related responsibilities are food services (part of the residence and campus experience) and summer conferences (recruitment, community outreach and financial contributions to residence).

Executive Director: a full-time professional responsible for leadership, overall management, governance, quality, development, food quality, and long-term vision of Residential Life, Campus and Conference Services.

Director, Finance and Operations: a full-time professional responsible for the physical operation of the residences (including janitorial services, maintenance, repairs, and capital improvements), finance and administration, and vending contracts.

Director, Residential Life: a full-time professional responsible for the leadership, management, and development of both general (unit-wide) and specific (each RL,C area) Residential Life administrative services as well as responsible for the residential community, training and

professional development and support services. Director, Conference Services: a full time professional responsible for managing summer residence conferences.

Coordinators: full-time professionals responsible for day to day residential life or conference matters within the residence community. ResNet Support Administrator: a full-time professional responsible for the effective operation of ResNet, coordinating the House ResNet Consultants and working cooperatively with Integrated Technology Services on main network issues affecting ResNet.

Residence Operations Coordinator: a full-time professional responsible for the day-to-day management of residence janitorial and maintenance staff.

Administrative Assistants, Budget/Magee Coordinator & Receptionist: full-time support personnel who are the first resources when visiting or contacting Residential Life & Conference Services as well as supporting the community.

Residence Security: Members of UNB Security providing after hours residence coverage and working closely with the community regarding group and individual situations, providing not only security but also support and advice.

House Dons: University faculty, staff members or graduate (or second degree) students living in each residence who are responsible for heading House Teams, mentoring and supporting students, and furthering the academic and educational goals of the Residence Community.

Proctors (Educational & Hall): experienced undergraduate students living on residence floors who work cooperatively with other House Team Members to provide support and a positive, developmental living environment in residence. In addition to working collaboratively and the common responsibilities shared by all Proctors (house coverage, programming, discipline, etc.), Educational and Hall Proctors also have unique responsibilities:

· Hall Proctors focus on their hall providing support, building community and implementing life skills programs for approximately 35 students.

· Educational Proctors focus on providing academic/wellness support and programs for the House with one Educational Proctor per approximately 100 students. House Committees: elected Student Leaders who promote a welcoming and supportive environment through developing community. Residential Network Consultants (RNCs): Students in houses having ResNet who are responsible for helping Students with ResNet. Janitorial Forepersons, House Cleaners, & Residence Maintenance Person: full-time personnel responsible for cleaning (common areas) and maintaining residences.

RESIDENCE ADMISSION

General

1. Since residence space at UNB is limited, no one can be guaranteed admission or readmission to residence until a formal offer of residence is issued, accepted and confirmed by the payment of the residence deposits.

2. The University recognizes the desirability and value of Students living in residence in their first undergraduate year as well as having senior students remain in residence. Hence, every effort is made to ensure a reasonable balance between new admission and returning students.

3. Although consideration is given to the student's preferences, admission/readmission to residence guarantees a student a place in residence as opposed to a particular room. Initial room assignments or later changes are at the sole discretion of the University.

4. Room assignment information is available in late July via the UNB Website (www.unb.ca) with students selecting My UNB e-Services, entering their Login ID and PIN, and selecting the Residence tab. Students experiencing problems should contact Residential Life, Campus & Conference Services.

New Residents

1. Students requesting residence must complete and submit a UNB Residences Application Form. Please note that this is a separate document from the University of New Brunswick Application for Admission. For incoming first year students, the UNB Residences Application Form is included in the UNB Admissions Handbook or can be accessed at www.unb.ca/sweb/application/residence.html. All other students (transfer students; exchange, visiting or St. Thomas University students; students entering law/graduate school, etc.) should contact Residential Life, Campus & Conference Services directly for instructions on residence application or complete www.unb.ca/sweb/application/residence.html and describe their situation.

2. New residence applicants should note that admission to residence will not be offered until admission to a UNB Fredericton program has been granted by the University Registrar and that acceptance to the University does not guarantee a place in residence.

3. Upon acceptance into their University program, residence applicants will be sent an offer of residence as well as a Response to Offer of Admission to Residence form. Students are asked to complete this form and return it with a $300.00 residence room deposit and a $100.00 damage deposit in accordance with the instructions found on the form. The receipt of this form and deposit by UNB serve as a residence confirmation and allows a room assignment to proceed. Please note that room assignments cannot take place without the receipt of the residence deposits.

Returning Residents

1. Students must apply each year for residence accommodation.

2. Reapplication forms are distributed to all residence students late in the Winter Term. Completed forms and a deposit should be submitted by the deadline indicated on the application form and according to instructions issued by Residential Life, Campus & Conference Services. Later applications and/or deposits are subject to remaining space.

3. Returning students are considered for readmission to residence provided:
   a. They have attained a minimum assessment grade point average of 2.0;
   b. Their conduct has been acceptable.
   Appeals of a decision to deny readmission may be sent to the Director, Residential Life.

4. Reapplicants are, where possible, readmitted to a house of their choice (provided that their residence reapplication and deposit are received by the deadline) but are not guaranteed readmission to a particular house and may be offered readmission to other houses.

RESIDENCE DEPOSIT REFUNDS

Requests for refunds should be directed to Residential Life, Campus & Conference Services. Students who have paid a deposit but send written notice of cancellation to Residential Life, Campus & Conference Services receive refunds as follows based on a $300 residence room deposit:

· a refund of $150 if the written notice is received on or before July 31. The balance of $150 is NOT REFUNDABLE.
· a refund of $50 if the written notice is received after July 31 but on or before Aug. 20 . The balance of $250 is NOT REFUNDABLE.
· NO REFUND IF THE WRITTEN NOTICE IS RECEIVED AFTER AUGUST 21.

The entire deposit is forfeited if the student cancels after August 20, fails to take up the reserved accommodation, or enters and then subsequently withdraws from residence.

RESIDENCE FEES

1. For Regulations governing the payment of fees, withdrawal, etc. please refer to Section C of this Calendar.

2. Information concerning current residence fees may be obtained from Residential Life, Campus & Conference Services.

3. (a) Rooms with meals: Each student's residence fee covers room and board from the day the residences open in the fall (date differs for new and returning students) until the day after the student's last regularly scheduled examination in December, and from the day before classes start in January until the day after the student's last regularly scheduled examination in the spring. Residential meals are served (in one dining hall only) during Thanksgiving Weekend in the first term or during the March Break in the second term.

   (b) Rooms without meals (limited number only): Each student's residence fee covers room rent and use of communal cooking facilities only for the same periods as specified in 3(a) above. Students also have the option of purchasing a residence meal plan from the food services contractor.

4. (a) Although the Christmas vacation period is not covered by residence fees and residences are closed, Residents who plan to resume occupancy of their rooms in January may leave their belongings in their rooms during the holidays, but the University accepts no responsibility for these belongings.

   (b) International and other students who are unable to return home at Christmas or make other arrangements may request permission to remain in residence (with kitchenettes but no dining plan) from Residential Life, Campus & Conference Services. Permission is granted only for those students with a genuine need and such students may not be able to remain in their regular residence. Students remaining in residence are required to pay a $200 fee (via their student account) covering the extra cleaning, support and activity costs for this holiday residence.

OFF-CAMPUS HOUSING

Students are responsible for making their own arrangements for off-campus housing. The UNB Student Union maintains an Off-Campus Housing List to assist students with finding suitable off-campus housing. It is advisable to visit the city well in advance of registration in order to locate suitable housing.

The University operates one suite-style building , which houses 173 graduate and upper year undergraduate students in 2 and 3 bedroom fully furnished suites, and one apartment building, Magee House, which can house 102 families in 49 one-bedroom, 48 two-bedroom and five three-bedroom apartments. Graduate students and upper year undergraduate students wishing to apply for the suite-style residence may obtain an application form Residential Life, Campus & Conference Services, email resadmin@unb.ca, Tel. (506) 453-4800, Fax (506) 453-3585. Student families wishing to apply for housing in Magee House may obtain application forms and information from the Residential Life, Campus & Conference Services, email: cmacfarl@unb.ca, Tel. (506) 453-4800, Fax (506) 453-3585.

Students living off-campus may choose from a variety of dining plans available from the food services contractor.

GENERAL

For further information about the above and other regulations pertinent to the residence community, please contact Residential Life, Campus & Conference Services, UNB, P.O. Box 4400, 20 Bailey DR., Fredericton, N.B. E3B 5A3. Phone (506) 453-4800; FAX (506) 447-3059; email: resadmin@unb.ca; www.unbf.ca/rlcs

Aboriginal Student Services and Programs

Special services and programs for Aboriginal students are provided on the Fredericton campus through the Mikmaq-Maliseet Institute (micmac@unb.ca) (Marshall d'Avray Hall, Rooms 343-344). The Institute is an academic unit of the University which administers UNB Academic programs for Aboriginal students and engages in research and publication in Aboriginal Studies and Aboriginal Education. The Institute's goal is to maintain the high quality of UNB programs for Aboriginal students and to broaden the Aboriginal content and perspectives in these programs. In addition, MMI develops new programs which meet the stated needs of the First Nations communities of the region and contribute to their educational and professional growth.

MMI services, which are intended for the use of First Nations students in all Faculties, include academic counselling and tutoring, access to the Mikmaq-Maliseet Resource Collection in the Harriet Irving Library, a First Nations student lounge, and opportunities to participate in social and other group events.

Degree credit courses are available in the Mikmaq and Maliseet languages and cultures, and in Aboriginal Business and Aboriginal Education.

For information on the special BEd Program for First Nations students and the First Nations Business Administration Certificate, see the Fredericton Programs Section of this Calendar.

Bridging Year Program

The Faculty of Education offers a Bridging Year Program for First Nations students who are preparing for admission to a UNB degree program. See the program description in the Fredericton Programs section of this Calendar (Section G) under Bachelor of Education.

Associated Alumni of the University of New Brunswick

The Associated Alumni of the University of New Brunswick has 62,000+ alumni (graduates) around the world.

The Associated Alumni keeps graduates connected with each other and the University, and provides opportunities for alumni to contribute to UNB's well-being. The Associated Alumni is governed by an elected and appointed council of 30 former students from various graduating classes, geographical areas and faculties.

Our Alumni are "energized and involved" in the life of the University of New Brunswick. Alumni help with governing the University, advocating on behalf of the university, volunteering, recruiting students, and making financial donations. Alumni give time, talent and treasures to their alma mater. One valuable contribution the Associated Alumni makes to current UNB students is by providing scholarships and merit awards.

You are a student for a defined period of time, but, you will be an alumnus or alumna of the University of New Brunswick for life! UNB's alumni are an integral part of the future of this university. So, what do you call yourself when you graduate? A UNB...

Definitions:
- ALUMNI - all graduates both males and females
- ALUMNAE - plural, females
- ALUMNUS - singular male
- ALUMNA - singular female

The Associated Alumni of the University of New Brunswick

began in 1862 when seven of the approximately 200 UNB graduates met. They subsequently formed an "alumni society" based on the following motion by Mr. G.S. Smith (class of 1854): "that the objects of such a society be - first, the advancement of the interests of the University of New Brunswick by all honourable means." The association has been an active and important part of the UNB family every since.

"Floreat Alma Mater - May the Alma Mater Prosper"

Athletics

The University, through its Faculty of Kinesiology, provides opportunities for participation in a wide variety of recreational and competitive varsity athletic activities. The offices of the Faculty, together with classrooms and laboratories are located in the Lady Beaverbrook Gymnasium. Other features of this building include two gymnasium floors (one with spectator accommodation for 1,200), the Sir Max Aitken Pool (500 spectators), four squash/handball courts, a dance studio, conditioning room, and equipment issue rooms.

The Education Gym contains a full gymnasium plus facilities for gymnastics and the martial arts. There are playing fields adjacent to both gyms and to the Aitken University Centre, as well as a fourth field and running track situated on the lower campus.

The Aitken University Centre is the home of the UNB Varsity Reds and the administrative offices for this athletics program are located there. The building is widely used by the University and includes classroom and training room facilities, noon hour skating, as well as an indoor walking/jogging area.

Thus, with the facilities of three gymnasia, one swimming pool, four playing fields, an arena, and specialty rooms, supplemented by changing facilities and a program that ranges from highly organized intercollegiate competition to casual recreational play, UNB is able to provide sport and recreational activities for all members of the University community.

The Varsity Reds Athletic Program competes in the Atlantic University Sport (AUS) Conference and Canadian Interuniversity Sport (CIS) in the sports of Men's and Women's Basketball, Volleyball, Soccer, Wrestling, Swimming, Hockey and Cross-Country.

Undergraduate Awards Office

The Undergraduate Awards Office looks after scholarships and bursaries for students on both campuses. The office is located in Sir Howard Douglas Hall on the Fredericton campus.

For regulations and general information please refer to the Financial Information Section of this Calendar/ Scholarships, Prizes and Awards. For Awards descriptions, please see the Awards section.

Bank

A Bank of Montreal Financial Management Centre, specializing in credit, investment and financial management services, is located on Dineen Drive in the UNB Bookstore building. The branch offers two on site full service banking machines, passbook update and statement printer, telephone banking centre and internet banking. There are three additional cash machines on campus (two located at the Student Union Building and a third at St. Thomas University).

Branch Hours are 10:00 a.m. - 4:30 p.m., Monday - Friday.

Bookstores

There are well equipped bookstores on both campuses in central locations from which students may obtain books and supplies at a reasonable cost.

The University Bookstore offers a wide variety of services to the student community. It is a well stocked retail operation selling textbooks and reference books for all courses taught at UNB and STU, general interest books, special order books, a full line of stationery and office supplies, computer hardware, software and peripherals, as well as university crested clothing and gift items.

Visit the Bookstore Online at: http://www.unb.bkstr.ca or contact them by telephone at 453-4664 or e-mail to: bookstor@unb.ca .

Campus Ministry

The UNB Campus Ministry service is offered by a Protestant Ecumenical Chaplain. The chaplain's role on campus is to minister to the religious and spiritual needs of *all members* of the university community (this includes all those who either do or do not identify themselves as a participant in a specific religious or spiritual tradition). The chaplaincy offers spiritual counselling, mentorship and guidance, and a listening ear and non-judgemental presence. Our chaplaincy service is also a sounding board for students as they begin to integrate their university learning experiences with their life of faith. The chaplain also conducts memorial services and offers prayers at convocations and other special events. At the same time, the chaplaincy actively initiates meaningful contact with many local faith groups from a wide variety of faith traditions. In doing so, we aim to foster a spirit of unity, understanding, respect, and solidarity with all those who pursue a life of spiritual grounding. Students, staff, faculty, and members of the greater community can contact UNB Campus Ministry at the Campus Ministry Office (C.C. Jones Student Services Centre) or by calling (506) 453-5089. The Campus Ministry website can be found at http://www.unb.ca/fredericton/studentservices/health-wellness/spirituality/ministry.html

Childcare Services

College Hill Daycare Co-op Ltd.

The College Hill Daycare Cooperastive Ltd. is the non profit daycare Servicing UNB and STU faculty, staff, and students. This educational Emergent based program enrols children from 6 months to 8 years (after school). **For more information: Phone:** (506)458-2883 **Email:** chdc@unb.ca **Website:** www.unb.ca/chdc

Continuing Education and Programs for Part-Time Students

The University provides a variety of courses, programs and services for individuals who need or prefer to study on a part-time basis at either campus as well as at several off-campus locations. These learning opportunities are designed to meet the variety of roles of the individual: occupational, professional, personal, familial and communal.

The following types of programs and services are offered through the UNB College of Extended Learning (CEL). Further information is available through the Fall/Winter and Spring/Summer calendars published by the CEL and the CEL website (http://extend.unb.ca) .

1. **Part-time Degree and Certificate Courses:** Credit courses are offered in many disciplines that can be applied towards a variety of degree programs or certificate programs (e.g. Certificate in Family Violence Issues; Certificate in Administration; Certificate Program in Software Development; Certificate in Film Production; Certificate of Proficiency in French; Certificate of Proficiency in Spanish; Certificate in Adult Education). UNBs newest degree program is the Bachelor of Integrated Studies (BIS), a degree completion program for adult learners. Offered through UNB's Renaissance College and the College of Extended Learning, this program is designed for part-time study. Academic sessions are offered throughout the calendar year, and part-time students can elect to take courses during the day or evening or independently, according to their interests and needs. Responsibility for the degree/certificate courses rests with the respective academic units, which are also responsible for the academic advising. The advising of part-time students who are not enrolled in a program and for Bachelor of Integrated Studies students is conducted through the College of Extended Learning.

2. **Non-Degree Certificates and Workshops:** The College of Extended Learning offers a number of specialized certificate programs to enhance career and personal achievement. Professional development certificate programs include Management Development; Human Resources Management; Public Service Management; Project Management; Health, Safety and Environmental Processes; and Fluency in Information Technology (FITness). The College offers various workshops on effective leadership, management and supervision in the changing workplace. A wide range of courses are offered that are designed to enhance the personal and cultural enrichment of learners including courses in creative writing, business etiquette, painting and drawing, as well as programs like the Maritime Writers Workshop & Literary Festival and Design Works summer program for youth.

3. **English Language Programme:** See the section below, entitled English as a Second Language - Fredericton Campus.

4. **Distance Education and E-Learning:** In order to better meet the diverse needs of learners, UNB offers a variety of options in course delivery, including audio and video conferencing, text-based correspondence courses, as well as e-learning options through web-based study in the Open Access Learning Program (OALP). The University Programs on the Miramichi offered by UNB, Mount Allison University, and St. Thomas University provides an opportunity for qualified individuals in the Miramichi region to complete first-year studies in Arts, Science, or Business/Commerce.

5. **Visual Arts and Music:** The UNB Art Centre and the Centre for Musical Arts offer a variety of participation and learning (credit and non-credit) opportunities to UNB students and community members. See Fine Arts section for further detail.

6. **Writing and Math Centres:** These Centres provides individual tutoring and small-group workshops, as well as Saturday and evening sessions. The Writing and Study Skills Program covers essay and report writing, reading techniques, examination preparation, and time management. The Math Help Program is available for all first-year Math courses. Services are free to full-and part-time UNB students; sessions are available by appointment.

7. **Financial Assistance:** Advice and information on loans, bursaries and scholarships for part-time students is offered through the College of Extended Learning (453-4818).

8. **Adult Learner Services:** Advice and information for adults considering or enrolled in academic studies at UNB (453-4818).

9. **Prior Learning Assessment:** In some circumstances, students/potential students may have attained university-level learning through means other than formal university courses. Information and guidelines related to UNB's Prior Learning Assessment policy are available to students, prospective students and faculty from CEL (458-7617). See Section B for further detail.

10. **Adult Learners and Part-time Students (ALPS):** ALPS, UNB's student union for part-time undergraduate students, was established to respond to these student's unique concerns and issues, to provide a support network, to help create an enriched University enviroment, and to act as an advocate for all part-time undergraduate students.

For additional information, contact the College of Extended Learning, P.O. Box 4400, Fredericton, NB, E3B 5A3; (506) 453-4646 (phone); (506) 453-3572 (fax); extend@unb.ca (email); http://extend.unb.ca (website).

Counselling Services

At Counselling Services, there is a friendly, helpful staff of professional counsellors, as well as a Career Consultant, who helps students use the Career Resource Centre.

All staff maintain strict confidentiality in their dealings with students who make use of Counselling Services.

Counselling Services provides the following:

1. Personal Counselling services to help students deal with a wide range of issues that may be bothering them. Examples of personal issues that we can help with include, shyness, self-esteem, assertiveness, anxiety, depression, anger, stress management, consequences of traumatic events, marital and relationship problems, procrastination, concentration, exam anxiety, self-injury, thoughts of suicide, eating issues, alcohol and drug problems, and many others.

2. Career Counselling services to help students identify their career goals and provide guidance through the career planning and decision making process. Examples of career guidance we can provide include: choosing a major and identifying potential career paths based on interests, skills, values, and personality types.

3. Consultation regarding concerns a friend, staff or faculty member, or other individual may have about a student or situation. Note that no counselling staff person will discuss or release any information about any individual who might be a client of Counselling Services.

Counselling Services is located on the 2nd floor of the C.C. Jones Student Services centre. Services are available free of charge to all full-time and part-time students of UNB and Saint Thomas University. Fall and winter office hours are weekdays: 8:15 a.m. - 4:30 p.m. Summer hours are weekdays: 7:45 a.m. - 12:00 noon, and 1:00 p.m. - 4:00 p.m. For information or to make an appointment call 453-4820. If you need help after-hours or on weekends, call 453-4820 and you will be given the option to be connected to the CHIMO Helpline.

For additional information please visit our website at: http://www.unb.ca/fredericton /counselling

Employment Services

The Student Employment Service located in the historic Neville Homestead, helps students find full-time degree-related employment after graduation, part-time employment on campus during the academic year, as well as summer jobs and internships. We provide in-depth resume, cover letter and interview guidance and on-going Job Search Strategy advising (by appointment and by workshop/seminar). There are approximately 2,000 employment opportunities and over 40 company information sessions held on campus each year. All students are encouraged to contact the Student Employment Service at the beginning of the academic year to review the many opportunities and to take part in the fall recruitment campaigns as well as our 3 annual Career Fairs and Work-study Program (part-time on-campus employment).

Student employment opportunities and other helpful tips and job search information can be seen on our web-site: http://www.unb.ca/employment.

For information contact: Phone (506) 453-4620; Fax (506) 453-4610; email to: employment@unb.ca   .

English as a Second Language

Established in 1950, the UNB English Language Programme offers courses to assist non-anglophones to function in an English milieu. In all formats, the language of instruction is English; all communication is to be carried on in English as well. Classes for all proficiency levels are offered. Students are placed according to their levels.

A proven way to learn English with over sic decades of success.

A. **(Total Intense) SUBMARINE© Immersion Formats:** This approach incorporates round the clock classes and activities. A Commitment Contract (Pledge) to function only in English for the duration of enrolment is the basis of operation.
   1. Executive Model: Three-week and two-week, small-group modules featuring individualized attention and personalized scheduling are offered monthly.
   2. Intersession and Summer session, large-group sessions. Offered May/June and July/August.

B. **Term/Modified Term Format:**
   1. Intensive English term format is 23 hours per week. May to August, September to December and January to April.
   2. Intensive English Term Segment – 23 hours per week. September October , January to February and April to July.
   3. Evening classes, a three-hour   block per week; undergraduate and graduate, credit and non-credit; September to December and January to April.

C. **English Language Classes:**
   1. Tutorial classes are available to meet individual needs.
   2. Daily classes in one-week units; 10, 15, 25, 35 hours per week.

The UNB English Language Programme also offers a variety of specialized formats and workshops such as Assessment Workshops and Professional Development Workshops, and Custom-designed Group Programs.

For information and registration, please contact: UNB College of Extended Learning English Language Programme.
Telephone: (506) 453-3564
e-mail: elp@unb.ca
website: elp.unb.ca

Faculty Advisors

1. It is very important that students consult with their faculty in planning their program.

2. Faculty advisors are available to all students in the university, and are available for consultation during students full stay on the campus.

3. If students wish to see a faculty advisor they should contact their respective Faculty or Deans Office and ask to be assigned a faculty advisor. Each faculty has its own procedures for assigning students to faculty advisors.

4. In the faculty of Science, academic advising is provided by the Dean or Associate Deans for the first two years, with individual advisors appointed when students select their major programs of study.

5. In the Faculty of Arts, academic advising in the first two years is done primarily through the core ARTS 1000 course. ARTS 1000 tutorial leaders also provide academic advising. Students without an ARTS 1000 advisor will see an Associate Dean for counselling. When students select their field of study departmental advisors will be assigned.

Financial Aid

Contact the UNB Financial Aid Office for information/assistance on Government loans. The Financial Aid Office acts as a liaison between students and all governmental student aid offices. Assistance is available to students who need to obtain a provincial student loan application; require an explanation of their government student aid assessment; wish to initiate an appeal for further loan assistance; need information on Canada Study Grants, Millennium Scholarships and; terms of repayment. Additionally, should you not be eligible for Government Loan Assistance, you may discuss alternative funding options such as chartered bank Student Loans and Line-of-Credit procedures with the Financial Aid Office.

Other services provided by the Financial Aid Office include, but, are not limited to:

1. *UNB Special Bursary Program* is available to undergraduate students with demonstrated financial need.

2. *Dr. Florence T Snodgrass Bursary* for New Brunswick Students Program is available to undergraduate students from the Province of New Brunswick with demonstrated financial need.

3. *Graduate Bursary Program* is available to graduate students with demonstrated financial need.

4. *Work Study Program* is a subsidized work program designed to assist financially needy students with the high costs associated with post-secondary study. The program will also provide students with an opportunity to gain valuable skills/experience within an on-campus part-time employment situation.

5. *University Small Loan Program* makes low-interest loans available to full-time students who have successfully completed one term at UNB. Maximum loan award for an academic year is $800.00

For application information and deadlines, please contact the Financial Aid Office of UNB, first floor C.C. Jones Student Services Centre, (506) 453-4796 or email: finaid@unb.ca and website: http://www.unb.ca/fredericton/studentservices/financial-aid/

For information and applications for part-time student awards, please contact the College of Extended Learning at (506) 453-4818 or email to : ptaward@unb.ca

Fine Arts

UNB has a long tradition of encouraging the fine arts and has directed its resources into sustaining diversified cultural activities.

On the Fredericton campus, Fine Arts offerings reflect the philosophy that in a modern university the creative and intellectual aspects of life must be closely integrated.

Fine arts facilities and activities include:

1. **UNB Art Centre:** Founded in 1941 by Pegi Nicol MacLeod and Lucy Jarvis, the UNB Art Centre is considered one of the oldest art centres in the Atlantic region. It remains a focus for a range of informative and stimulating exhibitions and programs. It is home to UNB's student art group, ARTZONE. The UNB Art Centre is the custodian of the UNB Permanent Collection which totals close to 1500 artworks assembled through the generosity of alumni and benefactors. The collection is on display throughout the Fredericton and Saint John campuses.

2. **The Centre for Musical Arts**, established in 1992, is under the direction of Richard Hornsby. It offers credit and non-credit courses, practice facilities, instruments for student use, a Concert Series, a Young Musicians Program, and a Summer Music Camp and an affiliated professional Music Festival (New Brunswick Summer Music Festival). There are also many ensembles available to students such as the Concert Choir (Director, Bjorn Runefors), and instrumental ensembles (concert band, brass ensemble, flute choir, jazz band)(Director, Richard Hornsby), as well as the Musician-in-Residence program (1993-97, Robert Kortgaard - piano; 1997-2001, Richard Raymond - piano, 2001- Peter Allen).

   Drama at UNB. UNB offers a number of courses in Drama, providing students with training in acting, directing, design, set instruction, lighting and stage management. Theatre UNB produces 5-7 main stage productions annually at Memorial Hall, including faculty-directed class productions an student-directed production open to participation by anyone with an interest in theatre. The activities of Theatre UNB are organized by Len Falkenstein (Director of Drama). Drama course can be found in the Drama and English Department Sections of the Calendar.

   Music on the Hill. Music on the Hill offers an annual concert series featuring international, national and regional artists. This is a cooperative endeavour of the Centre for Musical Arts and a cross-disciplinary committee with representation from UNB and STU.

   Film and Video. A series of courses in film studies is offered by the Department of English. These may be taken as optional courses or as part of the Fine Arts Minor.

   Writer-in-Residence. This position has been held by Norman Levine (1965-66), Dorothy Livesay (1966-68), John Metcalfe (1972-73), Alden Nowlan (1968-83), David Adams Richards (1985-87), Douglas Glover (1987-88), Helen Weinzweig (1988-89), Nancy Bauer (1989-90), William Gaston (1990-92), Don Hannah (1992-93) and Karen Connelly (1993-94) and Beth Harvor (1994-95), Anne Michaels (1995-96), Bill Bissett (1998), Richard Sanger (1998-99), Doug Fetherling (2000-01), John Steffler (2001-02), Anne Simpson (2002-03), Ken McKoogan (2003-04).

   The Fiddlehead Magazine. Canada's oldest continuing journal of poetry and short stories was conceived more than three decades ago by Alfred Bailey, and grew from a few mimeographed sheets of poems by students and some faculty to include short stories and book reviews. It has been called a WHOS WHO of Canadian Literature, and it has been edited by various faculty members over the years, including Fred Cogswell, Kent Thompson, Roger Ploude, Peter Thomas, Robert Gibbs, and Don McKay. The

current editor is Ross Leckie. Although its emphasis is on Canadian prose and poetry, the Fiddlehead is open to good writing in English from contributors around the world.

Memorial Hall is the site for on-campus as well as touring drama and music productions. It also houses the UNB Art Centre and the Centre for Musical Arts.

Special events and programs. Concerts, music master classes and workshops, summer music programs, writers conferences, exhibitions, poetry-readings, and drama productions are arranged or sponsored by the UNB Art Centre, the Centre for Musical Arts, Theatre UNB and Music on the Hill.

Food Services

On-campus food services are provided:

1. In the three residence dining halls with residence students having the choice of five dining plans with varying combinations of structured meals and discretionary carsh. Students who live off-campus also have the option of buying various dining plans or occasional meals on a cash basis;

2. In the Student Union Building, Head Hall, Harriet Irving Library, IUC< D'Avry Hall and McLaggan Hall; an

3. In vending machines located in many university buildings.

General information regarding food services, vending and beverage conracts may be obtained from the Executive Director, Residential Life, Campus & Conference Services whose office is in the Residence Administration Building or by calling 453-4800 or by e-mailing: jbrown@unb.ca

Information concerning planning an on-campus event involving food or beverage, or hosting a conference on campus may be obtained from the Conference Co-ordinator at Residential Life, Campus & Conference Services in the Residence Administration Building, 453-4800 or e-mail: Stay@unb.ca. If for specific facilities, contact the Director of the Wu Centre, 453-5135, e-mail: wu@unb.ca Or the Event & Marketing co-ordinator of the Aitken Centre, 458-7803, email: morel@unb.ca

Graduate Studies

The University offers a wide range of post-graduate programs through its School of Graduate Studies. The degree of Doctor of Philosophy is offered in Graduate Academic Units in the departments of Biology, Chemical Engineering, Chemistry, Civil Engineering, Computer Science, Education, Electrical Engineering, English, Forestry and Environmental Management, Geodesy and Geomatics (Surveying) Engineering, Geology, History, Interdisciplinary Studies, Mathematics and Statistics, Mechanical Engineering, Physics, Psychology, and Sociology.

Master's degrees are offered in Graduate Academic Units in almost all departments. Graduate studies are carried out on both campuses of the University.
Detailed information concerning the programs offered, financial assistance for graduate students, and regulations governing admission and degree requirements will be found in the School of Graduate Studies Calendar available on request from the School of Graduate Studies (email: gradschl@unb.ca) or on the Internet at http://www.unb.ca/gradschl/

Health Insurance, Student

Basic Health Coverage

Basic health and hospital benefits for Canadian students are provided by the Medicare Plan of their province of permanent residence. Students must ensure that they are registered and in good standing with the Hospital Commission of their province.

International students with student visas do not qualify for

Medicare coverage. Basic health coverage for international students is provided through an insured plan administered by the University. International students on both campuses should refer to the following web site for information concerning opt-out dates, refunds, etc.:
http://www.unb.ca/services/financialservices/students/interhealth.htm

International students with landed immigrant status do qualify for Medicare and hospital benefits and must register with the Province immediately upon arrival. Please also refer to the above web site for more information.

Supplementary Health and Dental Coverage

All full-time students on both campuses are automatically enrolled in the Student Health/Dental Plan. The Plan is designed to supplement the coverage provided by the provincial Medicare plans, or by the plan for international students. Administered by the Student Union on the Fredericton campus, and by the Student Representative Council (SRC) on the Saint John campus, the Plan provides students with a comprehensive set of extended health and dental benefits including 80% coverage on prescription drugs, paramedical services, ambulance services, etc. The coverage runs from September 1 through August 31. Students wishing to enroll dependents must contact the Student Union/SRC to make arrangements (Fredericton students: 453-4955; Saint John students: 648-5684).

Students providing proof of alternate coverage may opt out of the Student Health/Dental Plan. To opt out, students must complete an opt-out form and have it signed by a Student Union/SRC staff member. Students who opt out will be credited for the Health/Dental fee. The deadline to complete the opt-out process is September 23, 2005 for both campuses, with no exceptions beyond this date. It is the responsibility of the student to follow all steps and adhere to the deadline in order to receive credit. Students must opt out annually as the opt-out does not automatically carry forward from year to year. The opt-out deadline for new students starting in January (those who were not full-time in September) will be January 20, 2006.

Please refer to the Financial Information section of this calendar for Health Insurance fees and payment deadlines. Information can also be found online at http://www.unb.ca/services/financialservices/students/tuitionfees.htm

For further information about the Plan, please contact: Fredericton Student Union, Room 126, Student Union Building [(506) 453-4955] or Saint John Student Representative Council, Room 213, T.J. Condon Student Centre [(506) 648-5684].

Health Services

The Student Health Centre is located on the third floor of the C.C. Jones Student Services Centre (26 Bailey Drive). Phone (506) 453-4837, fax (506)452-6087.

Student Health Centre services are available to full time UNB and STU students. These services include physical examinations, mental health care, sexual health care, nutrition counselling, sports medicine, referral to a specialist when necessary, sample collection (blood, urine, etc, immunizations, flu shots and allergy injections.

Fall/Winter Hours: Monday to Thursday, 8:15 a.m. to 12:00 p.m. and 1:00 p.m. to 4:15 p.m.
Friday, 8:15 a.m. to 12:00 p.m. and 1:00 p.m. to 3:30 p.m.

Summer Hours: Monday to Thursday, 8:15 a.m. to 12:00 p.m. and 1:00 p.m. to 3:45 p.m.
Friday, 8:15 a.m. to 12:00 p.m. and 1:00 p.m. to 3:30 p.m.

CLOSED - Weekends and holidays. After Hour Clinic and Emergency Department location and hours can be found on our web site: http://www.unb.ca/fredericton/studentservices/health-wellness/health-centre/index.html

Information Centres

Advocacy Centre

The UNB Student Union-run Advocacy Centre is a place where undergraduate students can access free, confidential legal information from student advocates. If they cannot provide you with specific information, they will find the information for you, or direct you to somewhere that the information can be provided. The advocates are a prime avenue to access Universal Legal Coverage. The Advocacy is located in room 31 in the SUB. Call 447-3068 or email to: univaff@unb.ca for more information.

PaperTrail

The Student Union-run PaperTrail is located in the lobby of the Student Union building. Photocopies, fax service, a binding service, as well as stationary and other merchandise, are available. Also offered are Bus passes, campus maps, and tickets for most activities. The PaperTrail acts as a photofinishing drop-off location, and also a Pharmacy Prescription drop-off which arranges for your prescriptions to be delivered to your home for free. Call 447-3079 for hours and information.

The UNB Student Union-run Canada Post Outlet is located at the Paper Trail. The Outlet provides a full range of postal services including, but not limited to, meter stamp sales, student loan processing and money orders. Phone (506) 447-3079 for operating hours or contact the UNB Student Union at (506) 453-4955 for more information. Campus Mail remains the responsibility of the university.

Student Information Centre

The Student Union-run Information Centre is located in the lobby of the Student Union Building (sharing space with the Paper Trail), room 105. Information on any event, program, club, employment opportunity, etc. is available. The Information Centre also coordinates several workshops throughout the school year. Other popular services are the Odd Job Bank and the Used Book Sale, which takes place at the beginning of each term. Call 447-3079 for more information, or email to: resource@unb.ca .

University Womens Centre

Governed by a Board consisting of various members of the UNB, STU and Fredericton Community, the University Womens Centre opened in the fall of 2002. Located in room 129 in the Student Union Building, the centre provides information, space and support for all members of the university community. For more information, phone (506) 452-6124 or email to: women@unb.ca .

InformationTechnology Services (ITS)

Information Technology Services (ITS) provides students with the technology support, information and services they need to live and study at UNB. This includes computer lab services, laptop support, wireless networking, email and calendaring services, and much more.

ITS Help Desk

The ITS Help Desk is there to help with any questions or issues related to your UNB IT accounts, email, wireless, software, printing, access to web services, spam or phishing emails, IT security or general IT questions.

Fredericton campus - Phone (506) 453-5199, email helpdesk@unb.ca or drop by in person at the Harriet Irving Library (HIL), Learning Commons from 8 a.m. to 10 p.m. daily (unless the HIL is closed).
Saint John Campus - Visit the Student Technology Centre in the Hans W. Klohn Commons (first floor), phone (506) 657-HELP (4357), or email studenthelpdesk@unbsj.ca .

myUNB Portal

The myUNB Portal gives you single sign-on access to all your personal IT services at UNB, including your UNB email and calendar, Desire2Learn, class and exam schedule, and term marks. It also keeps you informed about UNB cancellations, upcoming events, and much more. Log in at https://my.unb.ca .

Using your Devices on Campus

For instructions on how to setup wireless, printing, email and more on your laptop, desktop, smartphone or tablet, visit the ITS Website (http://unb.ca/its). The site also provides details on the various IT services available to you through ITS, such as where to find a computer lab, upcoming scheduled IT outages, how to get IT Help, and more.

ITS on Twitter and Facebook

Want to stay in the loop about current and upcoming IT outages, news and events? The ITS Twitter and Facebook pages keep you up to speed on what's going on with technology on campus and also provide you with another way to send a quick question or comment to the Help Desk.
Twitter - https://twitter.com/UNB_ITS
Facebook - https://www.facebook.com/UNBITS

Imaging & Print Services (Fredericton Campus)

Imaging & Print Services is a full service, professional printing facility providing students, faculty and staff with a wide variety of high quality imaging and printing services. Located in Marshall D'Avray Hall (room 106), their services and products include black & white and colour copying and printing, letterhead and business cards, brochures and flyers, laminating, posters and signage, and more. For more information, including a price list and contact information, visit http://www.unb.ca/its/professional-printing-services.

International Student Advisor

Website: GO.UNB.CA/ISAO
The International Student Advisor's Office (ISAO) is on campus to provide advice and support to international students throughout their degree program. ISAO support services for international students include: information workshops to help students upon their arrival in Fredericton, personal, financial and cultural advising, International Student Success Guide and Workshops, information on Canadian immigration, and assistance with applications for work-permits, transit visa and renewal of study permits. The International Student Advisor's Office is located in C.C. Jones Student Services Centre and is open during the regular campus office hours.

For more information contact: Phone: (506) 453-4860; Fax (506)453-5005; email to: isao@unb.ca

Libraries

UNB Libraries offer access to a wealth of research materials in both electronic and print formats. There are four libraries on the Fredericton campus -- Harriet Irving Library, the Science and Forestry Library, the Engineering Library, and the Gerard V. LaForest Law Library.

The current library collection comprises over one million print volumes, three million microforms, over 250,000 government documents (NB, Canada, and international) and maps, periodicals, DVDs, rare books, manuscripts, the University Archives, as well as a number of special collections. The libraries also subscribe to electronic resources including over 20,000 full-text journals, 100 major research databases

(indexes & abstracts), over 200,000 electronic books, local and national newspapers, and a variety of reference materials. Quest, the online library catalogue, provides access to materials held in any of UNB's libraries including the Ward Chipman Library at UNBSJ.

Services include research consultations with librarians, assistance with electronic and print resources either in person or online. IT help is available via the ITS Help Desk at Harriet Irving Library. Instruction sessions are offered to support students in all levels of study and library orientation tours are available upon request. All libraries offer group study rooms, wireless access, laptop computers, study tables and individual carrels. Harriet Irving Library's new Learning Commons offers a variety of learning environments including options such as comfortable group or individual seating, academic support, computer workstations, an Accessibility Centre, multimedia viewing facilities and a Commons Cafe.

Further information including opening hours is available by connecting to the library website www.lib.unb.ca

Math Learning Centre and Writing and Study Skills Centre

Math Learning Centre:

The Math Learning Centre provides individual tutoring, group tutorials, workshops and exam review sessions for all students taking first year Math courses. Services are free to full-and part-time UNB students. The centre is located in Tilley Hall 422. Call (453-4768) for an appointment.
For more information please go to www.mathunb.ca/~mathhelp/

Writing and Study Skills Centre:

The Writing and Study Skills Centre (C.C. Jones Student Services Centre, rooms 16 and 17) offers free individual and small group tutoring as well as a variety of workshops for full- and part-time UNB Fredericton students. Topics include essay and report writing, effective reading and study techniques, examination preparation, and time management. Individual appointments can be booked by phone (453-4527 or 452-6346). The centre also offers drop-in hours at the Harriet Irving Library Learning Commons (room 116). The current workshop schedule and appointment schedules are available online: http://www.unb.ca/fredericton/studentservices/academics/writing-centre/

Research

Eighty per cent of all university research in New Brunswick is conducted at UNB. There are many opportunities for undergraduate students to engage in research with faculty members, receive funding for their pursuits, and continue their research and education at UNB through graduate studies. A number of interdisciplinary research programs exist in which faculty members and students from various Departments collaborate to investigate problems of mutual interest. Active research units include the Canadian Research Institute for Social Policy, Canadian Rivers Institute, Centre for Coastal Studies and Aquaculture, Canadian Centre for Geodetic Engineering, Centre for Nuclear Energy Research, Centre for Property Studies, Electronic Text Centre, Gregg Centre for the Study of War and Society, Information Technology Centre, Institute of Biomedical Engineering, Limerick Pulp and Paper Centre, Muriel McQueen Fergusson Centre for Family Violence Research, and the Wood Science and Technology Centre, to name a few. The Office of Research Services, the research administration and development unit, facilitates the undertaking of research within the university on behalf of industry, government, and other clients and sponsors. It also promotes the application of research results to industrial problems and, where appropriate, the transfer of knowledge and technology through various types of transfer arrangements.

Further information concerning research activities at the University may be obtained from the Office of the Vice-President (Research): www.unb.ca/research/

Security and Traffic

Some of the services provided by our department include:

Campus Patrols
Campus Inspections
Proactive Crime Prevention Strategies
Residence Security

In addition to the physical security of the campuses, security is responsible for parking and traffic control. Parking regulations are in effect and students, faculty and staff and visitors must register their vehicles with the Security and Traffic office and purchase a parking permit to park on campus. The Security and Traffic Department personnel will gladly address questions relative to parking.

Parking violations will result in fines. Violation tickets that are not paid within seven days could result in having the violating vehicle towed from campus without notice and at the owners expense and risk. Vehicles left contrary to the parking regulations constitute or create a traffic hazard and may also be towed away at the owners expense and risk without prior notification. Non-payment of parking fines may result in withholding of grades and transcripts or deductions from financial awards to students.

For further information on parking regulations, services provided, as well as information on safety and security tips, refer to the UNB website at http://www.unbf.ca/security.

Sexual Harassment Policy

Sexual harassment is unwanted attention of a sexual nature, often with an underlying element of threat or coercion. It can also include sexist remarks or verbal abuse directed towards a person or a gender. There are four major dimensions of sexual harassment:

1. when acceptance or rejection of sexual advances is a condition of education or employment;

2. when acceptance or rejection of sexual advances affects grades, performance evaluations, or any academic or personnel decisions that concern the student or employee;

3. when conduct of a sexual nature interferes with work or creates an intimidating, hostile, offensive or humiliating environment;

4. when sexual remarks and behaviour of an individual or group of individuals, which may not be physically threatening, create an environment that makes you uncomfortable.

You can contact, on a confidential basis, a Sexual Harassment Advisor, whose role is to provide you with support and information on the options available to you, both informal and formal. Advisors' names and telephone numbers are listed below. The Policy and Procedure on Sexual Harassment of the University of New Brunswick provides several options for action which include: The Direct Approach, Intervention By An Advisor, Mediation, and Formal Investigation.

The complete Policy can be accessed at: http://www.unb.ca/hr/amployees/policies/harassment.php

Spring and Summer Sessions

Fredericton and Saint John Campuses

The University offers a variety of academic sessions during the spring and summer period: Intersession (Fredericton only) during May and June, Spring Session (Saint John only) from May through July, and Summer Session (Fredericton) during July and August. Courses are offered in a variety of disciplines.

Spring and summer study allows current undergraduate and graduate students to progress in their programs as well as new or visiting students to participate in UNB offerings. Special professional development opportunities exist for teachers as well as travel/study options for all interested students.

As part of its overall Summer Session on the Fredericton campus the University also offers programs through the English Language Programme for those wishing to increase their facility in English: an academic preparation course, Intensive English Term Format (May-August), two five-week residential immersion sessions (Submarine© formats: May-June and July-August) for adult learners and one four-week residential language camp for high school students during July-August. Contact the English Language Programme, College of Extended Learning for further details.

In addition to the degree-credit courses, a variety of cultural and related educational activities (e.g. Maritime Writers Workshop & Literary Festival, Summer Music Camp, Summer Music Festival) are provided.

Calendars for the Spring and Summer sessions are available in the spring of each year.

For further information, contact the College of Extended Learning, UNB Fredericton, P.O. Box 4400, Fredericton, N.B. E3B 5A3, (506) 453-4646 (phone), (506) 453-3572 (fax), extend@unb.ca (email), http://extend.unb.ca/ (web site). In Saint John, contact the Registrars Office, UNB Saint John, P.O. Box 5050, Tucker Park, Saint John, N.B. E2L 4L5, (506)648-5670 (phone).

Student Affairs and Services

Student Affairs and Services Website:

http://www.unb.ca/fredericton/studentservices/

Executive Director of Student Affairs and Services

The Director of Student Affairs and Services Office is located in the Alumni Memorial Building, Room 8, phone (506) 453-4527, fax (506) 453-5005. The Director is administratively responsible for a comprehensive array of programs and services for students including Counselling, Financial Aid, Student Health Centre, International Student Advisor, Services for Students with Disabilities, Student Development, Student Employment and Campus Ministry. Students who are uncertain of where to begin to address a problem or concern should contact the Director's office for information or referral to the appropriate offices or persons who will address the student's concerns.

Student Advocate

The Office of the Student Advocate is located in the C.C. Jones Student Services Centre, phone (506) 453-4527, fax (506) 453-5005. The Student Advocate assists students in preparing academic appeals directed to the Senate Student Standings and Promotions Committee (SS&P), assists students in compassionate or medical absence from class documentation, refers students to appropriate faculty officials, and guides students through course grade reviews and individual piece of work grade reviews. The Student Advocate also receives complaints from students and determines the appropriate venue for dealing with them, and provides students with information and support when students are charged under the Student Disciplinary Code (SDC) and the Student General Regulations on Conduct.

Student Development Coordinator

UNB Fredericton offers a variety of orientation programs for all new entering studentsand their parents and supporters. These activities assist with a successful transition into all aspects of university life. In concert with the Faculties and other campus units, this office coordinates various other peer-led and leadership programs, including peer mentors and peer tutors; and student development and wellness programs such as the UNB Sexuality Centre and Student Health 101. For further information contact the Student Development Coordinator in the C.C. Jones Student Services Centre, phone (506) 453-4898, fax 453-5005.

Student Centres

Student Union Building

The Student Union Building (SUB), completed in January 1969, is the result of student-administration cooperation. The cost was shared among the students of the University of New Brunswick, Saint Thomas University, and the former Teachers College, with the University of New Brunswick matching the student contribution.

The SUB houses the offices of several student groups and organizations. Both the Saint Thomas University and the University of New Brunswick student newspaper offices and the student government offices are located in the office wing as well as CHSR-FM, the student radio station. In the main part of the building there are several meeting rooms, a lounge area, a large cafeteria, the College Hill Social Club, The Cellar Pub n' Grill, the Information Centre, the PaperTrail, The Advocacy Centre, the University Women's Centre, the ballroom and the main administrative office for the SUB. For the convenience of the students there are also several retail outlets such as a clothing store, hair styling salon, travel office, two automated banking machines, a sundry shop and a jewelry store.

The Student Union Building is advised by a Board made up of UNB and STU students and members of the Board of Governors of UNB who strive to provide the services and atmosphere which will make student life enjoyable.

Students with Disabilities, Services For

In accordance with both the Canadian and New Brunswick Human Rights Act, the University of New Brunswick provides reasonable accomodations to individuals with disabilities.

Physical Accessibility

Most buildings on the UNB Fredericton campus include accessible entrances and washrooms; however, due to their age, some buildings on campus are not fully accessible. Detailed information on building accessibility can be obtained from the Student Accessibility Centre at (506) 453-3515 or unbds@unb.ca

Academic Accommodations

The University provides Academic Accomodations necessary for students with disabilities to participate fully in their program of study. Please contact the Student Accessibility Centres at (506)453-3515 for more detailed information, or vist the website at www.unb.ca/fredericton/studentservices/accessibility.

UCard (UNB Photo ID)

The UCard is the University of New Brunswick's official Photo ID Card. Much more than a simple ID, this card provides you with discounts around town, access to library resources, entry to UNB athletic facilities, meal plans, entrance to exams and secure areas, and can even be used as a campus debit card. For more information, visit the UCard Website - http://www.unb.ca/ucard

To get your UCard:

Fredericton Campus – Visit the UNB Card Office in the Student Union Building (SUB), room 106.

Saint John Campus – Go to the Security Office located in room 119 of the Athletics Centre.

The descriptions below are brief summaries of the services provided for students. Individuals interested in any of these services are encouraged to contact the relevant department for further information.

Accommodation

This section provides information about University residences, and off-campus housing as available in Saint John.

RESIDENCES

UNB Saint John offers two residences on campus overlooking the beautiful Kennebecasis River.

The Dr. Colin B. Mackay Residence opened in September 2003 and was designed with input from our own students. It offers 170 beds in the form of spacious double suites for independent style living. Suites include two single bedrooms, kitchenette, complete with microwave and fridge and private three-piece bath. At UNB Saint John, housing is non-smoking, co-ed and security locked. Each room is furnished with a double bed, and desk set and standard house amenities include furnished TV rooms and study lounges, high-speed Internet and cable TV connections and laundry facilities.

The Sir James Dunn Residence offers 71 beds and an indoor connection to the campus. Single and double rooms are available. If you prefer a more subdued, quiet lifestyle, the residence also has a section that offers a 24-hour quiet policy.

Food Services and Residence Fees

Sir James Dunn residents must choose one of two meal plans which will be incorporated into the total residence fees as set out in the residence fees schedule. Students living in the Dr. Colin B. Mackay residence must purchase a $300.00 meal plan but may elect to purchase one of the regular meal plans. Meal plans are administered on a declining balance basis. For example, this means that if a meal plan that was valued at $1,000 per term were purchased, the student's account would be credited with this amount toward food services. The cost of any purchases at the Baird Dining Hall or Tim Horton's during the term would be deducted from the balance until a zero balance is reached. Ideally, a zero balance is reached at the end of each term; however, food service accounts can be supplemented at any time in increments of $25 or greater. It is important to keep in mind when choosing a meal plan that although an account can be supplemented at any time, any balance remaining at the end of April is non-refundable.

Residence Activities

Living in residence is not just about studying and sleeping. Student house committees are elected each fall to plan social events such as Frosh Week, Winter Carnival, Holiday Formal and charity fundraisers. They also assist in establishing residence policy and procedure, administering the residence and student activities, and representing the residences in student government. The Committee uses house dues, which are collected from the students at registration time to provide Orientation activities, subscriptions to cable television, newspapers etc. for the common areas, and anything else they would like to sponsor. Residences are served by a Residence Life Co-ordinator in addition to a number of Residence Assistants who live on campus.

Applying to Residence:

Applicants who are interested in living accommodations in the university residences must complete the application form, which is included in the UNB Saint John Application for Admission package or they may apply online at https://www.unb.ca/sweb/application/

Residence applicants should note that acceptance to UNB Saint John does not guarantee a place in residence; acceptance into residence will not be offered until admission to UNB Saint John has been granted. Upon acceptance, students will be sent a residence deposit form. The form must be returned with a confirmation deposit of $300.00 as quickly as possible to ensure a place in residence.

For information on the residences, please contact: Residence & Conference Services, Sir James Dunn Residence - e-mail to: res@unbsj.ca, telephone 648-5755, fax 648-5762, Monday - Friday 8:15 a.m. - 4:30 p.m. and also visit our website at www.unbsj.ca/resconf and proceed to Residence Admissions where you will find a virtual tour along with applicable forms and information.

OFF-CAMPUS HOUSING

The Off-Campus Housing Office helps students with finding accommodations off campus. We provide helpful information about various areas in City, different ways to look for accommodation, rental rules and regulations, maps, lists of accommodations, along with other helpful information.

The Off-Campus Housing Office is located in Oland Hall, Room G13 and open Monday - Friday from 8:30am - 4:00pm. Please free to contact the office at: bsudul@unb.ca or 648-5952

Associated Alumni of the University of New Brunswick

The Associated Alumni of the University of New Brunswick has 62,000+ alumni (graduates) around the world.

The Associated Alumni keeps graduates connected with each other and the University, and provides opportunities for alumni to contribute to UNB's well-being. The Associated Alumni is governed by an elected and appointed council of 30 former students from various graduating classes, geographical areas and faculties.

Our Alumni are "energized and involved" in the life of the University of New Brunswick. Alumni help with governing the University, advocating on behalf of the university, volunteering, recruiting students, and making financial donations. Alumni give time, talent and treasures to their alma mater. One valuable contribution the Associated Alumni makes to current UNB students is by providing scholarships and merit awards.

You are a student for a defined period of time, but, you will be an alumnus or alumna of the University of New Brunswick for life! UNB's alumni are an integral part of the future of this university. So, what do you call yourself when you graduate? A UNB...

Definitions:

ALUMNI - all graduates both males and females
ALUMNAE - plural, females
ALUMNUS - singular male
ALUMNA - singular female

The Associated Alumni of the University of New Brunswick began in 1862 when seven of the approximately 200 UNB graduates met. They subsequently formed an "alumni society" based on the following motion by Mr. G.S. Smith (class of 1854): "that the objects of such a society be - first, the advancement of the interests of the University of New Brunswick by all honourable means." The association has been an active and important part of the UNB family every since.

"Floreat Alma Mater - May the Alma Mater Prosper"

Athletics

Athletics, Recreation and Wellness

The Athletics, Recreation and Wellness Department (ARW) mission statement is: To promote healthy lifestyle behaviors among students, faculty, staff and community members by providing opportunities for participation through sport, recreation, and wellness programs in a safe environment.

UNBSJ students have an opportunity to participate at many levels of competition and recreation. The Varsity sports teams compete in the Atlantic Colleges Athletic Association (ACAA) with an opportunity to advance to Canadian Colleges Athletics Association (CCAA) national championships. UNB Saint John has six varsity sports: Soccer (men and women); Volleyball (men and women) and Basketball (men and women)

The ARW Department also offers students the opportunity to play on one of the Sport Clubs which are intended for those athletes who still want to compete in their sport but cannot commit to the time demands at the varsity level. The Sport Clubs include: Womens Fast Pitch; Womens Hockey, Running, Soccer, Cricket, Football, and Table Tennis.

There are also great opportunities to participate for those students who wish to play but have no time for varsity or club level participation. The intramural program fills this niche with such offerings as Flag Football, Hockey, Soccer, Basketball, Volleyball, Table Tennis, Badminton and special one-day events or tournaments such as 3 vs 3 Basketball.

Some faculty, staff and students are motivated by group exercise through instructional programs and there are several activities to choose from including: Toning Class, Stability Ball, Step Aerobics, Self-Defense, Boot Camp, Strength Training and Tai Chi. The choice to stay or get physically active is easy at UNB Saint John. Several monthly wellness instructional workshops are offered including:; Coping with Stress; Massage Therapy; Nutrition; Blood Pressure and Cholesterol Clinic; Relaxation Techniques; Diabetes; and Winter Wellness.

The ARW Department focuses on local children and youth in Districts 6 & 8 through the Howl with the Wolves program. The purpose of this outreach program is to have Seawolves athletes conduct skills clinics which affords an opportunity to speak about the importance of physical activity, team work, respect, dedication, self-confidence and other important life skills that can be developed through sports. Seawolves athletes and coaches also travel to various clubs and schools to offer skills clinics through their Adopt-a-School program.

The Athletics, Recreation and Wellness Department has two great athletic facilities, including the G. Forbes Elliot Athletics Centre and the Canada Game Stadium. The G. Forbes Elliot Athletics Centre opened in 1975 and hosts a wide range of competitive and recreational sports for the university and community. Faculty, staff and students can take full advantage of the facilities. As well, thousands from the local community and beyond use the Athletics Centre each year, and it is the hub of many events and tournaments. The Jeux Canada Games Stadium, built for the 1985 Jeux Canada Games, overlooks the Kennebecasis and Saint John rivers. It features a 400-metre all-weather track, a natural grass field, and locker room facilities.

Please consult the ARW Departments web-site for further information on the varsity programs (www.unbsj.ca/athletics).

Awards Office (Undergraduate)

The University maintains facilities on the Fredericton campus, located in Sir Howard Douglas Hall, where undergraduate students are considered for scholarships and bursaries. The Undergraduate Awards Office looks after scholarships and bursaries for both campuses.

For regulations and general information please refer to the Financial Information Section of this Calendar/ Scholarships, Prizes and Awards. For Awards descriptions, please see the Awards section.

Bank

A Bank of Nova Scotia banking machine is available in the lobby of the Student Centre.

Bookstores

There are well equipped bookstores on both campuses in central locations from which students may obtain books and supplies at a reasonable cost.

The University Bookstore on the Saint John campus stocks all textbooks and course-related materials for students to purchase. In addition, it offers a full line of reference and general interest books (with a special order service for books not in stock), school and office supplies, computer hardware, software and peripherals, as well as crested university clothing and giftware. The Bookstore is located on the main floor of the Ward Chipman Library building, and is open year-round:

September through May: 8:30 am - 7 pm Monday - Thursday 9:00 am - 4 pm Friday and Saturday

June through August: 9:00 am - 4 pm Monday through Saturday

Visit the Bookstore online at: http://www.unbsj.ca/bookstore/ or contact them by telephone at (506) 648-5540 or via email at sjbooks@unbsj.ca

Campus Ministry

The Campus Ministry is composed of a number of clergy and spiritual advisors of different faiths in the Saint John area. They volunteer their time in the Campus Ministry Office, Room 33, Ward Chipman Library building. The Campus Ministry sponsors religious services, debates and guest lecturers on the campus during the year. Phone (506) 634-0446. The Ministry motto is: "God cares, so do we."

Continuing Education and Programs for Part-Time Students

The University provides a variety of courses, programs and services for individuals who need or prefer to study on a part-time basis at either campus as well as at several off-campus locations. These learning opportunities are designed to meet the variety of roles of the individual: occupational, professional, personal, familial and communal.

1. The Saint John campus operates an integrated program which treats part-time students on essentially the same basis as full-time students. Credit courses are under the administrative control of the Faculties, and are scheduled at the time of day or evening which makes them most accessible to both the full-time and part-time clientele. The only credit courses not under the auspices of the Saint John Faculties are those in Education which are offered at Saint John through a co-operative arrangement with the respective faculties on the Fredericton campus. Academic advising for part-time students is available through the Departments and Faculties, as it is for those in full-time studies.

2. In addition to degree programs, the campus offers *certificate programs* in Data Analysis and in Business Administration, Human Resource Management, Accounting, Electronic Commerce, Economics, Financial Markets, Communication and Professional Writing and General Studies, which are of particular relevance to part-time students. All courses offered towards a certificate are degree-credit courses and students who subsequently enroll in a degree program will normally be able to count courses taken towards the certificate as credits towards the degree. Another certificate program offered is the Certificate of Proficiency in French, Level I and II, which is open to students whether or not they are currently working towards a degree.

3. A variety of non-degree courses is also offered to meet the needs of professional associations and other groups.

4. The Writing Centre; Counselling; Employment Liaison; information on scholarships and bursaries for part-time study; student success strategies; and financial advising for part-time students are available at the **Student Services Centre**, ground floor of Philip W. Oland Hall. Phone (506) 648-5501.

5. The campus offers a **Math Centre** available for all full-time and part-time students regardless of degree program. Phone (506) 648-5776.

6. **Saint John College** offers Second Language Training Courses for those who require further instruction in English or French in order to become proficient and to communicate and function effectively in a second language. In addition to the core programs (English for Academic Purposes, English as a Second Language Support, and French as a Second Language), Saint John College offers the following:

   a. Specialty Second Language Courses (non-credit) for those wanting an opportunity to acquire conversational skills in, for example, Spanish, Arabic, and Mandarin, or for those needing upgrading and refining of English or French language skills.

   b. Custom Second Language Courses (non-credit), which are specially designed for groups of students and professionals with varying needs and interests. These courses range from off-site corporate training to on-site specialty programs such as English Immersion.

   c. c. English Language Testing Site for the CAEL (Canadian Academic English Language Assessment) exam, for students requiring an official test of English proficiency. The CAEL test is given on-site at regular intervals and the results are accepted at most Canadian post-secondary institutions. The CAEL is also used by Saint John College to place international students into the appropriate ESL or academic degree program.

Information about degree-credit courses/certificate programs may be obtained from the Chair of the appropriate Department, the Dean of the Faculty of Business or, for Education courses, from the Education Coordinator for the campus, (506) 648-5674.

Counselling Services

Counselling Services offers free, professional, and confidential counselling to our university students. In particular, the following services are provided:
Personal counselling is available for supportive and problem-solving assistance regarding emotional difficulties, interpersonal problems, or stressful life situations
Career Counseling, testing, assessment, and planning are available.
Consultations and referrals are available to staff and faculty to consult about concerns that pertain to the welfare of students.
Outreach programming is available to various groups in the form of activities, presentations, and educational workshops, on a variety of topics.
To make an appointment with a counsellor, please e-mail sjcounsellor@unb.ca Students requiring emergency assistance can contact the main Student Services office in Oland Hall G08 or call 648-5501.

Employment Services

The **Student Employment Centre** on the Saint John campus assists students and recent graduates in obtaining permanent, summer, and part-time employment. Services for students include: assistance with resumes and cover letters, job search strategies, interview preparation, work-study programs, employment counselling and labor market information. Employer services include posting job notices on-campus and assisting with employer information sessions for students and graduates. Students and graduates are encouraged to contact the Student Employment Centre early in the academic year to review job opportunities and take part in the fall recruiting campaigns offered by many new employers. The Student Employment Centre provides services throughout the year and is located in Student Services, Oland Hall. For information contact 506-648-5690 or by email stuserv@unb.ca

English as a Second Language

Saint John College offers English-language training courses for students who need to improve their language skills in order to communicate and function effectively in English in university or college programs. In addition to its core programs, including *English for Academic Purposes* (*EAP*), *English as a Second Language Support*, and the *Pre-MBA Program*, Saint John College offers the following courses and services:

a. *Professional Development Programs* which offer opportunities for professionals to develop their skills, to network, generate new ideas, build community connections, develop innovative practices and build professional and personal strengths.

b. *Customized Second Language Courses (non-credit)* which are specially designed programs for groups of students and/or professionals with varying language needs and interests. These courses range from

off-site corporate training in French-as-a-second-language to on-site specialty programs such as English Immersion.

c. *Official Language Testing.* Saint John College offers both the official CALE (Canadian Academic English Language) Assessment and the Academic and General IELTS exams for students who need to take an official test of English Proficiency.

Faculty Advisors

1. It is very important that students consult with their faculty in planning their program.

2. Faculty advisors are available to all students in the university, and are available for consultation during students full stay on the campus.

3. If students wish to see a faculty advisor they should contact their respective Faculty or Deans Office and ask to be assigned a faculty advisor. Each faculty has its own procedures for assigning to students to faculty advisors.

4. In the faculty of Science, academic advising is provided by the Dean or Associate Deans for the first two years, with individual advisors appointed when students select their major programs of study.

5. In the Faculty of Arts, academic advising in the first two years is done primarily through the core ARTS 1000 course. ARTS 1000 tutorial leaders also provide academic advising. Students without an ARTS 1000 advisor will see an Associate Dean for counselling. When students select their field of study departmental advisors will be assigned.

Financial Aid

The UNB Saint John Financial Aid Office provides advice and answers questions on all matters relating to financial aid including: government student loans, student line of credit, University and Emergency funding, bursaries and scholarships, as well as funding by outside agencies. Information is available for both full and part-time students. Budgeting and financial advising is another of our important services.

For more information or to make an appointment, contact Renea Sleep, Student Services, Oland Hall, G15, 648-5765 or emai to: finaidsj@unb.ca

Fine Arts

UNB has a long tradition of encouraging the fine arts and has directed its resources into sustaining diversified cultural activites.

Cultural activities on the Saint John campus are presented under the auspices of the Lorenzo Society.

1. The **Saint John String** offer a series of 5 lecture/recitals and 2 concerts annually.

2. Exhibitions by local, Canadian and International artists are regularly displayed. In addition, the **Cormorant** , the

Lorenzo Societys literary magazine, has published the works of students and Saint John area writers since 1983.

3. On-campus as well as touring **drama productions** are presented.

4. **Special events and programs.** Concerts, writers conferences, exhibitions and poetry and prose readings are arranged or sponsored by the Lorenzo Society .

Food Services

On the Saint John campus, food services are located in the Thomas J. Condon Student Centre and Ward Chipman Library Building. Information regarding catering, food services or hosting a conference on campus may be obtained from the Office of Housing and Food Services by calling 648-5755.

Graduate Studies

The University offers a wide range of post-graduate programs through its School of Graduate Studies. The degree of Doctor of Philosophy is offered in Graduate Academic Units in the departments of Biology, Chemical Engineering, Chemistry, Civil Engineering, Computer Science, Education, Electrical Engineering, English, Forestry and Environmental Management, Geodesy and Geomatics (Surveying) Engineering, Geology, History, Interdisciplinary Studies, Mathematics and Statistics, Mechanical Engineering, Physics, Psychology, and Sociology. Master's degrees are offered in Graduate Academic Units in almost all departments. Graduate studies are carried out on both campuses of the University.

Detailed information concerning the programs offered, financial assistance for graduate students, and regulations governing admission and degree requirements will be found in the School of Graduate Studies Calendar available on request from the School of Graduate Studies (email: gradschl@unb.ca) or on the Internet at http://www.unb.ca/gradschl/ .

Health Insurance, Student

Basic Health Coverage

Basic health and hospital benefits for Canadian students are provided by the Medicare Plan of their province of permanent residence. Students must ensure that they are registered and in good standing with the Hospital Commission of their province.

International students with student visas do not qualify for Medicare coverage. Basic health coverage for international students is provided through an insured plan administered by the University. International students on both campuses should refer to the following web site for information concerning opt-out dates, refunds, etc.:
www.unb.ca/services/financialservices/students/interhealth.htm

International students with landed immigrant status do qualify for Medicare and hospital benefits and must register with the Province immediately upon arrival. Please also refer to the above web site for more information.

Supplementary Health and Dental Coverage

All full-time students on both campuses are automatically enrolled in the Student Health/Dental Plan. The Plan is designed to supplement the coverage provided by the provincial Medicare plans, or by the plan for international students. Administered by the Student Union on the Fredericton campus, and by the Student Representative Council (SRC) on the Saint John campus, the Plan provides students

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with a comprehensive set of extended health and dental benefits including 80% coverage on prescription drugs, paramedical services, ambulance services, etc. The coverage runs from September 1 through August 31. Students wishing to enroll dependents must contact the Student Union/SRC to make arrangements (Fredericton students: 453-4955; Saint John students: 648-5684).

Students providing proof of alternate coverage may opt out of the Student Health/Dental Plan. To opt out, students must complete an opt-out form and have it signed by a Student Union/SRC staff member. Students who opt out will be credited for the Health/Dental fee. The deadline to complete the opt-out process is September 23, 2005 for both campuses, with no exceptions beyond this date. It is the responsibility of the student to follow all steps and adhere to the deadline in order to receive credit. Students must opt out annually as the opt-out does not automatically carry forward from year to year. The opt-out deadline for new students starting in January (those who were not full-time in September) will be January 20, 2006.

Please refer to the Financial Information section of this calendar for Health Insurance fees and payment deadlines. Information can also be found online at www.unb.ca/services/financialservices/students/tuitionfees.htm

For further information about the Plan, please contact: Fredericton Student Union, Room 126, Student Union Building [(506) 453-4955] or Saint John Student Representative Council, Room 213, T.J. Condon Student Centre [(506) 648-5684].

Health Services

The Student Health Centre is located behind the G Forbes Elliot Athletics Centre and next to Saint John College. The health centre offers doctor and nursing/educational health services for students. Please contact the health centre at 648-5656 or email behealthy@unb.ca or visit the website at http://www.unb.ca/saintjohn/studentservices/health/healthsections/index.html for a list of clinics, services and hours of operation.

Students requiring medical assistance may also access one of the After Hours Clinic in the greater Saint John area, St. Joseph's Urgent Care Centre uptown or for medical emergencies go to the Saint John Regional Hospital, which is adjacent to the UNB Saint John Campus or dial 911.

Information Centres

At the student-run **Campus Information Centre**, located in the Thomas J. Condon Student Centre, you can obtain general information, find out what is happening on campus, meet other students, send faxes, get photocopies, pick up bus schedules, maps, job postings and much more.

The Office of Advancement, Communications and Recognition (ACR) is the University's key contact point for members of the public seeking information on UNB Saint John. If you are a prospective student or parent, or a high school guidance counselor, principal or teacher, the ACR Office is your source of information on academic programs, facilities, services and campus life at UNB Saint John and its host city (call 506-648-5698 or email to: tellmemore@unbsj.ca) . The ACR Office also works regularly with the media, community interest groups, government officials, benefactors and potential donors, and many others, and provides a news service and internal

communications for faculty, staff and students. Check out News@UNB on our website (http://www.unbsj.ca) for the latest UNB Saint John news, a calendar of events taking place on campus, a list of experts at UNB Saint John and more.

International Student Advisor/CIDA Coordinator/Canadian Student Exchanges

Website: http://www.unbsj.ca/international

International Student Advisor's Office

International Student Advisor's Office

The International Student Advisors provide strong support services to ensure International Students are able to focus on their educational efforts and be successful while studying at UNB Saint John. We provide:

- Orientation Sessions to help International Students upon arrival to Saint John
- Personal, financial and cultural advising
- Assistance with Study, Visitor and Work Permits and Visas
- Cultural and social events
- Information Series

International Student Advisor's Offices are located in Oland Hall, Rooms G13 and G14. E-mail: bsudul@unb.ca or akberg@unb.ca. We are here to help you!
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Student Abroad Coordinator

Go Further! Study Abroad! Information and advice on study and work abroad opportunities for UNB Saint John students are available. UNB Saint John offers a number of competitive bursaries each year to financially assist Canadian students to study abroad for one term. To find out more, check out the website at http://www.unbsj.ca/international/studentabroad ,
or phone (506) 648-5618 or
email to: studentabroad@unbsj.ca .

International Development Project Coordinator

The International Office at UNB Saint John provides support to faculty, staff and students involved with international development projects. Present initiatives include projects in China, Vietnam, Africa and Cuba. The Coordinator is also available to assist faculty, staff and students wishing to develop opportunities and proposals to work, study or do research in developing countries. An active World Universities Services of Canada chapter is also coordinated in this office. For more information on international development, contact: (506) 648-5775 or email to: ILO@unbsj.ca.

Libraries

The Hans W. Klohn Commons is home to the UNB Saint John campus library and to many other important resources and services as noted below. At the Commons, you can:

Access research materials The Commons houses more than 150,000 books, journals, DVDs, and other research materials. Use the library's website to search the collection and to access thousands more eResources, including ebooks and ejournals.

Get It help/technical support Informations desk staff can help with the many technological needs including basic hardware setup and maintenance, wifi access, and software support (including help with D2L), etc.

Book a meeting room The Commons has 9 groups study rooms that can be booked online.

Find a computer With access to more than 30 mobile devices available for loan, and 58 desktop computers (and another 100 desktop computers in 4 public labs across campus) we have your computer needs covered.

Get research help The librarians at the Help Centre (directly across from the main entrance) can help you develop research strategies, direct you to the best search tools, and teach you how to use the library's resources. More information | Hours

Get writing help Consultants at the Writing Centre (on the first floor) help students improve their writing abilities through tutoring sessions that focus on academic assignments.

Get Math and Science help The Math and Science Help Centre (on the first floor) helps students who are experiencing difficulty with first year mathematics, statistics, and science courses, and with some upper level business math courses as well.

And more. Enjoy comfortable quiet and group study spaces throughout the building; access wireless Internet on your own device; photocopy, print, and scan at the Repro Stations on each floor; and purchase a treat at the Commons Cafe (including JavaMoose coffee).

Math Help and Writing and Study Skills Centres

Math and Science Help Centre:

The Math and Science Help Centre provides free tutoring to UNBSJ students taking first year Mathematics, Statistics, Computer Science, Chemistry, and Physics course. In addition, the Centre offers review sessions on certain topics in mathematics. The Centre is located at Hans W. Klohn Commons, Room 134. The schedule of the Centre is normally emailed to students at the beginning of each term. Our service is a drop-in service.

Writing Centre

The writing centre is located on the main floor of the Hans W. Klohns Commons. One-on-one tutoring provides help with any academic writing, including assistance with planning, organization, documentation, grammar and punctuation, and academic conventions. To make an appointment, book on-line at http://unbsj.mywconline.com.

Research

Eighty per cent of all university research in New Brunswick is conducted at UNB. There are many opportunities for undergraduate students to engage in research with faculty members, receive funding for their pursuits, and continue their research and education at UNB through graduate studies. A number of interdisciplinary research programs exist in which faculty members and students from various Departments collaborate to investigate problems of mutual interest. Active research units include the Canadian Research Institute for Social Policy, Canadian Rivers Institute, Centre for Coastal Studies and Aquaculture, Canadian Centre for Geodetic Engineering, Centre for Nuclear Energy Research, Centre for Property Studies, Electronic Text Centre, Gregg Centre for the Study of War and Society, Information Technology Centre Administration and development unit, facilitates the undertaking of research within the university on behalf of Industry, government, and other clients and sponsors. It also promotes the application of research results to industrial problems and, where appropriate, the transfer of knowledge and technology through various types of transfer arrangements.

Further information concerning research activities at the University may be obtained from the Office of the Vice-President (Research): www.unb.ca/research/

Security and Traffic

Environmental Health, Safety and Security

Campus Security Services are available 24 hours a day - seven days a week, 365 days a year. A 24 hour Security Line is available by calling 648-5675. For pay phones on campus please pick up the receiver and push the Security button, no coin required. The Environmental Health, Safety and Security Department provides the following services; Campus Patrols, Emergency Response, Parking/Traffic Control, Investigations, Safe Walks, Key/Card Access Control, Lost and Found, Identification Cards, Emergency Notification Registration, Health and Safety, General Information. Please immediately report emergencies, incidents, or suspicious activity to Campus Security.

Parking

All vehicles on campus are required to have a valid parking permit. Student parking permits can be purchased at Financial Services in Oland Hall. Various options are available (note prices are subject to change without prior notice):

Day pass available from Pay & Display Machine -$4.00
Meter Parking - $1.25 / hour - max time limit one hour
One month student permit - Please refer to Safety & Security Website/Parking
Student Parking Permit Fees - Please refer to Safety & Security Website/Parking
Further details may be obtained from the Office of Environmental Health, Safety & Security by calling

(506) 648-5675, or by visiting their website at http://www.unbsj.ca/security/

Emergency Alert Service

The Emergency Alert Service, offered by University of New Brunswick, Saint John campus, allows us to quickly notify you, by email or phone, of a potential emergency on campus such as flooding, fire or similar events which may affect you.

In order to receive notification through this service, you will need to register online at http://www.unbsj.ca/security/

Your information is held in a secure database and is accessed only when an emergency occurs or is expected to occur. When this takes place, an automated message will be sent directly to the contact information you have provided to us.

Only those registered will be contacted by this service when an announcement is made.

Be informed. Register today.

Sexual Harassment Policy

Sexual harassment is unwanted attention of a sexual nature, often with an underlying element of threat or coercion. It can also include sexist remarks or verbal abuse directed towards a person or a gender. There are four major dimensions of sexual harassment:
1. when acceptance or rejection of sexual advances is a condition of education or employment;
2. when acceptance or rejection of sexual advances affects grades, performance evaluations, or any academic or personnel decisions that concern the student or employee;
3. when conduct of a sexual nature interferes with work or creates an intimidating, hostile, offensive or humiliating environment;

4. when sexual remarks and behaviour of an individual or group of individuals, which may not be physically threatening, create an environment that makes you uncomfortable. You can contact, on a confidential basis, a Sexual Harassment Advisor, whose role is to provide you with support and information on the options available to you, both informal and formal. Advisors' names and telephone numbers are listed below. The Policy and Procedure on Sexual Harassment of the University of New Brunswick provides several options for action which include: The Direct Approach, Intervention By An Advisor, Mediation, and Formal Investigation.

The complete Policy can be accessed at: http://www.unb.ca/hr/amployees/policies/harassment.php

You can contact, on a confidential basis, a Sexual Harassment Advisor, whose role is to provide you with support and information on the options available to you, both informal and formal. Advisors' names and telephone numbers are listed below. The Policy and Procedure on Sexual Harassment of the University of New Brunswick provides several options for action which include: The Direct Approach, Intervention By An Advisor, Mediation, and Formal Investigation.

Spring and Summer Sessions

Fredericton and Saint John Campuses

The University offers a variety of academic sessions during the spring and summer period: Intersession (Fredericton only) during May and June, Spring Session (Saint John only) from May through July, and Summer Session (Fredericton) during July and August. Courses are offered in a variety of disciplines.

Spring and summer study allows current undergraduate and graduate students to progress in their programs as well as new or visiting students to participate in UNB offerings. Special professional development opportunities exist for teachers as well as travel/study options for all interested students. As part of its overall Summer Session on the Fredericton campus the University also offers programs through the English Language Programme for those wishing to increase their facility in English: an academic preparation course, Intensive English Term Format (May-August), two five-week residential immersion sessions (Submarine© formats: May-June and July-August) for adult learners and one four-week residential language camp for high school students during July-August. Contact the English Language Programme, College of Extended Learning for further details.

In addition to the degree-credit courses, a variety of cultural and related educational activities (e.g. Maritime Writers Workshop & Literary Festival, Summer Music Camp, Summer Music Festival) are provided.

Calendars for the Spring and Summer sessions are available in the spring of each year.

For further information, contact the College of Extended Learning, UNB Fredericton, P.O. Box 4400, Fredericton, N.B. E3B 5A3, (506) 453-4646 (phone), (506) 453-3572 (fax), extend@unb.ca (email), http://extend.unb.ca/ (web site). In Saint John, contact the Registrars Office, UNB Saint John, P.O. Box 5050, Tucker Park, Saint John, N.B. E2L 4L5, (506)648-5670 (phone).

Student Affairs and Services

Student Services

Student Services offers a number of programs and services design to assist students in their studies and university life. These services include the Writing Centre, Counselling, Financial Aid & Awards Advising, Student Employment Service, Services for Students with Disabilities, the Student Health Centre and student orientation activities. The Director of Student Services acts as the campus ombudsperson for students in dealing with academic appeals and disciplinary matters. The staff at Student Services is dedicated to helping students get the most from their university education. For information on programs, services or general inquiries, please contact the Student Services Centre,Oland Hall G18, 648-5501 email stuserv@unbsj.ca or visit our website at;

http://www.unbsj.ca/stu_serv

Student Centres

Thomas J. Condon Student Centre

Opened in 1986, the Thomas J. Condon Student Centre houses the offices of student government, the student-run Campus Information Centre (information, photocopying and fax services), the student newspaper (The Baron, the Baronian (yearbook), Campus Radio Saint John (CFMH, 92.5 FM), lounges, meeting rooms, offices of various student clubs and societies, and food services. A skywalk connects the Student Centre to the G. Forbes Elliot Athletics Centre. Overseen by the Student Centre Advisory Committee, comprised of students, faculty and administration, the Centre consolidates most aspects of student life. Three rooms the Dr. K.A. Baird Dining Room, the E.A. Whitebone Lounge and the Tanya Hume Room were named in memory of ardent UNB Saint John supporters.

Funding for the Student Centre was provided by the Third Century Fund (donations from faculty, staff and students) and the provincial government. In 1987, the building was named in honour of Thomas J. Condon, Vice-President of the Saint John Campus from 1977-1987, and 2001-2003.

Student Accessibility Centre

The University of New Brunswick is commited to the equitable treatment of students with disabilities. The Accessbility Counsellor is here to assist you in dealing with your individual needs and will ensure that the information you provide remains confidential and private. We can help with the implementation of a variety of academic supports including the use of our Assistive Technology Centre. If you have any questions or concerns, please do not hesitate to contact us at sjaccess@unb.ca

Student Development Coordinator

UNB Saint John offers a variety of orientation programs for all entering students, first year and transfer students, both part-time and full-time status. These activities assist with a successful transition into all aspects of university life. In concert with the Faculties, this office coordinates various other peer-based programs, including peer mentors and peer tutors. For further information contact the Student Development Coordinator in Oland Hall G16, phone (506) 636-6266, fax 506-648-5816, email lethomas@unb.ca.

SAINT JOHN ACADEMIC PROGRAMS

The University of New Brunswick Saint John campus offers the following four-year degree programs:

BACHELOR OF APPLIED MANAGEMENT
- Bachelor of Applied Management in Accounting
- Bachelor of Applied Management in Electronic Commerce
- Bachelor of Applied Management in General Business
- Bachelor of Applied Management in Hospitality and Tourism

BACHELOR OF ARTS

Majors:	Biology, Economics, English, French, History, Information and Communication Studies, International Studies, Mathematics, Philosophy, Politics, Psychology, Sociology, Sport and Exercise Psychology, Statistics
Honours:	Economics, English, History, Politics, Psychology and Sociology

BACHELOR OF BUSINESS ADMINISTRATION
- Co-op Option
- Majors in: Economics, French, Accounting, Electronic Commerce, Human Resource Management, French Communication and Culture, Tourism Management
- Concentrations in Accounting, Electronic Commerce, Human Resource Management and Marketing

BACHELOR OF HEALTH SCIENCES
- Nuclear Medicine
- Radiation Therapy
- Radiography
- Respiratory Therapy

BACHELOR OF INFORMATION SCIENCES

Specializations :	Decision and Systems Science Decision and Business Management

BACHELOR OF NURSING
- BN Basic Program
- BN/RN Program

BACHELOR OF SCIENCE

Majors :	General Biology, Environmental Biology, Marine Biology, Psychology, Biology-Psychology, Mathematics, Statistics, and General Science
Honours :	General Biology, Environmental Biology, Marine Biology, Psychology, and Biology-Psychology.
Specializations :	Biology with Specialization in Zoology

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Specializations :	Software Engineering, Networking and High-Performance Scientific Computing
Honours :	Software Engineering, Networking and High-Performance Scientific Computing

BACHELOR OF SCIENCE IN ECONOMICS

BACHELOR OF SCIENCE IN FINANCIAL MATHEMATICS

MAJOR PROGRAMS

Declaring a Major: During the session in which students expect to successfully complete the first twenty (20) term courses (sixty credit hours) they must declare their Major(s). In those programs where Majors are not required, students must declare their intent to complete a general degree. When students have decided on their respective Major(s), they should approach departmental or discipline advisors for program advising.

MINOR PROGRAMS

Each of the following disciplines also offers a Minor program which may be taken in conjunction with the degree programs listed above, with approval of the appropriate Departments:
- Chemistry
- Cognitive Neuroscience
- Comparative Literature
- Computer Science
- Criminal Justice
- English
- French
- Gender Studies
- Health Sciences
- History
- Information and Communication Studies
- Information Technology
- International Development Studies
- International Studies
- Linguistics
- Mathematics
- Philosophy
- Politics
- Statistics

In addition, a Minor is offered in Psychosocial Dimensions of Sport.

OTHER PROGRAMS
- A Bachelor of Nursing degree for the post RN student is available.
- A five-year Bachelor of Education Degree in Elementary Education is offered concurrently with the Bachelor of Arts Degree.
- UNBSJ also offers the first two years of programs leading to Majors and Honours degrees in other Arts disciplines and to additional discipline Majors and Honours degrees in Science.
- The first two years of a degree program in Chemical, Civil, Computer, Electrical, Mechanical Engineering.
- The first year of a degree program in: Forest, Geodesy & Geomatics, Software Engineering.
- Certificate programs are offered in:
  - Accounting
  - Business Administration
  - Computing
  - Data Analysis
  - Economics
  - Electronic Commerce
  - Financial Markets
  - French Levels I and II
  - Gender Studies
  - General Studies
  - Human Resource Management
  - Mathematics for Education
  - Mental Health Nursing.
- A Diploma of Advanced Undergraduate Studies is also available.

Detailed information about these academic programs follows under Degree Programs.

ADMISSION, FEES, FINANCIAL AID, SERVICES

Information pertaining to admissions requirements and procedures, fees, financial aid and University services and facilities is located elsewhere in this Calendar. Students should consult the appropriate section of the Calendar as indicated below.

Admission and Univeristy Regulatons	See Section B.
Tuition, Fees and Financial Information	See Section C.
Scholarshios and Loans	See Section C.
Accomodation, Services and Facilities	See Section D.

BACHELOR OF APPLIED MANAGEMENT

FACULTY OF BUSINESS

General Office:	Philip W. Oland Hall, Room 245
Mailing Address:	Faculty of Business, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5570 / 1-800-50-UNBSJ
Fax:	(506) 648-5574
Email:	business@unbsj.ca
Website:	http://www.unbsj.ca/business

NOTE: For Faculty listing, please see Bachelor of Business Administration program section.

GENERAL INFORMATION

An articulation agreement is a formal, systematic, written collaboration between two institutions designed to identify block transfer credits and to clarify requirements to facilitate student transfers between the two institutions. These agreements are approved by the Maritime Provinces Higher Education Commission and are regularly updated to reflect any changes in curriculum or requirements at the institutions involved.

The Faculty of Business at UNBSJ offers articulated programmes in accounting, electronic commerce, general business and hospitality and tourism leading to The Bachelor of Applied Management (BAM). Students first earn a diploma from a participating community college and then enter the third year of the BAM at UNBSJ.

The BAM in Hospitality and Tourism also offers a high school entry option whereby students attend UNBSJ in their first year, transfer to the New Brunswick Community College in St. Andrews for their second year and return to UNBSJ to complete the final two years of the degree.

The programs are designed to offer students the opportunity to experience two very different types of learning environments while they develop proficiency in both the theoretical and applied areas of their chosen fields.

I. University Regulations on Admission and Academic Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar, and in particular the subsection headed "Grading System and Classification". The General University Regulations will govern any point not covered in the regulations that follow. Questions concerning the application of regulations should be directed to the Registrar.

II. BAM Regulations for Students in the Degree Program

A. Grading and Classification

The regulations in respect to the BAM degree are expressed in terms of letter grades, credit hours and grade point averages. These are explained in Section B of the Calendar. In order to take a BA or HTM course that has a prerequisite, a student must earn a C or better in the prerequisite course(s), regardless of the program in which the student is registered.

Note: A grade of C or better is necessary in all required and elective courses (including work term reports, where applicable). A grade of D or better is necessary for all options.

B. Credit Hours

The number of credit hours assigned each course is stated in Section F of this Calendar. (In most cases the Faculty of Business assigns a 6 chs weight to a two-term course and a 3 chs weight to a term course). Due to differences in the methods used by the various Faculties in the calculation of credit hours, students who elect to register for courses taught outside of the Faculty of Business should note the following:

1. For purposes of the BAM degree, any course taught outside of the Faculty of Business, which has a course number ending in zero (0) and which is taught over the full academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught, up to a maximum of 6.

2. For purposes of the BAM degree, any course taught outside of the Faculty of Business, which has a course number ending in other than zero (0) and which is offered in one term of the academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught, up to a maximum of 3. Normally courses of less than 3 credit hours will not be considered for credit.

3. Students may take up to 3 one-credit hour courses of an academic nature during their program.

C. Grade Point Average

1. See Section B of this Calendar for detailed regulations on standing and promotion requirements.

2. A student who has been registered in the BAM program and who withdrew while on probation or who was required to withdraw from the program will not be eligible to re-enter the program without the approval of the Faculty of Business.

3. To earn the BAM degree, a student must successfully complete at least 60 chs in approved courses at UNB and must achieve a minimum grade of C in all courses designated as required or elective.

D. Transfer Students

The University regulations in respect to students transferring to the BAM degree program from another UNB degree program and students transferring to UNB from another university or post-secondary institution are stated in the General Regulations of the University.

Course credits may only be transferred from another university when the grade is equivalent to at least a C at UNB.

At least half the credit hours for the BAM degree must be taken at UNB and must normally include all the required courses in the BAM degree program. (Students may be permitted to take some of these courses elsewhere with the prior permission of the Faculty of Business and the Registrar.)

E. Changes in Degree Requirements

Improvements in the BAM program may lead to changes in the requirements for the degree. The University reserves the right to require candidates already enrolled to meet the revised requirements.

F. Normal Course Loads

The normal course load for students in the BAM program will be five courses per term. Students with a cumulative gpa of at least 2. 5 may, with the written permission of the Manager of Undergraduate Programs or the Assistant Dean, take a maximum of six courses in a given term.

G. Repeating Courses

A student who fails to obtain a grade of C or better in a required course must retake the course as soon as it becomes available during a session in which the student is in attendance.

A student may take a course a maximum of three times (including Ws but excluding courses which are designated with the # notation). Beyond that, the student must obtain the permission of the Dean of the students Faculty to register again in the repeated course. See University Regulations section I.E.

H. Course Requirements

Students are responsible for ensuring that they meet all the requirements specified for the degree. These include the minimum credit hour requirements, minimum grade point averages, minimum grades in specified courses, successful completion of all specifically required courses, and compliance with the restrictions on elective and option courses.

Students are advised to consult Section F of this Calendar for detailed course descriptions, including the number of credit hours assigned to each course.

I. Minors and Concentrations

1. Minors in specific business or hospitality and tourism disciplines are not offered. The Faculty of Business will accept all minors as laid out by the offering faculty except as noted below. Students should note that pursuing a minor may require them to complete more than the minimum number of credit hours required for the BAM degree. Compulsory or required courses in a students degree program normally may not form part of the Minor.

a. A minor in Economics will be awarded to BAM students who achieve a minimum grade of C in:

i. ECON 2013 & ECON 2023 , and

ii. any additional 9 credit hours in upper level Economics courses. (ECON 2103 & ECON 3114 are recommended for 6 of the 9 credit hours.

b. A minor in Mathematics will be awarded to BAM students who achieve a minimum grade of C in: *

i. MATH 1003, MATH 1013, and either MATH 1503 or MATH 2213 and

ii. an additional 15 ch in Math courses at second year level or above. Maximum 6 ch of approved substitutes may be allowed in consultation with the Department of Mathematical Sciences.

2. BAM students may earn concentrations as outlined in the regulations for the BBA degree under Section E.VIII.J of this calendar. Students should note that pursuing a concentration may require them to complete more than the minimum number of credit hours required for the BAM degree. Compulsory or required courses in a students degree program normally may not form part of the concentration.

J. BAM with a Certificate in Community Leadership

This program is designed to add value to students' degrees by allowing for participation in the activities required to complete the certificate program. These requirements will include academic course work available as part of the degree program as well as community volunteerism and professional development activities. The certificate program offers students the opportunity to differentiate themselves from other business graduates through professional development, leadership growth, community involvement and networking activities.

The program will consist of four specific academic courses, 40 hours/term for 4 terms of volunteer service in the PALS program, 3 workshops, 1 PALS training course.

Eligibility:

· Open to BBA and BAM students who will be entering their 3rd year of the program.

· Applicants must have a CGPA of 2.7 or higher.

· Applicants must present a combination of academic success, community service and other extra-curricular activities.

Admission:

· Complete and submit an application form.-

· Submit a statement outlining your interest in the program and explaining your vision of the role of community leaders.

· Submit a resume detailing community service and extra-curricular activities you have been or currently are involved in.

· Submit an unofficial transcript.

Continued participation in the program after acceptance requires student to maintain a CGPA of 2.7 or higher. Enrolment in the program will be limited to a maximum of 15 students each year.

III. Degree Standing on Graduation

At graduation all successful candidates for the degree of Bachelor of Applied Management shall be listed in alphabetical order within the appropriate degree category as stated below:

Distinction:

A student who attains a cumulative grade point average of at least 3.8 over the final 60 ch of course work and no grade less than B- (2.7) over the final 60 ch of course work shall graduate with Distinction.

First Division:

A student who attains a cumulative grade point average of at least 3.5 shall graduate in First Division.

Second Division:

A student who attains a cumulative grade point average of at least 2.5 but less than 3.5 shall graduate in Second Division.

Third Division:

A student who attains a cumulative grade point average of less than 2.5 shall graduate in Third Division.

IV. Bachelor of Applied Management Curriculum and Degree Requirements

Elective and option courses for all BAM programs may be chosen from the following:

Humanities and Languages:	Classics, English, French, German, Greek, History, Humanities, Latin, Philosophy, Spanish (or other courses as approved by the Faculty of Business)
Social Sciences:	Gender Studies, Geography, Information & Communication Studies, International Studies, Linguistics, Politics, Psychology, Social Science, Sociology (or other courses as approved by the Faculty of Business)
Business:	All courses prefixed with BA which are not listed as required for specific BAM programs
Other:	Biology, Chemistry, Computer Science, Economics, Geology, Hospitality and Tourism Management, Information Technology, Mathematics, Physics, Science, or other courses as approved by the Faculty of Business.

It is the responsibility of students to ascertain that their elective and option courses are acceptable for BAM degree credit. Credit will not be granted for CHEM 1831 , CS 1703 , ECON 1004 , ESL 1301 , ESL 1302 , ESL 1303 , FREN 1103 , MATH 1863 , MATH 2633 , MATH 3633 or PSYC 1273 in the BAM program. Credit will be granted for only one of MATH 1001 , MATH 1003 , MATH 1823 , or MATH 2853 .

Students enrolled in a degree or certificate program under the aegis of the Faculty of Business are not to register in the following courses or similar courses without prior permission of the Faculty of Business: ECON 1073 , PSYC 2102 , PSYC 2901 , PSYC 3913 , STAT 1793 , STAT 2263 , STAT 2264 , STAT 2593 , STAT 2793 or STAT 3093 (The content of these courses is similar to required or optional BBA or BAM courses).

Note: Students should contact the Faculty of Business at the beginning of each regular academic year for a revised list of courses in this category.

BACHELOR OF APPLIED MANAGEMENT - ACCOUNTING

Admission Requirements

Students must have successfully completed the two-year Business Technology program with the Accounting Option at NBCC-Saint John, or an equivalent program, with an average of at least 70%. Additional admission requirements will depend upon the institution from which a student graduated.

Curriculum and Degree Requirements

Students must successfully complete at least 60 chs of course work and must obtain the minimum required grades in all required, elective and option courses specifically required for the degree and in the prerequisites for those courses.

Candidates for the degree must successfully complete the following credit hours. Please note: courses designated with (*) are CPA entry courses.

a. 27 chs of required courses

b. 9 chs Accounting Elective chosen from BA 4207, BA 4221, BA 4223, BA 4231*,

BA 4237*, BA 4238* or BA 4242*

c. 3 chs Finance Elective chosen from BA 3426*, BA 4437, BA 4455, ECON 3114 or other courses as approved by the Faculty of Business

d. 3 chs Elective courses chosen from ICS 2001, IS 1001, IS 1002, SOCI 2413, ECON 2091, 3 chs Psychology or other courses as approved by the Faculty of Business.

e. 3 chs Business Elective chosen from BA 3123, BA 3134, BA 3557 , BA 4101, BA 4193 or other business course as approved by the Faculty of Business.

f. 15 chs options, with no more than 6 chs from business, BA 3653 recommended

for CPA entry requirements.

Example of a Typical Student's Program BAM Accounting Degree

Third Year	
Fall Term	MATH 1853 , BA 2504 , Electives or Options - 9 chs
Winter Term	BA 2606 , BA 3224 , BA 3672 , BA 3304, BA 2858
Fourth Year	
Fall Term	BA 3623, BA 4229, Electives or Options - 9 chs
Winter Term	Electives or Options - 15 chs

BACHELOR OF APPLIED MANAGEMENT - ELECTRONIC COMMERCE

Admission Requirements

Students must have successfully completed the two-year Business Technology program with the E-Business Option at NBCC-Saint John, or an equivalent program, with an average of at least 70%. Additional admission requirements will depend upon the institution from which a student graduated.

Curriculum and Degree Requirements

Students must have successfully complete at least 60 chs of course work and must obtain the minimum required grades in all required, elective and option courses specifically required for the degree and in the prerequisites for those courses.

Candidates for the degree must successfully complete the following credit hours:

a. 39 chs of required courses;

b. 6 chs of Electives chosen from BA 3125, BA 3328, BA 3661, BA 4108, BA 4126, BA 4223, IT 2773 or other courses as approved by the Faculty of Business;

c. 6 chs of Electives chosen from BA 3557, BA 4866, an ICS course as approved by the Faculty of Business or other courses as approved by the Faculty of Business;

d. 3 chs of Elective chosen from ECON 2091, SOCI 2413 or 3 chs PSYC or other courses as approved by the Faculty of Business;

e. 6 chs of non-business Options.

Example of a Typical Student's Program BAM Electronic Commerce Degree

Third Year	
Fall Term	MATH 1853 , BA 2123 , BA 2217, BA 2663, Electives or Options - 3 chs .
Winter Term	BA 2504, BA 2606 , BA 3126 , BA 3672 , Electives or Options - 3 chs .
Fourth Year	
Fall Term	BA 2858 , BA 3129 , Electives or Options - 9 chs.
Winter Term	BA 3304 , BA 3305 , BA 3718 , Electives or Options - 6 chs.

BACHELOR OF APPLIED MANAGEMENT - GENERAL BUSINESS

Admission Requirements

Completion of an approved diploma program from a recognized college with a minimum overall average of 70%.

Curriculum and Degree Requirements

Students must successfully complete at least 60 chs of course work and must obtain the minimum required grades in all required, elective and option courses specifically required for the degree and in the prerequisites for those courses.

Candidates for the degree must successfully complete the following credit hours:

a. successful completion with a grade of "C"

6 chs	Accounting as approved by the Faculty of Business
6 chs	Marketing as approved by the Faculty of Business
3 chs	Management as approved by the Faculty of Business
3 chs	Human Resource Management as approved by the Faculty of Business
3 chs	Finance as approved by the Faculty of Business
9 chs	Operations & Information Mgt as approved by the Faculty of Business
3 chs	Electronic Commerce as approved by the Faculty of Business
3 chs	Law as approved by the Faculty of Business
3 chs	Integrated Strategy as approved by the Faculty of Business

Students who have completed courses in any of these areas at a level judged to be appropriate may be permitted to substitute alternate UNB degree credit courses as approved by the Faculty of Business and following general practice as applied to all degree programs.

b. successful completion, with a minimum grade of C, of 9 chs of business electives normally chosen from third and fourth level courses.

c. successful completion, with a minimum grade of C, of 6 chs of economics as approved by the Faculty of Business

d. successful completion, with a minimum grade of C, of 6 chs of non-business courses acceptable to the Faculty of Business.

Example of a Typical Student's Program BAM General Business
(assuming no advanced standing for core required business or economics courses in their college diploma or other recognized post-secondary studies)

Third Year	
Fall Term	BA 1216 , BA 1605 , BA 2123 , BA2504 , ECON 1013
Winter Term	BA 2217 , BA 2303 , BA 2606 , BA 2858 , ECON 1023
Fourth Year	
Fall Term	BA 3304 , BA 3425 , BA 3672 , Electives or Non-Business Options - 6 chs.
Winter Term	BA 3705 , BA 4101 , Electives or Non-Business Options - 9 chs.

BACHELOR OF APPLIED MANAGEMENT - HOSPITALITY AND TOURISM

ADMISSION

a. High School Entry ("3+1" Program)

Students must have an overall average of 75% in English 122, Trigonometry and 3-Space + Advanced Math with an intro to Calculus and 3 electives. In addition they must achieve a minimum of 60% in English 122 and Math 120.

b. College Entry ("2+2" Program)

Students must have successfully completed a two-year diploma program in Hospitality and Tourism at a recognized community college with an average of at least 70%. Additional admission requirements will depend upon the institution from which a student graduated. Students should contact the Faculty of Business for details.

Co-operative Education Component

Students may choose the co-op mode. Work terms follow years 2 and 3 for High School entry students; a work term follows year 3 (i.e. first year at UNBSJ) for College entry students. These work terms provide "hands on" multi-level practical experiences.

Curriculum and Degree Requirements

a. High School Entry

Students must successfully complete at least 90 chs of course work and must obtain the minimum required grades in all required and elective courses specifically required for the degree and in the prerequisites for those courses.

College Entry 2+2

Students must successfully complete at least 60 chs of course work and must obtain the minimum required grades in all required, elective and option courses specifically required for the degree and in the prerequisites for those courses.

b. Candidates for the degree must successfully complete the following:

High School Entry ("3+1")

a. 48 chs of required courses;
b. 6 chs of Social Science Electives;
c. 6 chs of Humanities and/or Languages Electives;
d. 12 chs chosen from approved HTM Electives (includes BA 4108);
e. 18 chs of options (see list below) of which no more than 12 chs may be at the introductory level, and no more than 6 chs may be chosen from HTM or business courses); and
f. 30 chs of block transfer credit in hospitality and tourism from an approved community college.

College Entry ("2+2")

a. 30 chs required courses;
b. 12 chs chosen from approved HTM electives (includes BA 4108);
c. 18 chs of Options (see list below) of which no more than 12 chs may be at the introductory level and no more than 6 chs may be chosen from HTM or business courses; and
d. 60 chs of block transfer credit in hospitality and tourism from an approved community college.

C. Course Requirements

Students are responsible for ensuring that they meet all the requirements specified for the degree. These include the minimum credit hour requirements, minimum grade point averages, minimum grades in specified courses, successful completion of all specifically required courses, elective and option courses and compliance with the restrictions on elective courses as in regulation IV above. Students are advised to consult Section H of this calendar for detailed course descriptions, including the number of credit hours assigned to each course. An elective course is one chosen from a specified group of courses, e.g. "from Social Science or Business". An option course is an approved course chosen by the student from any approved discipline.

Electives:

· Humanities and Languages: Classics, English, French, German, Greek, History, Humanities, Latin, Philosophy, Spanish (or other courses as approved by the Faculty of Business)

· Social Sciences: Gender Studies, Geography, Information & Communication Studies, International Studies, Linguistics, Politics, Psychology, Social Science, Sociology (or other courses as approved by the Faculty of Business)

· Business: All courses prefixed with BA which are not listed as required below.

· Hospitality & Tourism: All courses prefixed with HTM which are not listed as required below.

Please note that BAMHT 2+2 students may NOT choose HTM1103 as an elective.

Options: Except as noted in section IV above, options may be chosen from any of the elective areas listed above as well as: Biology, Chemistry, Computer Science, Economics, Geology, Information Technology, Mathematics, Physics, Science, or other courses as approved by the Faculty of Business.

EXAMPLE OF A TYPICAL STUDENT'S PROGRAM

High School Entry - BAMHT Degree (3+1")

First Year: Fall Term

· Math 1853 Math for Business I*
· 3 chs Option**
· ECON 1013 Intro to Microeconomics
· Social Science Elective*
· Humanities or Language Elective*

First Year: Winter Term

· HTM 1103 Introduction to Tourism
· BA 1216 Accounting for Managers I
· ECON 1023 Intro to Macroeconomics
· Social Science Elective*
· Humanities or Language Elective*

Second Year: Fall and Winter Term

· Students must satisfactorily complete a year-long program at an approved community college.

Second Year: May-August

· Optional co-op work term

Third Year: Fall Term

· BA 1605 Business Decision Analysis I
· BA 2504 Introduction to Organizational Behaviour
· HTM 2217 Management Accounting for the Hospitality Industries
· Electives or Options** 6 chs

Third Year: Winter Term

· BA 2123 Introduction to Electronic Commerce
· BA 2606 Business Decision Analysis II
· BA 3672 Introduction to Management Information Systems
· Electives or Options** 6 chs

Third Year: May-August

· Optional co-op work term

Fourth Year: Fall Term

· BA 3129 Business Research Methods
· BA 3371 Marketing of Services
· BA 3425 Managerial Finance
· Electives or Options** 6 chs

Fourth Year: Winter Term

· HTM 4101 Competitive Strategy
· HTM 4161 Planning and Development of Sustainable Tourism
· Electives or Options** 9 chs

EXAMPLE OF A TYPICAL STUDENT'S PROGRAM
College Entry- BAMHT Degree (2 + 2"):

Third Year: Fall Term
- BA 1605 Business Decision Analysis I
- HTM 2217 Management Accounting for the Hospitality Industries
- Electives or options ** 9 chs

Third Year: Winter Term
- BA 2123 Introduction to Electronic Commerce
- BA 2606 Business Decision Analysis II
- BA 3672 Introduction to Management Information Systems
- Electives or options** 6 chs

Third Year: May-August
- Optional Co-op Work Term Fourth Year

Fourth Year: Fall Term
- BA 3129 Business Research Methods
- BA 3371 Marketing of Services
- BA 3425 Managerial Finance
- Electives or options** 6 chs

Fourth Year: Winter Term
- HTM 4101 Competitive Strategy
- HTM 4161 Planning and Development of Sustainable Tourism
- Electives or options** 9 chs

* All students must include MATH 1853 within their first 30 chs; 6 chs from the Social Science disciplines listed above, within their first 60 chs, and 6 chs from the Humanities and Languages disciplines listed above within their first 60 chs.

** Option courses may be selected from the offerings of any faculty provided that the selections are in accord with regulations IV and C. above, and provided they are approved by the Faculty of Business.

BACHELOR OF ARTS

FACULTY OF ARTS

General Office:	Sir Douglas Hazen Hall, Room 201
Mailing Address:	Faculty of Arts, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5560
Email:	artssj@unbsj.ca
Website:	http://www.unb.ca/saintjohn/arts/index.html

FACULTY

Dean: Dr. Joanna Everitt

Department of History and Politics

- Everitt, Joanna, BA (Car), MA, PhD (Tor), Prof & Dean - 1997
- Fury, Cheryl, BA, MA (UNB), PhD (McM), Asst Prof - 2010
- Goud, Thomas, BA (Calg), MA, PhD (Tor), Assoc Prof - 1994
- Jeffrey, Leslie, BA (Acad), MA (Car), PhD (York), Assoc Prof - 1998
- Lindsay, Debra, BA (Sask), MA, PhD (Man), Assoc Prof- 1997
- Lewis, Jon-Paul, (J.P.), BA (Waterloo), MA (Guelph), PhD (Carleton), Asst Prof - 2012
- Marquis, Greg, BA (SFX), MA (UNB), PhD (Qu), Assoc Prof – 1999
- Munoz-Martinez, Hepizah, BA (Universidad de Monterary), MA (York), PhD (York), Asst. Prof - 2012
- Toner, Peter M., BA (St Thomas(NB)), MA (UNB), PhD (NUI), Honorary Research Prof & Professor Emeritus -2008
- Whitney, Robert, BA, MA (Alta.), PhD (Qu), Assoc Prof - 2000

Department of Humanities and Languages

- Belanger, Louis, BA (Montr), MA (UQTR), PhD (Sher), Prof - 1990
- Bell, Sandra, BA, MA (McM), PhD (Qu), Prof & Chair- 2000
- Creelman, David, BA (Acad), MA (UNB), PhD (York), Prof. - 1998
- Flagel, David, BA (UNB), MA, PhD (Qu), Prof - 1989
- Hill, Virginia, MA (Bucharest), MA, PhD (Geneva), Prof - 1990
- Jones, Miriam, BA (Tor), MA, PhD (York), Assoc Prof - 1999
- Littlejohn, Murray, BA, MA (Ott), Lecturer - 2003
- Maier, Sarah, BA, MA, PhD (Alta.), Assoc Prof - 1998
- Moore, Robert, BA, MA, PhD (McM), Prof - 1990
- Nkunzimana, Obed, Lic(Burundi/Tanzania), MA, PhD(Sher), Prof - 2000
- Serrano, Pedro, BA (El Salvador), MA (ITCA), Instructor - 1999

Department of Psychology

- Best, Lisa, BA (York), MA (Arkansas Little Rock), PhD (Maine), Asst. Prof. - 2002
- Both, Lilly E., BA (Manit), MA, PhD (Wat), Assoc Prof & Chair - 1996
- Bradley, Michael T., BSc (Vic.(BC)), MA, PhD (Manit), Prof - 1980
- Brunelle, Caroline, BA (Hons) (Laval), PhD (McGill), Asst Prof - 2006
- Campbell, Mary Ann, BA (Hons) (Dal), MA (Lakehead), PhD (Dal), Asst Prof and Director, Centre for Criminal Justice Studies - 2004
- DiTommaso, Enrico, BA (McG.), MA, PhD (UNB), Assoc Prof - 1997
- Gendreau, Paul, BA, MA (OH), PhD (Qu), Professor Emeritus 2007
- Goddard, Murray J., BA (Calg), PhD (McM), Univ. Teaching Prof - 1987
- McGuire, Katherine, BA (Hons), MEd, MA (UNB), Instructor - 2006
- Taukulis, Harald, BA (N Ill), MSc, PhD (Nfld), Prof 1986
- Wilson, Alexander, BA (Mt.All.), MA, PhD (Manit), Prof - 1981

Department of Social Science

- Burns, Janet, M. C. , BA (Alta) MA (Victoria), PhD (S.Fraser), Assoc Prof - 1988
- Chalmers, D. Lee V., BA, MA (Regina), PhD (Essex), Assoc Prof - 1995
- Chiasson, Paul-Émile, BA, BEd (St FX), MA, PhD (France), Education Coordinator-2004
- Doran, Christopher, J., BA (York), MA, PhD (Calg), Prof 1989
- Downes, Daniel, BA (Ott), MA (Car), PhD (McG), Assoc Prof - 2001
- Duchesne, Ricardo, BA, MA (C'dia), PhD (York), Prof - 1995
- Galbo, Joseph, BA (CUNY), MA, PhD (York), Assoc Prof - 1997
- Hill, Roderick, BA (Tor), Diploma (Stockholm), MA, PhD (W.Ont), Prof 1990
- Ibn Boamah, Mustapha, BSc (Hons) (Ghana), MSc, PhD (Nottingham Trent), Asst. Prof -2010
- Keyes, Beth, BA, BEd, MEd (UNB), MA Car), Lecturer - 2008
- MacKinnon, Robert, BA (Mt.All.), MA (Nfld.), PhD (UBC), Prof and Vice-President (Saint John) - 2001
- Madeley, June, BA (Regina), MA (Dal), PhD (McM), Asst Prof - 2006
- Moir, Robert, BA (McM), MA (Qu), PhD (McM), Assoc. Prof - 1996
- Worrell, Gary L., BPE (UNB), MSc (Penn State), PhD (Florida State), Assoc Prof & Chair - 1977

GENERAL INFORMATION

On the Saint John campus there are a variety of programs leading to the degree of Bachelor of Arts: Majors programs in Biology, French, Information and Communication Studies, International Studies, Math, Philosophy, Sport and Exercise Psychology, and Statistics, and Majors and Honours programs in Economics, English, History, Politics, Psychology and Sociology.

BA Degree Regulations

INTENT: The BA Degree regulations are intended to ensure that the student is exposed to a diversity of academic disciplines in the first half of the degree program, and to give the student a more specialized and concentrated knowledge of one or two academic disciplines in the second half of the program. Students are responsible for ensuring that their course of study meets the BA Degree regulations.

Grading System and Classification

The grading system used is that adopted by the University in 1974. The regulations governing grades, grade points, grade point averages and cumulative grade point averages for the BA degree are the same as the General University Regulations, for full-time students, part-time students, and for students enrolled before 1974. For their own benefit all students should study these regulations (see Section B of the Calendar) carefully.

1. The BA degree will be granted on successful completion of a minimum of 40 term-courses. A term-course must be between 3 and 5 credit hours to be included in the general BA regulations. Some programs may require courses of lesser values, but these will not count in the general BA requirements (min. 3 ch each term-course). Certain Honours programs may require successful completion of more than 40 term-courses. A full-year course of 6 or more credit hours will count as 2 term-courses. A grade of D or above indicates successful completion of a course, except as stated elsewhere in the Calendar.

2. Normally, the student will successfully complete 20 term-courses at the lower-level (i.e. courses whose number begins with 1 or 2) before taking the 20 term-courses, or more for certain Honours programs, of upper-level courses (i.e. courses whose numbers begin with 3 or 4) which complete the degree program, in accordance with the requirements of either one or two majors programs. Under special circumstances, up to 4 lower level term-courses may be substituted in the total of 20 term-courses of upper-level courses. The written permission of the appropriate chair(s) is required for such a concession.

3. During the session in which students expect to complete successfully the first 20 term-courses, they must choose one or two academic disciplines or fields of study in which they wish to specialize. If the students choose to specialize in one academic discipline or field of study they are said to be taking a single major; if they choose to specialize in two academic disciplines or fields of study they are said to be taking a double major. Students with a high grade point average may apply to honour rather than major, in one or two disciplines. The honours programs involve more intensive study and are typically taken by students in preparation for postgraduate work. When students have decided on the academic discipline(s) or field(s) of study in which they wish to specialize, they must apply to the appropriate Department(s)/Discipline(s) for permission to enter the majors program(s) concerned. Students who fail to apply for acceptance to a majors program after they have successfully completed 20 term-courses may find that they will be required to complete successfully more than 40 term-courses in order to fulfill the majors requirements and get a degree. A student must fulfill the requirement for one or more Majors program(s) in order to obtain a BA Degree. Course selections for students in majors programs must be approved by the appropriate Department Chair(s), or their designates.

4. Among the 20 term-courses at the lower-level, a student must successfully complete at least 2 term-courses in three of the four groups listed below. Up to 6 term-courses may be taken in any one discipline, but not more than 4 term-courses may be taken in any other discipline. For students pursuing a double major, this may be amended to allow up to 5 term-courses in each of the disciplines the student is double majoring in subject to Department Chair approval.

Group 1 Humanities	Classics, English, History, Humanities, Philosophy, World Literature. Courses in French, German, or Spanish Civilization also form part of this group.
Group 2 Languages	French, German, Greek, Latin, Spanish. **(Note**: Courses in French, German, or Spanish Civilization do not form part of this group.)
Group 3 Social Science	Economics, Gender Studies, Geography, Information & Communication Studies, International Studies, Linguistics, Politics, Psychology, Sociology, Sport and Exercise Psychology.
Group 4 Science	Biology, Chemistry, Computer Science, Geology, Information Technology, Mathematics, Physics, Science, Statistics.

5. With the exceptions noted below only credit hours successfully completed in disciplines listed above will count towards the BA degree.

   a. Subject to the agreement of the appropriate departments, up to a maximum of 4 term-courses of core Education courses can be counted towards a BA degree.

   b. Some core Education courses (ED 3031 , ED 3041 , ED 3051 , ED 3063), as well as ED 3561 and ED 4562 for Arts students who are registered in the Certificate in Teaching English as a Second Language (CTESL) Program, can be counted as Arts elective credits, up to the maximum of 4 term-courses. Methods courses in Education are not eligible for Arts elective credits. Non-core Education courses which are similar to Arts courses, may be considered for Arts elective credit on an individual basis by the Dean of Arts.

   c. All courses successfully completed in Humanities (designated HUM), Social Science (designated SOCS), Business Administration (designated BA), and Hospitality and Tourism (HTM) count towards a BA degree, provided that UNB course program regulations are met. HSCI 2001 and NURS 4144 may be approved as general electives towards the BA degree with permission from the Dean.

6. A student may not take more than 6 courses in any term without the written permission of the Dean.

7. For the purposes of the BA degree, a course offered at UNB Saint John shall have the credit-hour rating assigned to it by the Faculty offering the course. NOTE: Students taking courses with labs must complete the appropriate lab requirements.

8. Exceptions to these credit hour designations in the BA program may be made only by the Dean of the Faculty and the Registrar.

9. Requirements for the 20 term-courses at the upper-level are listed in the regulations of the appropriate majors programs.

10. Candidates for the degrees of BA (Major) are listed with divisions based on the cumulative grade point averages of all courses taken. See Section B of this Calendar, -Listing of Graduates-.

11. A student who attains a grade point average equal to or greater than 3.75 for courses taken after the completion of their first 20 term-courses and no grades less than C over the last 30 term-courses shall be awarded a Distinction upon graduation.

BIOLOGY MAJOR

Students who wish to major in Biology will have to plan their course selections carefully in order to meet the various prerequisite requirements. The Biology Major in the BA program will include courses in whole organisms and ecology but will exclude Biochemistry, Cell Biology and a few of the Marine Biology courses.

During the first year the student will take BIOL 1105 during Term 1. In Term 2, BIOL 1205 and BIOL 1017 are required. Students must also complete a year of Chemistry courses. Students must take either CHEM 1831 and CHEM 1842 (a minimum grade of "B" is required in both courses) or CHEM 1041 / 1046 / 1072 / 1077 . Students taking CHEM 1041 etc. must also take MATH 1003 .

During second year the students will take BIOL 2125 , BIOL 2485 , BIOL 2585 , BIOL 2615 and STAT 2263 or equivalent. During the third and fourth year the students will complete at least eight upper level Biology courses. Students must have the appropriate 2000 level Biology course to enrol in upper level courses. The course descriptions list the necessary prerequisites.

Except where noted above, a grade of C or higher is required for all core courses. Students must also complete the general BA requirements. There is not a Minor in Biology.

CERTIFICATE IN GENERAL STUDIES

General Information

The Certificate in General Studies is open to all interested individuals, but it is intended for student attending university for the first time. It is anticipated that Certificate students may proceed on to a degree program, transferring all appropriate Certificate credit(s).

Admission

Open to all interested individuals, the Certificate in General has no specific academic prerequisites for students enrolled in a part-time basis, only a desire and willingness on the part of the student to engage in university-level education. Applicants applying to the Certificate in General Studies for a full-time study should consult with the Faculty of Arts before an admission decision will be made.

There is no minimum age, or any specific prerequisite requirements for enterance into the Certificate in General Studies. Some courses, such as those in Groups D,E, and F, may require successful completion of upper-level high-school studies in the discipline.

General Regulations

1. Students who wishes to pursue the Certificate in General Studies on a full-time basis should first consult with the Faculty of Arts

2. To earn the Certificate in General Studies a student must complete a minimum of 10 term-courses with a grade of C or better in each course, and achieve a cumulative grade point average of at least 2.0

3. Students in the Ceriticate in General Studies are required to take a minimum of 2 term courses from three of the six groups listed below (adhering to all course prerequisites):

Group A	Classics, French, History, Humanities, Philosophy, World Literature.
Group B	French, German, Latin, Spanish.
Group C	Economics, Geography, Health Sciences, Information & Communication Studies, International Studies, Linguistics, Politics, Psychology, Sociology, Sport & Excersise Psychology
Group D	Biology, Chemistry, Geology, Mathematics, Physics, Science, Statistics
Group E	Business, Hospitality & Tourism
Group F	Computer Science, Data Analysis, Engineering, Information Technology.

4. A certificate will not be awarded to a student who has completed another degree or certificate program, or is currently enrolled for a degree. Students currently enrolled in another program, or in the No degree program, will be considered for transfer into the Certificate in General Studies program. A maximum of six term courses will be transferable for these students. Students who have withdrawn from an undergraduate degree program may apply for the Certificate in General Studies. Full time Certificate in General Studies enrollment will be considered by the Faculty of Arts and will only be approved in exceptional circumstances. Students wishing to be considered for full-time study MUST supply the Registrars Office with documentation clearly outlining how and why they are capable of full-time university level study. This documentation will include:

- · Official Transcripts
- · A resume
- · Two (2) or more letter of support, from employers/teachers who can cleary attest to how and why the student is capable of full-time academic study
- · A personal statement by the student outlining in detail how and why they are capable of university-level full time stufdy.

COGNITIVE NEUROSCIENCE

Cognitive neuroscience is a multi-disciplinary study of the neurological underpinnings of cognitive activity. Cognitive neuroscience brings in perspectives from psychology, linguistics, philosophy, mathematics,and computer science to tackle the complex area of the neurological basis of cognition.

Eligibility

Admission to the minor in Cognitive Science is open to students who have completed 20 term-courses towards their degree and have achieved a minimum GPA of 2.0. The minor requires a minimum of 8 term-courses. Courses cannot be counted towards both a minor and a major. A minimum grade of C is required in all required courses.

Note: PSYC 1003 and PSYC 1004 is a minimum prerequisite for all Psychology courses unless otherwise indicated.

Psychology courses (5 term courses) (Required)	
PSYC 3383	Perception
PSYC 3693	Cognitive Processes
PSYC 3723	Human Neuropsychology (Prerequisite: PSYC 3711 Biological Psychology)
PSYC 4733	Cognitive Neuroscience (Prerequisites: PSYC 3711 and either PSYC 3383 or PSYC 3693)
One of:	
PSYC 3725	The Dementias
PSYC 4833	Psychopharmacology (Prerequisite: PSYC 3711 Biological Psychology)
PSYC 3503	Learning
Linguistic Courses (2 term course) (Required)	
LING 2101	Intro to Linguistics 1 (Prerequisites: 2 term-courses at 1000 level)
LING 3111	Language Acquisition
LING 3113	Phonetics and Phonology
LING 3202	Intro to Linguistics 2 (Prerequisite: LING 2101)
LING 3224	Cognition and Language
Philosophy, Mathematics (1 term course) (Required)	
One of:	
PHIL 3141	Philosophy of the Mind (Prerequisite: one-term course in Philosophy)
MATH 3753	Applications of Mathematical Modelling (Prerequisites: one of STAT 3093, PSYC 3913, MATH 2013, MATH 2513; or permission of the instructor.)

COMPARATIVE LITERATURE

Minor in Comparative Literature

The minor in Comparative Literature will require WLIT 2501 and WLIT 2502 ; in addition, students must complete 2 term-courses from group A and 4 term-courses at the upper level from group B for a total of 8 term-courses. A grade of C or better is required in all courses for successful completion of the minor.

Required:		
WLIT 2501	The Western Literary Tradition	(3 ch)
WLIT 2502	The Non-Western Literary Tradition	(3 ch)
Group A: (choose 2 term-courses)		
FR 1203	Communicating in French I	(3 ch)
FR 1204	Communicating in French II	(3 ch)
FR 1304	French for Immersion Students I	(3 ch)
FR 2203	Communicating in French III	(3 ch)
FR 2204	Communicating in French IV	(3 ch)
FR 2304	French for Immersion Students II	(3 ch)
GER 1003	Basic German	(3 ch)
GER 1004	Improving Basic German	(3 ch)
SPAN 1203	Introductory Spanish I	(3 ch)
SPAN 1204	Introductory Spanish II	(3 ch)
SPAN 2203	Intermediate Spanish I	(3 ch)
SPAN 2204	Intermediate Spanish II	(3 ch)

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Group B: (choose 4 term-courses)		
Note: students my not take more than 2 term-courses from the discipline of the Majors or Honours programme in which they are enrolled. Courses will not be double counted.		
WLIT 3314	European Romanticism	(3 ch)
WLIT 3315	Nineteenth-Century Literature	(3 ch)
WLIT 3725	Literature and/as Philosophy	(3 ch)
WLIT 3901	Studies in Comparative Literature	(3 ch)
ENGL 3601	Literary Theory	(3 ch)
ENGL 3705	Literature of West Indies, Africa and India	(3 ch)
ENGL 3812	Postmodern Literature	(3 ch)
ENGL 3903	Development of Western Drama	(3 ch)
FR 3514	Communication and Literary Form	(3 ch)
FR 3524	Contemporary French African and Caribbean Literature	(3 ch)
FR 3614	18th C French Authors	(3 ch)
FR 3615	19th C French Authors	(3 ch)
FR 3616	20th C French Authors	(3 ch)
FR 3704	Aspects of World Francophone Culture	(3 ch)
FR 3734	Language of Cinema and Literature	(3 ch)
FR 4514	Special Topic in French Literature	(3 ch)
FR 4524	Literary Criticisim in French	(3 ch)
PHIL 3075	Philosophies of Art	(3 ch)
PHIL 3110	Contemporary Philosophy	(6 ch)
SPAN 3007	Fundamentals of Spanish Language and Culture	(3 ch)
SPAN 3974	Contemporary Spanish-American Prose Fiction	(3 ch)

CRIMINAL JUSTICE MINOR

The Criminal Justice interdisciplinary minor provides an academic opportunity for systematic study in the fields related to criminology, penology and criminal justice.

Eligibility

Admission to the Criminal Justice Minor is open to students who are majoring in either Sociology or Psychology. Students from other disciplines may take the minor, but must meet all program requirements and associated prerequisites. Students must select the Minor in consultation with a Faculty Advisor and this should normally be done at the same time as they declare a Major.

Program of Study

The Minor program in Criminal Justice shall consist of at least eight term-courses of instruction. The four term courses listed below are mandatory. A minimum grade of C+ is necessary in the mandatory courses to qualify for the Minor. Prerequisites are noted in brackets.

Mandatory Courses		
PSYC 3263 (3 ch)	Psychology of Criminal Behaviour	(PSYC 1003 , PSYC 1004)
PSYC 4233 (3 ch)	Programme Evaluation	(PSYC 2102, one of PSYC 2901, SOCI 3104 with STAT 1793, 2263 OR 2593 OR BA 1605 and BA 2606)
SOCI 2611 (3 ch)	Language, Crime and Human Agency	(SOCI 1001)
SOCI 3614 (3 ch)	Culture, Criminal Justice and Social Structure	(SOCI 2611, and another two-term courses of lower level SOCI)
Students must choose the remaining four term-courses from the following courses. Prerequisites are noted in brackets, but students should note that some prerequisite courses also have their own prerequisites that are not noted here. A minimum grade of C in these electives is required for them to count towards the Minor.		
BA 3557 (3 ch)	The Management of Planned Change	(BA 2504)
ECON 1004 (3 ch)	Economics & Society	(no prerequisite)

ECON 1013 (3 ch)	Introduction to Microeconomics	(no prerequisite)
HIST 4207 (3 ch)	Britain in the Age of Revolution 1760-1832	(one term-course from HIST 1201, HIST 1301, HIST 1401, IS 1001, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3405, HIST 3555)
HIST 4377 (3 ch)	Social History of Crime in Canada	(one term-course from HIST 1201, HIST 1301, HIST 1401, IS 1001, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3405, HIST 3555)
HIST 4337 (3 ch)	Alcohol, Drugs, & Tobacco North America	Two of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101, and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3505, HIST 3555, HIST 3577.
HIST 4381 (3 ch)	The Family and the State in North America	(one term-course from HIST 1201, HIST 1301, HIST 1401, IS 1001, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3405, HIST 3555
HIST 4383 (3 ch)	Police and Society in North America	(one term-course from HIST 1201, HIST 1301, HIST 1401, IS 1001, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3405, HIST 3555)
HIST 4386 (3 ch)	Canadian Criminal Justice System	(one term-course from HIST 1201, HIST 1301, HIST 1401, IS 1001, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3403, HIST 3405, HIST 3555)
PHIL 2003 (3 ch)	Introduction to Moral, Social and Political Philosophy	(no prerequisite)
PHIL 3124 (3 ch)	Contemporary Moral Problems	(no perquisite)
PHIL 3153 (3 ch)	Business Ethics	(one term-course in PHIL or permission of instructor
POLS 1201 (3ch)	Introduction to Canadian Politics	(no prerequisite)
POLS 3222 (3 ch)	Canadian Political Issues II	(POLS 1201)
POLS 3683 (3 ch)	Human Rights	(POLS 1301 and/or POLS 2601)
POLS 4311 (3 ch)	Special Topics in Comparative Politics	(see note 3)
PSYC 3265 (3 ch)	Forensic Psychology	PSYC 1003, PSYC 1004
PSYC 3313 (3ch)	Introduction to Psychological Testing	(PSYC 1003, PSYC 1004, PSYC 2102)
PSYC 3493 (3 ch)	Changing Behaviour	(PSYC 1003, PSYC 1004)
PSYC 3553 (3 ch)	Psychopathology	(PSYC 1003, PSYC 1004)
PSYC 3752 (3 ch)	Drugs and Behaviour	(PSYC 1003, PSYC 1004)
PSYC 4263 (3 ch)	Field Placement in Community Corrections I	(PSYC 1003, PSYC 1004, PSYC 3263, PSYC 3493, and SOCI 2611, SOCI 3614; minimum CGPA of B)
PSYC 4264	Field Placement in Community Corrections II	(PSYC 1003, PSYC 1004, PSYC 3263, PSYC 3493, PSYC 4263, and SOCI 2611, SOCI 3614; minimum CGPA of B)
PSYC 4813 (3 ch)	Substance Abuse and Dependence	PSYC 4833 or PSYC 3752)
SOCI 2603	Sociology of Deviance (Fredericton Campus)	(SOCI 1001)

Note 1: Mandatory and elective courses taken for the Minor in Criminal Justice can not be counted towards other program requirements. However, prerequisites taken to be eligible for the mandatory and elective courses may be counted towards other programs.

Note 2: Upper level students interested in taking eligible History courses towards the minor, but who do not meet the prerequisites, may consult with the individual course instructor to request permission to register for the course.

Note 3: Students who are not majoring or honouring in Political Science will be admitted to a 4000 level POLS course only if they have completed six term-courses in POLS and have consulted with the instructor.

ECONOMICS

Honours, Major and Minor

NOTE: To satisfy the degree requirements of an Honours, Major, double major or Minor in Economics, a grade of C or better, unless otherwise noted, must be earned in all Economics courses, and in all approved substitutes.

HONOURS

Intent: The BA in Economics Honours is designed to prepare a student

to work or study as an Economist. Students interested in applying to

graduate schools for further Economics degrees are strongly

recommended to complete their Honours degree.

Requirements

A minimum of 20 term-courses in Economics are required to obtain an Honours designation. To remain in the program, students must maintain a GPA of 3.0 in ECON (or approved substitute courses). Furthermore, to remain in the Honours program, students must receive no less than a B- in the required term-courses beyond the 1000- level as listed below. A High Honours degree will be awarded to those students graduating with a GPA of 3.7 (A-) or greater averaged over ECON term-courses (excluding ECON 1013, ECON 1023 and STAT 1793). For Honours; an average of 3.0 is required in these term-courses.

Required Courses

ECON 1013, 2013, 4045 Microeconomics 4 term-courses

ECON 1023, 2023, 3023, 4035 Macroeconomics 4 term-courses

STAT 1793, 2793 (or eqivalent) 2 term-courses

ECON 3665 (Mathematical Economics)1 term-courses

ECON 4645 (Eonometrics) 1 term courses

12 term-courses

Students in this program are required to pass MATH 1003 and MATH 1013 with a grade of C or better, but these term-courses do not count towards the 20 term-courses in Economics.

Electives
The remaining 8 term-courses in Economics electives will normally be taken in the Economics discipline, but up to 3 discipline-approved term-courses may be substituted for non-compulsory Economics electives (see the Economics coordinator for a list). A grade of C or better must be earned in each of these 8 term courses.

MAJOR

Intent
The BA in Economics Major option is designed to give students a working knowledge of Economics and prepare them to work in business or in a policy-making environment. Students interested in pursuing graduate programs in Economics are strongly urged to complete an Honours program in Economics.

Requirements
A total of 16 term-courses in Economics are required to obtain a Major designation. A grade of C or better must be earned in each of the 16 term-courses required to complete the Majors Program. **NOTE:** Student must obtain at least a B- in ECON 2013 and ECON 2023 in order to stay in the program.

Required Courses
ECON 1013, 2013, 3013 Microeconomics 3 term- courses

ECON 1023, 2023, 3023 Macroeconomics 3 term-courses

STAT 1793, 2793 (or equivalent)   2 term-courses

8 term-coures

Students in this program are required to pass MATH 1003 (or MATH 1853 and MATH 2853 as substitute) with a grade of C or better, but this does not count in the 16 term-courses in Economics.

Electives

The remaining 8 term-courses in Economics electives will normally be taken in the Economics discipline, but up to 3 discipline-approved term-courses may be substituted for non-compulsory Economics electives (see the Economics coordinator for a list). A grade of C or better must be earned in each of these 8 term-courses.

Double Majors

A total of 14 term-courses in Economics are required to complete a double majors in Economics. Of these, 8 term-courses are the same as those needed to complete the Major (including the Math requirements), with 6 term-courses of Economics electives. Up to 3 discipline-approved term-courses may be substituted for non-compulsory Economics electives (see the Economics coordinator for a list). A grade of C or better is mandatory in all 14 term-courses needed to satisfy the double major requirement. **NOTE:** Students must obtain at least a B- in ECON 2013 and ECON 2023 in order to stay in the program.

MINOR

Intent

The BA in Economics Minor is designed to give students knowledge of the basic issues in economics so they can make more informed choices in their work and private lives.

Requirements

A total of 8 term-courses in Economics are required to obtain a Minor Designation. A grade of C or better is mandatory in all 8 term-courses needed to satisfy the minor requirement.

Required Courses

ECON 1013, 1023 Microeconmics 2 term-courses

ECON 2013, 2023 Macroeconomics 2 term-courses

4 term-courses

Electives

The remaining 4 term-courses in Economics electives must be taken in the Economics Discipline. Of these 4 term-courses, at least 2 must be at the 3000-level or above. A grade of C or better is required in each of these courses.

Certificate in Economics

This certificate is a stand-alone program intended for visiting international students and for members of the community interested in economics. It will not be awarded to a student enrolled in a degree program, but students who have withdrawn from an undergraduate degree program may apply. A maximum of 50% of required credits may be transferred from another degree, certificate, or similar program, whether taken at UNB or elsewhere.

The Certificate requires completion of 8 term-courses including ECON 1013 , ECON 1023 , ECON 2013 , ECON 2023 , plus an additional four courses in Economics at or above the 2000 level. To earn a Certificate, a student must achieve a grade of at least a C in all specifically required courses, and achieve a cumulative grade point average of at least 2.0. While no specific prerequisites are required for admission to this Certificate program, **a background in high school mathematics is strongly recommended**.

Certificate in Financial Markets

The Certificate requires completion of at least 8 term-courses including BA 1216 , ECON 1013 , ECON 1023 , ECON 2013 , ECON 2023 , ECON 2103 , ECON 3114 , plus one additional course in Business or Economics which is in Accounting, Finance, or International/Macro Economics.

To earn a Certificate, a student must achieve a grade of at least a C in all specifically required courses, and achieve a cumulative grade point average of at least 2.0. While no specific prerequisites are required for admission to this Certificate program, a background in high school mathematics is strongly recommended.

EDUCATION

The BEd Degree Program

[A Concurrent Bachelor of Arts/Bachelor of Education degree program for Early Years Education]

General Office:	Sir Douglas Hazen Hall, Room 206
Mailing Address:	Education Program UNBSJ, PO Box 5000 Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5590
Fax:	(506) 648-5947
Email:	educsj@unbsj.ca
Website:	http://www.unbsj.ca/arts/

Statement of Purpose

The Education Program prepares students to assume leadership roles in education. Graduates are ready to begin a professional career and to broaden and deepen their professional expertise through continuing study. Students acquire the knowledge, ethical standards, skills, dispositions, and flexibility needed to address current problems in education both creatively and effectively, and to think critically about professional practice. In all its work, the Program seeks to prepare educators who understand the past, delight in the challenges of the present, and look optimistically to the future.

Degrees in Education

The BA/BEd degree is awarded upon successful completion of 56 term courses, of which 20 term-courses are designated in Education. Students who have completed courses at another University may apply to transfer into a concurrent degree program. A minimum of half of the BA and half of the BEd must be completed at UNB.

General Information

1. Applicants may obtain information or application forms from the Admissions/Registrar's Office, UNB Saint John, PO Box 5050, Saint John, NB E2L 4L5 or by telephoning 506-648-5670. Applicants are also encouraged to consult UNB's Internet home-page; http://www.unb.ca - for up-to-date developments, including an on-line application.

2. A student applying for entrance to the University of New Brunswick Saint John (UNBSJ) must complete an application form and forward it to the Admissions/Registrar's Office together with the applicable application processing fee. A non-refundable tuition confirmation deposit will be required from all applications on acceptance.

3. The final date for program application, including provision of required supporting documentation, will be January 31st annually. Applications received after that date may be considered, provided that space is available, but late applicants are cautioned their applications will not be processed until the earlier applications are dealt with, and that they may not necessarily be accepted.

4. Meeting the minimum requirements does not guarantee admission to any program.

5. Students will normally follow the Calendar Regulations for the year of their admission.

All students wishing to follow degree credit programs in Education must obtain permission to enrol from the Admissions Office of the University. Students will normally only be accepted into the Program in September. Please refer to Section B of this calendar for more information on Admission requirements. Those wishing to follow a graduate studies program should write the Dean of the School of Graduate Studies.

Students may take some courses for teacher certification credit without being formally admitted to a degree program. However no degree credit will be granted for any course until formal admission to the Program has been granted; courses taken before formal admission will not necessarily be accepted for degree credit. Graduates of the BEd program are pursuing careers in education in many jurisdictions in Canada, the United States, and in other parts of the world. Students who successfully complete the school years pattern program requirements, including the internship, are eligible to apply for a New Brunswick teacher's license. This license is recognized by other Canadian Provinces and most US states. Nevertheless, students should ensure that the specific programs they are following will qualify them for teacher certification in the province, state or country where they hope to work.

Note: The Province of New Brunswick Teacher Certification Regulations under the Education Act states that only Canadian citizens or those holding landed immigrant status or a work visa are eligible for teacher certification in the Province of New Brunswick.

Concurrent Programs

Note: Although students may be admitted to the Concurrent BA/BEd after completing only 10 term-courses of undergraduate studies, they must fulfill one of the following requirements before the BEd will be awarded.

a. In the Early Years program, students must complete at least 10 term-courses of teachable content. These 10 term-courses must include at least one term-course in each of the following: English, Math, Science (Biology, Chemistry, Physics, Earth Science, Environmental Science, Geology, or another approved science course), and Social Studies (Economics, Geography, History, Politics), for a minimum of 4 term-courses. The remaining 6 term-courses may be from any one or a combination of teachable subjects. The mathematics requirement must be a course with a MATH prefix and statistics is not accepted to meet this requirement. However, this requirement may be satisfied by taking MATH 2633.

b. Teachable subjects are: Biology, Business Administration, Canadian Studies, Chemistry, Classics, Commerce, Computer Science, Drama, Economics, English, Environmental Science, Family Studies, French, Geography, Graphic Arts and Design, Health, History, Home Economics, Information Technology, Languages, Mathematics, Music, Physical Education, Physics, Political Science, Technology Education, Theatre Arts, Visual Arts.

To be admitted to courses in French second language education, students must possess a high level of French competency. Students must provide evidence of this competency through a French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Training and Employment.

The New Brunswick Department of Education requires that all BEd students entering schools (for field studies or individual course requirements), must provide evidence of a Police Background Check. Students are responsible, at their own expense, to have evidence of the Police Background Check available to present to school officials.

Costs

In addition to those costs listed in Section C of this Calendar, students are responsible for all travel and accommodation costs related to the required student teaching experiences throughout their entire concurrent BEd program.

The Education Program may make arrangements at a limited number of faculty approved locations for students seeking an out-of-province Internship. Students undertaking out-of-province placements will be assessed an out-of-province intern differential fee.

University Regulations

Students are urged to read the General University Regulations, Section B of this Calendar, and in particular the subsection headed Grading System and Classification.

Any point not covered in the following regulations will be governed by the General University Regulations. Students applying for a second undergraduate bachelor's degree, transferring from other institutions, or changing degree programs are particularly advised to consult Section B of this Calendar. Questions concerning the application of regulations should be directed to the Registrar in writing.

General Regulations

Student Standing

a. Letter grades are assigned in accordance with University regulations.

b. A grade of C shall meet the requirements for Bachelor of Education courses unless otherwise stated in the Calendar.

c. In course offerings of other Faculties/Departments, students must meet the prerequisite requirements of that Faculty/Department.

d. A grade of C shall be the minimum acceptable grade in courses taken to meet requirements for the Bachelor of Education degree.

e. A BEd degree shall be awarded to a student who successfully complete the approved courses indicated in the program outlined. In addition, students must successfully complete the 15-week Internship.

f. A CGPA of 2.7 must be maintained to remain in the program.

Credit Hours

a. The normal course load for a concurrent BEd student (full-time) is 12 term-courses per academic year.

b. Students may take up to 3 term-courses in Spring Session. Students may take up to 3 term-courses summer session.

c. Once admitted to the concurrent degree program a full-time student must strive to maintain an appropriate balance of Education and other-faculty courses, normally no fewer than 3 term-courses per academic year in either faculty.

Standing and Promotion Requirements

Per University Regulations (see Section B of the Calendar).

Divisions and Distinctions

a. BEd degrees are awarded in divisions as stated in the University Regulations.

b. A student in the BEd program having a minimum cumulative grade point average of 3.8 in Education (ED) courses, and no grade below C, and whose Internship is deemed satisfactory for this degree by the Dean of Arts after consultation with the faculty member(s) who supervised the student's Internship, shall be awarded the BEd degree with Distinction.

Repeating Courses

Per University Regulations (see Section B of the Calendar).

Pre-Internships and Internship (Student Teaching)

The Education Program places students in school settings subject to approval by the University and in cooperation with the public school system.

a. In order to complete the BEd degree with a recommendation for New Brunswick Teacher Certification, a student must successfully complete both Pre-Internship I & II (ED 4003 and ED 4004) and the Internship (ED 5040) required in the program. For concurrent students the second one week placement (ED 4004) will take place at the end of the last Winter term before the individual's internship; the first one week placement (ED 4003) will take place at the end of the previous Winter term. The Pre-Internships and Internship are evaluated on a pass/fail basis. If an intern is removed from ED 5040 by the Faculty of Arts a grade of NCR will be assigned. (A grade of 'W', withdrawal, shall not be assigned after this point.)

b. During their Internship students participate in teaching and learning activities in an educational setting approved by the faculty. Responsibility for arranging and approving student teaching placements and Internship rests within the Education Program Coordinator.

c. Before entering the 15 week Internship, prerequisites must be met (see course: ED 5040)

d. With the approval of the Dean of Arts, courses other than the Internship may be taken to meet degree requirements provided the student authorizes the Dean in writing to recommend to the provincial licensing authorities that a New Brunswick Teacher's License not be granted to the student upon completion of the BEd program. Any later request for registration in the Internship must be submitted in writing to the Education Coordinator. In such cases there is no obligation on the part of the Program to place the student in an internship at a later date.

e. Students are responsible for all travel and living expenses incurred.

f. Re-registration

1. Students who have withdrawn from the Internship must establish that the factors necessitating withdrawal have changed and that there is reason to assume that a further attempt would be successful. The request for re-registration must be submitted in writing and must satisfy the Dean of Arts. Any later request for registration in the Field Studies Internship must be submitted in writing to the Dean of Arts. In such cases there is no obligation on the part of the Program to place the student in an internship.

2. Students who have failed the Internship (that is, received a grade of NCR) must establish that the factors causing the failure have changed and that there is reason to assume that a further attempt would be successful. Following failure, students will not be permitted to re-register for the practicum until at least one full academic year has elapsed. The request for re-registration must be submitted in writing and must satisfy the Dean of Arts. In such cases there is no obligation on the part of the Program to place the student in an internship.

g. Students who apply for the Internship within 3 years of having completed the requirements of the BEd portion of their degree normally will be allowed to register for the Internship without taking any further courses. If more than 3 years has elapsed, the Coordinator may require specific courses (in subject areas and methodology) to be taken prior to registration in the Internship.

h. Students wishing to be placed in an ESL or French Immersion classroom for their Internship must have completed a minimum of 3 term-courses in second language education.

i. Any appeal with regard to the final grade or the decision of the Faculty to remove a failing student in the Internship will be considered by the Faculty of Arts and the Education Coordinator. A student may choose a Faculty member to represent her/him on the committee. (See also Section B. VIII, Item H: Review of Grades)

NOTE: Consistent with the New Brunswick Department of Education's "Policy 701 on Pupil Protection," students planning to complete a teaching Internship will be required to provide a background check, (choose options # 3 and # 4 "indices check" on the Consent for Disclosure of Criminal Record Information Form). Students must also provide letters of reference attesting to their suitability to work with pupils in the public school system.

Residency Requirements

Students must complete the Internship at the University of New Brunswick. Of the 20 term-courses required for completion of the degree, a minimum of 8 term-courses must be completed at the University of New Brunswick as students in the BEd degree program.

Time Limit

The maximum time permitted between the first registration and the completion of the Concurrent BEd degree in accordance with the regulations in effect at the time of first registration shall normally be 10 years.

Course Selection

Students should consult with the Education Coordinator to confirm that all courses meet degree requirements. Students in a school years program may not take more than 1 term-course of Education courses outside the school years program i.e. ABRG, FNAT, Adult Education.

Transfer Credits

Students may obtain advanced credit of up to 7 term-courses toward the BEd for education courses which have been taken at this or another institution, where the grade received is 'C' or higher, and which meet program requirements.

Admission Procedures

1. Students apply for entry to the Bachelor of Arts degree program upon completion of their high school program.

2. Students should apply to the Education Program for admission to the Concurrent Program before January 31 of their first year in the BA program. Upon successful completion of 10 term courses and meeting other admission criteria (GPA of at least 2.7), they may be admitted to the Concurrent Program.

3. Admission requires the submission of the following supplemental forms, available from the Education Program Office: (a) Personal Statement of Intent; (b) Profile/Personal Interest; (c) two letters of reference.

Concurrent BA/BEd

Program Requirements (56 term-courses)

1. 20 term-courses from the Faculty of Education.

2. 40 term-courses approved by the Faculty of Arts of which 4 term-courses of specified Education credits may be used as Arts electives.

3. A student cannot obtain a BEd degree by itself in this program. A student cannot obtain a BA degree by itself in this program. If a student decides to leave the Concurrent Program, only those Education courses eligible as Arts electives may be transferred to the BA program.

Concurrent BEd courses offered at UNBSJ over a 4-year cycle:

ED 3021 , 3031 , 3041 , 3051 , 3063 , 3211 , 3241 ,3424 , 3475 , 3511 , 3561 3621 , 4003 , 4004, 4164 , 4353 , 4354, 4562, 5032, 5040, 5091, 5175, 5566, 5796

Please note: Only the early years option of the Concurrent BEd is offered to full-time students on the Saint John Campus of UNB. For more details of other options, refer to Section G of this Calendar, Fredericton Academic Programs.

CORE (Required) COURSES - 6 term- courses)	
ED 3021	Human Development and Learning
ED 3031	Education for Exceptional Learners
ED 3041	Theory & Practice of Education
ED 3051	School Law & Organization
ED 4164	Techniques of Teaching
ED 5032	Inclusion from Early Years

METHOD (Required) COURSES - 7-term courses	
ED 3211	Introduction to Visual Education
ED 3241	Music for Classroom Teaching
ED 3424	Teaching Mathematics in the Elementary School
ED 3474	Health & Movement Education in the Elementary School
ED 3511	Introduction to Science Education
ED 3621	Introduction to Social Studies
ED 4354	Literacy Learning in Early Years

Elective Courses – 2-term courses

Field Studies-equivalent to 5 term-courses	
ED 4003	Field Experience I
ED 4004	Field Experience II
ED 5040	Internship for Concurrent Education

Certificate in Mathematics for Education

The Certificate in Mathematics for Education is open to all interested students, however it is primarily intended for current and future school teachers for whom mathematics is a potential teachable subject, or ones who simply wish to expand their knowledge in the field of mathematics.

This Certificate can be taken as a stand-alone program or in conjunction with a degree program, with the approval of the appropriate faculty.

Candidates for admission to the Certificate must meet the University's requirements for admission to any of the faculties, or the requirements for admission as mature students.

The Certificate consists of 30 credit hours (10 courses) as outlined below. A grade of C or better is required in each of the courses.

Mathematics Requirement	
MATH 2633	Fundamental Principles of Elementary School Mathematics
MATH 3633	Fundamental Principles of School Mathematics
MATH 1003	Introduction to Calculus I*
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra** (or equivalent)
MATH 3093	Elementary Number Theory

Statistic Requirement : STAT 1793 Introduction to Applied Statistics (or equivalent)
Education Requirement : ED 3424 Teaching Elementary School Mathematics
Additional Requirement:
1. One of Math 2203 or Math 3343;
2.Three credit hours in Mathematics, Statistics or Computer Science, chosen in consultation with the Department of Mathematical Sciences; BA 3623 or ECON 3665 may be accepted as substitutions.

Notes:
* Students who do not have the pre-requisite for this course are required to pass MATH 1863 before enrolling in Math 1003.
** This course involves the use of MATLAB (a software package for Mathematical simulation).

Certificate in Teaching English as a Second Language (TESL) Program Description

The program is designed for three groups:

1.English speakers who have completed an undergraduate degree and are seeking employment in TESL.
2.International students who have completed an undergraduate degree, have an acceptable standard of English, and wish to receive TESL certification in an English-speaking environment.
3. Native English speakers who want to obtain a TESL certificate while pursuing an undergraduate degree.

The Certificate in Teaching English as a Second Language (CTESL) Program is a 3 term-course program designed to provide participants with knowledge and skills necessary to become effective teachers of English as a second language (ESL). The CTESL Program requires successful completion of:

A. Three compulsory courses:

ED 3561 - Introduction to Second Language Education (3 ch) - An overview of the theories of learning and teaching in the Second Language context with particular emphasis on a Communicative, multi-dimensional and multi-resource methodology. (ED 4565 can be taken in place of ED 3561 but students cannot count both towards the TESL certificate). Prerequisite: successful completion of 10 term-course with a GPA of 2.7 or better, advanced written and spoken English Language skills).

ED 4562 - Advanced Studies in ESL Education (3 ch) - Examines communicative langue teaching in the context of classrooms. Emphasizes varied teaching methods, curriculum development, and evaluation of second language learning. Prerequisites: successful completion of 10 term-courses with a GPA of 2.7 or better; as well as ED 3561 or ED 4565. Co- or Pre-requisite: LING 2101 or equivalent (3 ch).

ED 5566 - Field Experience in TESL (3 ch) - Supervised field experience for students in an environment in which they can both observe qualified instructors and participate in planning and teaching English as a second or additional language. (The course does not qualify for the 4 term-courses of ED courses which may be applied to the BA degree.) Prerequisites: successful completion of 10 term-courses with a GPA 2.7 or better; as well as ED 3561 or ED 4565. Co-or Pre-requisite: LING 2101 or equivalent (3 ch).

B. 6 ch of approved Arts and/or Education courses in the area of of language education. LING 2101- Linguisitics I and LING 3202 - Linguisitics II, are highly recommended. English, Humanities and/or foreign lanugage course which emphasize grammer and synatax. Or literacy methodology courses in Education, may also qualify.

Eligibility

Candidates seeking admission to the Certificate in Teaching English as a Second Language must have completed at least 10 term-courses at a recognized post-secondary institution with a minimum cumulative grade point average of 2.7 (B- or 70%). They must be able to demonstrate an advanced level of written and spoken English. The Faculty of Arts reserves the right to test oral and written proficiency in English.

Within the 10 term-course required before admission to the CTESL, at least one term-course must be a second/alternate language course (e.g. French, German, Spanish) or a teacher training course (e.g. ED 4164). Additionally, if LING 2101, or an equivalent, is not completed prior to admission to the CTESL, it will need to be completed to satisfy the certificate requirements.

For more information, please contact the Education Coordinator or the Education Secretary in Hazen Hall at (506) 648-5590

ENGLISH

Honours, Major and Minor

Special note: Students are not eligible to undertake any upper-level courses in English until they have completed three term-courses at the lower level in English, or unless permission is obtained from the instructor. For Majors and Honours students in English, two of the lower-level courses must include ENGL 2101 and ENGL 2102 .

HONOURS

Students interested in pursuing an honours degree in English should submit a formal letter of application to the Honours Coordinator for admission to the programme.

Students are eligible to apply to the programme during the session in which they expect to complete successfully their first 20 term-courses, including four term-courses of lower level English, (two of which must be ENGL 2101 and ENGL 2102 .) Students must apply to the programme

before having completed thirty term-courses. Because of the seminar requirements (see below), only in exceptional circumstances will students be admitted in their fourth year, or after having completed 30 term-courses. To enter the Honours Programme, students must have achieved an average of at least B+ (3.3) in English courses. Minimum averages of B+ (3.3) in English courses and C+ (2.3) in courses other than English must be maintained if the student is to retain honours standing.

Requirements

Students admitted to the Honours Programme are required to complete 20 term-courses in English, including 4 at the lower level, and a minimum of 16 at the upper level. As part of the upper level requirements, students have the option to complete ENGL 4801: Honours Essay Reading and Research and ENGL 4802 : Honours Essay.

The Honours Programme requires the successful completion of at least two of the upper level courses designated as advanced seminars (ENGL 4803 and ENGL 4804). These courses may count for area coverage; consult the Honours Coordinator.

Students will design their Honours Programme in consultation with (any member of the English Discipline, and with the Honours Coordinator), and will be required to complete a minimum of 10 term-courses from the following list, covering at least five of the following six areas. Please note: a minimum of 4 term-courses must be taken in periods prior to 1800:

Areas of coverage:

a. Medieval (ENGL 3007 , and ENGL 3008)

b. Renaissance/17th Century (ENGL 3105 , ENGL 3106 , ENGL 3107, ENGL 3108 , or ENGL 3109)

c. Restoration and 18th Century (ENGL 3203 , ENGL 3204 , or ENGL 3205)

d. 19th Century (ENGL 3301 , ENGL 3302 , ENGL 3303 , ENGL 3304 , ENGL 3311 , ENGL 3312 , ENGL 3313 , or ENGL 3314)

e. Modern British/American (ENGL 3401 , ENGL 3402 , ENGL 3403 , ENGL 3404 , ENGL 3405 , ENGL 3511 , ENGL 3512 , ENGL 3513 , ENGL 3514 , or ENGL 3515)

f. Canadian (ENGL 3501 , ENGL 3502 , ENGL 3504 , ENGL 3505 , ENGL 3506 , ENGL 3508 , or ENGL 3509)

Literary Theory (ENGL 3601) is strongly recommended for students intending to pursue graduate study. In addition, such students are advised to study a second language.

Electives may be chosen from any of the above areas and from the following list: ENGL 3621 , ENGL 3622 , ENGL 3631 , ENGL 3705 , ENGL 3706 , ENGL 3709 , ENGL 3713 , ENGL 3722 , ENGL 3721 , ENGL 3801, ENGL 3802 , ENGL 3803 , ENGL 3812 , ENGL 3903 , ENGL 3922 ENGL 4803 , and ENGL 4804. Up to two approved upper level term-courses (See Honours Coordina-tor) in literatures other than English may be substituted for up to two English electives.

For first-class honours, a minimum grade point average of 3.6 is required in English courses. For second-class honours, a minimum grade point average of 3.3 is required in these courses. Averages are calculated on the basis of the minimum number of courses required in the programme; courses successfully completed above this minimum are treated as non-required courses.

Courses

ENGL 4801 : Honours Essay: Reading and Research: This course is devoted to the research portion of the honours project.

ENGL 4802 : Honours Essay: Upon successful completion of ENGL 4801 , an honours essay will be written and presented.

Students wishing to take ENGL 4802 are required to consult with the Honours Coordinator in the winter term prior to the fall enrolment in ENGL 4801 . Supervisors will be assigned by the members of the English discipline.

Students are invited to download the Honours Worksheet from the website (http://unbsj.ca/arts/english/).

Joint Honours Programme - English and History

Students interested in pursuing a joint Honours Programme in English and History must apply in writing to either the Honours Coordinator of English or the Coordinator of History.

To satisfy the English requirements for the joint honours degree, students must complete 4 term-courses of lower level English, 2 of which must be ENGL 2101 and ENGL 2102 , and a minimum of ten upper level term-courses in English. At the upper level, a minimum of 3 term-courses is required in each of the following two groups, for a total of 6 term-courses:

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a. Pre-1800 (ENGL 3007 , ENGL 3008 , ENGL 3105 , ENGL 3106 , ENGL 3107 , ENGL 3108 , ENGL 3109 , ENGL 3203 , ENGL 3204 , or ENGL 3205)

b. Post-1800 (ENGL 3301 , ENGL 3302 , ENGL 3303 , ENGL 3304 , ENGL 3311 , ENGL 3312 , ENGL 3313 , ENGL 3314 , ENGL 3401 , ENGL 3402 , ENGL 3403 , ENGL 3404 , ENGL 3405 , ENGL 3501 , ENGL 3502 , ENGL 3504 , ENGL 3505 , ENGL 3506 , ENGL 3508 , ENGL 3509 , ENGL 3511 , ENGL 3512 , ENGL 3513 , ENGL 3514 , or ENGL 3515)

Electives may be chosen from both of the above groups, and from the following list: ENGL 3601 , ENGL 3621 , ENGL 3622 , ENGL 3631 , ENGL 3705 , ENGL 3706 , ENGL 3709 , ENGL 3713 , ENGL 3722 , ENGL 3801 , ENGL 3802 , ENGL 3803 , ENGL 3812 , ENGL 3903 , ENGL 3922, ENGL 4803 , and ENGL 4804 . Literary Theory (ENGL 3601) is strongly recommended for students intending to pursue graduate study. In addition, such students are advised to study a second language.

Students must complete HENG 4000 , (a 2 term-course). Once the student has decided whether the primary emphasis will be on English or History, the supervisors will be assigned from the two disciplines. Credit for the thesis (HENG 4000) will be assigned to the discipline receiving the primary emphasis.

To satisfy the History requirements for the joint honours degree, students must complete 2 lower level term-courses in History and 10 upper level History term-courses, of which 2 term-courses will be an Honours Seminar.

MAJOR

Students are eligible to declare a major once they have completed twenty term-courses. Students will design their programme in consultation with the Majors Coordinator.

A single Major in English will consist of at least fourteen term-courses in English, at least 10 term-courses must be at the upper level and a minimum of 4 term-courses of lower level English (including ENGL 2101 and ENGL 2102). A minimum of 3 term-courses are required from each of the following two groups, for a total of 6 term-courses:

a. Pre-1800 (ENGL 3004 , ENGL 3007 , ENGL 3008 , ENGL 3105 , ENGL 3106 , ENGL 3107 , ENGL 3108 , ENGL 3109 , ENGL 3203 , ENGL 3204 , or ENGL 3205)

b. Post-1800 (ENGL 3301 , ENGL 3302 , ENGL 3303 , ENGL 3304 , ENGL 3311 , ENGL 3312 , ENGL 3313 , ENGL 3314 , ENGL 3401 , ENGL 3402 , ENGL 3403 , ENGL 3404 , ENGL 3405 , ENGL 3501 , ENGL 3502 , ENGL 3504 , ENGL 3505 , ENGL 3506 , ENGL 3508 , ENGL 3509 , ENGL 3511 , ENGL 3512 , ENGL 3513 , ENGL 3514 , or ENGL 3515)

Electives may be chosen from both of these groups, as well as from the following list: ENGL 3601 , ENGL 3602 , ENGL 3621 , ENGL 3622 , ENGL 3631 , ENGL 3705 , ENGL 3706 , ENGL 3709 , ENGL 3713 , ENGL 3721 , ENGL 3722 , ENGL 3751 , ENGL 3801 , ENGL 3802 , ENGL 3803 , ENGL 3808 , ENGL 3812 , ENGL 3903 , ENGL 3922 , ENGL 4803 , and ENGL 4804 . Up to two approved upper level term-courses (See Majors Coordinator) in literatures other than English may be substituted for up to two English electives.

An English course will count toward the fulfilment of the Major requirements only when it is passed with a grade of C or above.

A Double Major including English will consist of a minimum of 10 term-courses in English, at least 7 of which must be at the upper level including at least 2 term-courses from each of the two groups listed above. Lower-level courses must include ENGL 2101 and ENGL 2102 .

Students are invited to download the Majors Worksheet from the website (http://unbsj.ca/arts/english/).

English Major with Concentration in Drama

Students wishing to concentrate in drama may elect the Single Majors option in English (Drama). This programme will consist of at least 14 term-courses in English, of which at least 10 must be upper level courses. Students who elect to take the drama option will organize their programmes according to the standard requirements for Majors, with the following modifications: ENGL 2002 must be included among their lower level courses. At the upper level, they will be required to complete ENGL 3801 , at least one Shakespeare course, and at least two other upper level courses devoted to the study of dramatic literature (see the Majors Coordinator for a list of acceptable options). As part of their Majors requirements students must complete at least 3 term-courses from each of the 2 Majors groups. These 6 courses can include the required drama courses.

MINOR

The Minor in English will consist of a minimum of 8 term-courses in English, at least 3 but no more than 4 of which must be at the lower-level (two of which must be ENGL 2101 and ENGL 2102). A grade of C or better is required in all courses.

FRENCH

Major and Minor

Major

A student who wishes to major in French Communication and Culture will normally have completed four term-courses in French in French (FR 1203 , 1204 and FR 2203 , 2204) and have received a grade of C or above. A student who has successfully completed a school French Immersion program may begin a major in French Communication and Culture following completion of FR 1304 and FR 2304 with a grade of C or above.

A Single Major in French Communication and Culture will consist of at least ten term-courses in French at the upper level. A Double Major including French Communication and Culture will consist of at least of eight term-courses in French at the upper level.

A French Communication and Culture course will count towards the fulfilment of the Major requirement only when it is passed with a grade of C or above.

Students will normally apply for admission to the Major Program while completing FR 2204 or FR 2304 . Prospective major students should consult a faculty advisor in French when selecting French Communication and Culture courses.

Students may elect to take French courses at other campuses (e.g., in summer school). These credits may be counted for credit in the major program here if prior authorization has been obtained from the Department and the Registrar. This can be done by completing a form available from the Registrar's Office. The student is responsible for providing a detailed description of the course and any other information the Department may require in order to assess it. Only in special cases will students currently enrolled in the program be given retroactive approval for courses taken at other institutions

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.In exceptional circumstances, one or more required courses may be replaced by other upper-level courses in French.

A Single Major would normally comprise FR 3203 , 3204 , 4204 and one of 3704 , 3714 , 3724 and six term courses chosen among upper level courses. Students who have completed FR 1304 and FR 2304 and are admitted into FR 3203 will do 24 ch chosen among upper level courses.

A Double Major including French Communication and Culture would normally comprise FR 3203 , 3204 , 4204 and one of 3704 , 3714 3724 , and four term courses chosen among upper level courses.

There is also a French Major as part of the Business Administration program. See relevant section under Business Administration.

Minor

Students completing a French Minor are required to complete four term-courses in French at the upper-level. FR 3203 and FR 3204 will be required. A minimum grade of C or above is required. The Minor must be declared at the same time as the Major.

There is also a French Minor as part of the Business Administration program. See relevantsection under Business Administration.

BBA With a Major/Minor in French Communication and Culture

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to Major in French Communication and Culture must also comply with the following regulations and requirements of the Faculty of Business and the French discipline:

a. Students electing to major in French Communication and Culture should declare the major by the beginning of their third year. All courses taken to comply with the major requirement must be approved by the Department of Humanities and Languages and by the Faculty of Business.

b. (i.) A BBA student who wishes to major in French Communication and Culture will normally have completed four term courses in French (FR 1203 , 1204 and FR 2203 , 2204) and have received a grade of B or above. A student who has successfully completed a school French Immersion program may begin a major in French Communication and Culture following completion of FR 1304 and FR 2304 with a grade of B or above. Students receiving a grade between C and B in FR 2304 would normally proceed to FR 2203 and FR 2204. A BBA with a major including French Communication and Culture will consist of at least eight term-courses in French at the upper level.

(ii.) All students must earn a minimum grade of C in FR 3203 , FR 3204 , and FR 4204 ; and one of FR 3704 , FR 3714 , or FR 3724 and four term courses of approved French Communication and Culture upper level electives.

BBA With a Major in French (Honours) Communication and Culture

In addition to the above requirements for the major, students must obtain a GPA of 3.3 on compulsory and elective term-courses required for the major.

BBA With a Minor in French Communication and Culture

Students completing a French Minor are required to complete at least four term-courses at the upper level in French Communication and Culture, with a maximum of four term-courses at the lower level (FR 1203 , 1204 and FR 2203 , 2204). FR 3203 and 3204 will be required; the remaining two-term courses will be chosen from advanced courses. A minimum grade of C, in lower level courses, and C, in upper level courses, is required. The Minor must be declared at the same time as the Major.

Students who have completed FR 1304 and FR 2304 and are admitted into FR 3203 will also do four term-courses in upper level courses.

Certificate of Proficiency in French

Saint John - Certificate of Proficiency in French Communication and Culture

Persons who would like to have official recognition of their competence in the French language may apply for admission to the above-mentioned program, which is administered for the University by the Department of French on the Fredericton campus and the Department of Humanities and Languages on the Saint John campus. The program consists normally of FR 1203/1204 , 2203/2204 , 3203 and 3204 , 4204 and one of 3704 , 3714 , 3724 , in all of which the student is to attain a mark of C or higher, and the Certificate is awarded on the basis of a comprehensive examination upon termination of FR 4204 .

Full-time students who are not majoring or honouring in French may take these courses as part of their undergraduate program. Persons not working towards a degree may enrol for the courses as part-time students.

Students may apply to enter the Certificate program at any time before their completion of FR 4204 . They are encouraged to apply for entry as soon as they register in a course in the program.

The Certificate of Proficiency in French will be awarded by the University through the Registrar's Office. The student's transcript will bear a separate entry showing that the Certificate has been awarded and recording the grades obtained in the four areas of language competence (speaking, listening comprehension, reading comprehension, and writing).

These grades are: A (very good); B (good), and C (satisfactory), and they may be interpreted as follows:

Speaking:

A. participate with ease in conversation
B. can participate adequately in conversation albeit with a certain degree of hesitancy
C. can make themselves understood in conversation

Listening Comprehension   :

A. can understand lectures in a job-related context and radio and TV news and programs which interest them
B. can understand lectures on non-technical subjects and group conversations
C. can understand what is said to them in individual conversation with one other person

Reading Conversation:

A. can understand the main ideas in books, magazines and newspapers without the aid of a dictionary
B. can read printed material of personal interest with occasional help from a dictionary
C. can read, with the aid of a dictionary, standard texts written without stylistic difficulties on subjects within their interest

Writing:

A. can write papers, essays, etc., which are acceptable in form and format
B. can write résumés, letters, short compositions, which are structurally acceptable but which would need some revision
C. can write sentences and short paragraphs which are grammatically acceptable

Diplôme de Bilinguisme (Certificate Level Two)

All students who have successfully completed the Certificate of Proficiency in French and students who have completed FR 4204 (or equivalent) with a grade of C or higher (or the equivalent) are eligible for admission.

Eight term-coures must be completed, from any of the 3000/4000 level French term-courses. Approval of courses will be required. The requirements for the diploma are: (a) satisfactory completion of the program with a grade of C or higher in each upper level course, and (b) the passing of a comprehensive final examination.

GENDER STUDIES

Minor in Gender Studies

Admission to the Minor is open to students majoring in any Arts discipline and could be available to students in other faculties as minors become available. Students must select the Minor in consultation with the Gender Studies Coordinator, and this should normally be done at the same time as they declare a Major. The Minor requires 24 ch, comprised of Gender Studies 2001 and 21 ch selected from Gender Studies eligible courses. **(NOTE:** The required 24ch does not include the prerequisites required for the Gender Studies eligible courses.) A grade of C or better is required in all courses counting towards the Minor in Gender Studies.

Certificate in Gender Studies

Students meeting the Universitys entry requirements or the requirements for admission as a mature student may be admitted to the Certificate in Gender Studies programme in consultation with the Gender Studies Coordinator. The Certificate requires 30 ch, comprised of Gender Studies 2001 and 27 ch selected from Gender Studies eligible courses. **(NOTE:** The required 30ch does not include the prerequisites required for the Gender Studies eligible courses.) A grade of C or better is required in all courses counting towards the Certificate in Gender Studies.

Elective Courses

For the GEND Minor: 21ch from the following list of Gender Studies eligible courses with at least 6ch in two of the three groups.

For the Certificate in Gender Studies: 27ch from the following list of Gender Studies eligible courses with at least 6ch in two of the three groups.

GEND 4001 is available as a 3ch elective, and its categorization into the 3 groupings will vary depending upon the specialization of the instructor (please consult with the Gender Studies Coordinator).

Note: Unless otherwise indicated, students will be admitted to the following courses when (a) they have met the disciplinary prerequisites for these courses, or (b) they have completed GEND 2001 with a grade of C or better and have obtained permission from the instructor.

GROUP 1:	
ENGL3621	Writing by Women I
ENGL3622	Writing by Women II
ENGL3631	Studies in Gender and Genre
HIST3402	Women in American History (disciplinary prerequisites apply)
GROUP 2:	
POLS3225	Gender and Politics
POLS3325	Gender and Comparative Politics
POLS3625	Global Gender Issues
POLS4311	Global Politics of Prostitution
SOCI3105	Qualitative Methods in the Social Sciences
SOCI3543	Sociology of Gender Relations
SOCI4263	Discourse and Text (prerequisite: Sociology 3105)
SOCI4555	Gender and Organization
GROUP 3:	
HIST3945	Women, Science and Medicine (disciplinary prerequisites apply)
NURS3053	Gendered Experiences in Health Care
PSYC3223	Sex Differences (disciplinary prerequisites apply)
PSYC3263	Psychology of Women (disciplinary prerequisites apply)
SCI3155	Women and Science
SCI3255	Women, Development, and the Environment
SOCI3544	Gender and Technology

FOR STUDENTS ENROLLED IN THE GENDER STUDIES MINOR:

These courses cannot be double counted for those enrolled in Arts. That is, any course taken to fulfil the requirements of the Minor in Gender Studies cannot be counted towards any other programme within Arts.

PLEASE NOTE: The list of GEND-eligible courses is updated annually, and is available from the Gender Studies Coordinator. Students seeking credit for courses not on this list must have written approval from the Gender Studies Coordinator prior to enrolling in the course. Gender Studies students are responsible for ensuring they have completed the appropriate prerequisites for their GEND-eligible electives.

HISTORY

Students wishing to pursue and honours, major, double major or minor in History must complete 2 term-courses at the 1000-level [two of HIST 1201, HIST 1301, HIST 1401, HIST 1601, CLAS 1005] and HIST 2101 and HIST 2102 [Europe and World] before advancing to the required upper-level courses noted below. All students must successfully complete HIST 2101 and HIST 2102 before proceeding to upper level courses.

Students who have completed satisfactorily Advanced Placement [AP] in European History or International Baccalaureate [IB] courses in History will receive credit for 1 term-course [3 credit hours] or undesignated HIST at the 1000-level and HIST 2101. AP and IB students must still complete HIST 2102 before registering in upper-level courses, and must take 1-term course of 1000-level History. AP students with US or World History should consult the Faculty of Arts Student Coordinator for transfer details.

NOTES:

1. Starting in September 2012, many History courses were renumbered. Students should contact the History Advisor and consult the course conversion chart in the appropriate area(s) of the UNB Undergraduate Calendar to avoid taking renumbered courses more than once. Courses having identical or similar content, regardless of numbering, will be counted only once toward the completion of a student's program..

2. Classics courses designated as Ancient History count toward a History major or minor, if a minimum grade of C+ is obtained.

3. Faculty of Arts regulations stipulate that no more than 6 term-courses of 1000 and 2000-level History in any one discipline can be counted toward a BA.

MAJOR

Students are eligible to apply to the major program during the session in which they expect to complete successfully their first 20 term-courses. To enter the History Major Program, a student must have a minimum GPA of 2.7 (B-) in 4 term-courses of lower-level History courses (i.e., 1000 and 2000-level courses).

The major consists of a minimum of 15 term-courses of History:

a. A minimum of 2 term-courses of 1000-level History

b. HIST 2101 and HIST 2102

c. A minimum of 3 term-courses of 3000-level History.

d. A minimum of 8 term-courses of 4000-level History

In the major program students must complete 11 term-courses of upper-level History courses and obtain a GPA of at least 2.7 (B-) with no final grade lower than 2.3 (C+) in these courses.

DOUBLE MAJOR

The double major consists of a minimum of 11 term-courses of History:

a. A minimum of 2 term-courses of 1000-level History.

b. HIST 2101 and HIST 2102

c. At least 1 term-course of 3000-level History

d. A minimum of 6 term-courses of 4000-level History

All History courses credited toward the double major must have a minimum grade of 2.3 (C+) and the minimum GPA for a total History courses at the upper-level must be a 2.7 (B-).

MINOR

The minor consists of a minimum of 8 term-courses in History:

a. A minimum of 2 term-courses at the 1000-level

b. HIST 2101 and HIST 2102

c. At least 4 term-courses at the 3000 and 4000-level

All History courses credited toward the minor must have a minimum grade of C=.

HONOURS

Students interested in pursuing the program must apply in writing to the Honours Coordinator, normally during the term in which they complete the first 30 term-courses of their degree. Students in the honours program must meet the requirements for the History Major and complete an additional 4 term-courses in History, as outlined below.

Requirements

- HIST 5000: Honours Thesis. All thesis topics must be approved by the Honours Coordinator.

- HIST 5905: History Theory and Practice

- HIST 5906: Honours Seminar

Joint Honours Program – English and History

Students interested in pursuing a joint honours program in English and History must apply in writing to either the Coordinator of English or the Coordinator of History.

To satisfy the History requirements for the joing honours degree, students must complete 4 term-courses of lower-level History and 10 term-courses of upper-level History courses, of which 2 term-courses will be an Honours seminar.

Students must complete HENG 4000 [equivalent to 2 term-courses]. Once a students has decided whether the primary emphasis will be on English or History, supervisors will be assigned from the two disciplines. Credit for the thesis [HENG 4000] will be assigned to the discipline receiving the primary emphasis.

For detailed information on the English requirements, please consult the Rules and Regulations for ENGLISH [in Saint John Degree Program, UNB Calendar].

INFORMATION AND COMMUNICATION STUDIES

General Information

The University of New Brunswick at Saint John offers a Bachelor of Arts in Information and Communication Studies (ICS), a Double Major in ICS, and a Minor in ICS. The ICS program seeks to provide students with a comprehensive understanding of the social, political, economic and cultural impact of information and communication technologies and practices. As an interdisciplinary Arts program based in the tradition of the social sciences and humanities, the ICS approach combines theoretical, historical, empirical, and practical study, with an emphasis on emerging media of communication and information gathering and distribution. Course offerings are grouped into three primary areas: Media and Culture; Technology and Communication Practices; and Information Gathering, Governance and Policy. These areas of concentration, combined with the interdisciplinary organization of the program, provide students with broad exposure to a variety of perspectives in information and communication studies.

UNB Saint John also offers a Bachelor of Information Sciences (BISc). This program is interdisciplinary, with core courses in Business Administration, Economics, Computer Science, Mathematics and Statistics. The focus of the degree is on the collection, analysis and management of information encountered in other academic disciplines as well as in business, industry, government and other areas. Additional detail and program requirements can be found in this section of the Calendar under Bachelor of Information Sciences.

Major

Students are eligible to declare an ICS Major during the session in which they will complete 20 term-courses towards a Bachelor of Arts degree. To graduate with a Major in ICS, students must complete 15 term-courses (6 lower level/9 upper level) comprised of the following courses:

Lower Level: 6 Term-courses		
	ICS 1001	History of Communication
	ICS 1002	Foundations of Information and Communication Studies
	ICS 2001	Transformations in Media
	SOCI 2251	Film and Society
	ICS 2102	Media Living: Audi-visual and New Media in Everyday Life
AND		
	One term-courses selected from the following:	
	ICS 2101	Popular Music, Culture and Communication
	ICS 2103	Understanding Comics and Manga
Upper Level: 9 term-coursess		
	ICS 3001	Theories of Information and Communication
	ICS 3003	Electronic Research or an upper level research methods course approved by the ICS co-ordinator
AND		
	1 term-course selected from the following:	
	SOCI 4503	Research Seminar in Popular Culture, OR
	ICS 4001	Research Seminar in ICS, Or
	ICS 4101	Advanced Topics in ICS

AND		
	2 term-courses of 3000/4000 level in ICS from the "ICS-eligible" list	
	4 term-courses of 3000/4000 electives from the "ICS-eligible" list [See Notes 1 & 2]	
No grade lower than a C in an ICS course or an ICS eligible elective will count for credit towards a Majors degree in ICS.		

Notes:

[1] The list of current ICS-eligible courses is updated annually, and is posted each spring on the ICS website: http://www.unbsj.ca/arts/ICS. Students seeking credit for courses not on this list must have written approval from the ICS Coordinator prior to enrolling in the course.

[2] ICS students are responsible for ensuring they have completed appropriate pre-requisites for their ICS-eligible electives.

Double Major

Students are eligible to declare an ICS Double Major during the session in which they will complete 20 term-courses towards a Bachelor of Arts degree. To graduate with a Double Major in ICS, students must complete 12 term-courses (5 lower level/7 upper level) comprised of the following courses::

Lower Level: 5 Term-courses		
	ICS 1002	Foundations of Information and Communication Studies
	ICS 2001	Transformations in Media
	SOCI 2251	Film and Society
	ICS 2102	Media Living: Audio-visual and New Media in Everyday Life
AND		
	One term-courses selected from the following:	
	ICS 2101	Popular Music, Culture and Communication
	ICS 2103	Understanding Comics an Manga
Upper Level: 7 term-courses		
	ICS 3001	Theories of Information and Communication
	ICS 3003	Electronic Research or an upper level research methods course approved by the ICS co-ordinator
AND		
	1 term-course selected from the following:	
	SOCI 4503	Research Seminar in Popular Culture, OR
	ICS 4001	Research Seminar in ICS
	ICS 4101	Advanced Topics in CIS
AND		
*	4 term-courses of 3000/4000 electives from the ICS-eligible list [See Notes 1 & 2]	
No grade lower than a C in an ICS course or an ICS eligible elective will count for credit towards a Majors degree in ICS.		

Notes:

[1] The list of current ICS-eligible courses is updated annually, and is posted each spring on the ICS website: http://www.unbsj.ca/arts/ICS. Students seeking credit for courses not on this list must have written approval from the ICS Coordinator prior to enrolling in the course.

[2] ICS students are responsible for ensuring they have completed appropriate pre-requisites for their ICS-eligible electives.

NOTE: Upper division courses count for credit in ONE major field only (e.g., SOCI 4503 credit assigned to an ICS Double Major will not be counted for credit towards a Sociology Major or Double Major, or vice-versa).

Minor

Students are eligible to declare an ICS Minor after having completed 20 term-courses towards a Bachelor of Arts degree. To graduate with a Minor in ICS, students must complete 8 term-courses (5 lover level / 3 upper level) comprised of the following courses:

Lower Level: 5 term-courses
ICS 1002 Foundations of Information and Communication Studies
ICS 2001 Transformations in Media
SOCI 2251 Film and Society
ICS 2102 Media Living: Audio-visual and New Media in Everyday Life
AND
One term-course selected from the following:
ICS 2101 Popular Music, Culture and Communication
ICS 2103 Understanding Comics and Manga

Upper Level: 3 term-courses
ICS 3001 Theories of Information and Communication
ICS 3003 Electronic Research or an upper-level research methods course approved by the ICS co-ordinator
AND
1 term-course of a 3000/4000 elective from the "ICS-eligible" list [See Notes 1 & 2]
No grade lower than a C in an ICS course or an ICS eligible elective will count for credit towards a Minor in ICS.

Notes:
[1] The list of current ICS-eligible courses is updated annually, and is posted each spring on the ICS website: http://www.unbsj.ca/arts/ICS ..
Students seeking credit for courses not on this list must have written approval from the ICS Coordinator prior to enrolling in the course.
[2] ICS students are responsible for ensuring they have completed appropriate pre-requisites for their ICS-eligible electives.

INTERNATIONAL DEVELOPMENT STUDIES MINOR

The University of New Brunswick at Saint John offers a double major in International Studies. This interdisciplinary program permits students to combine studies in Language, Culture, Politics, Economics, History, and Literature and offers a comprehensive introduction to global and regional developments.

Program of Study
The Minor consists of 24 ch. A grade of C or better must be attained in all required and elective courses. **Note:** None of the courses taken for this Minor may be counted towards the requirements for another Minor or Major.

The following 9 ch of courses are required:		
POLS 1601	Introduction to International Politics	(6 ch)
ECON 3531	Introduction to International Development (Note: ECON 1013 and 1023 are prerequisites.)	(3 ch)
A further 15 ch of elective courses selected from the following		
HIST 2000	World History	(6 ch)
HIST 3025	Economic Development of Pre-Industrial Europe	(3 ch)
HIST 3035	Industrialization of Europe	(3 ch)
POLS 3303	Politics of the Developing World	(3 ch)
POLS 3622	International Organization and Law	(3 ch)
POLS 3631	Survey of Global Issues	(3 ch)
ECON 3542	Topics in International Development	(3 ch)
ECON 3755	Environmental and Resource Economics	(3 ch)
ECON 3702	Cost-Benefit Analysis	(3 ch)
BA 4193	International & Comparative Management	(3 ch)
BA 4858	International Human Resources Management	(3 ch)
SOCI 3523	Sociology of Third World Development	(3 ch)

INTERNATIONAL STUDIES

The University of New Brunswick at Saint John offers a double major in International Studies. This interdisciplinary program permits students to combine studies in language, culture, politics, economics, history, and literature and offers a comprehensive introduction to global and regional developments.

Programme of Study

The International Studies Program is one half of a double major in the Faculty of Arts.
IS 1001 and either POLS 2601 or POLS 2301 are required courses. Students who double major in IS and Politics can count either POLS 2601 or POLS 2301 toward their IS program. A grade of Cin both IS 1001 and either POLS 2601 or POLs 2301 is the minimum grade requirement for a Major in International Studies. Students apply for permission to Major in International Studies during the session in which they complete 20 term-courses of study. Students entering the IS program must have a cumulative GPA of 2.7 (B-). To complete the double Major in IS students must maintain a "B-" average overall in their IS courses and in the IS designated electives with no grade lower than a "C". IS 4501 is a specialized courses intended mainly for Majors. Students must satisfy the prerequisite requirements for all upper level courses. Any student in any program may take IS 1001 or POLS 2601 or POLS 2301 as an elective.

Double counting courses in the IS program will not be permitted.

For a list of IS eligible electives contact the Department of History and Politics.

Double Major in International Studies

Lower level requirements: (6 term-courses)

Students must, in their first 20 term-courses, meet the regular Faculty of Arts breadth requirements. Students must include in their program the following:
· IS 1001 and either POLS 2601 or POLS 2301.
· 4 term-courses of a modern language other than English

Upper level requirements: (8 term-courses)

Students must complete a minimum of 8 upper level term-courses. These courses must include:

· IS 4501 : Research Project in International Studies (one term-course). This course is limited to students with IS 1001 and either POLS 2601 or POLS 2301 and 3 term-courses of IS designated electives or to those with permission of the instructor.

· A minimum of 7 term-courses selected from related disciplinary electives determined in consultation with the International Studies program advisor(s). Students will be advised in their first and second year that many upper level related disciplinary electives have specific prerequisites that must be completed for these upper level courses to be selected.

For the double Major in a discipline, students will be required to meet the double Majors requirement for one of the existing Faculty of Arts disciplines. These requirements vary - please consult the calendar for further details.

Minor in International Studies

The minor in International Studies will consist of IS 1001 and POLS 2601 or POLS 2301 ,two term-courses in a language other than English, and a minimum of 4 upper level courses selected from related disciplinary electives determined in consultation with the International Studies program advisor(s). A grade of C or better is required in all courses to be counted for the minor in IS. A minor must be declared at the same time as the major.

LAW IN SOCIETY

Double Majors Program

Law in Society is an interdepartmental and inter-faculty majors program involving the departments of Anthropology, Economics, History, Philosophy, Politics, Psychology and Sociology in the Arts Faculty, the Law Faculty, and the Faculty of Business Administration, on the Fredericton campus. A number of UNB Saint John courses are eligible for credit for the Law in Society Double Major. Please consult the Fredericton Bachelor of Arts programs section for more information.

LINGUISTICS

MINOR

The Minor in Linguistics at UNB Saint John consists of eight term-courses organized in three groups, which are listed below. The requirements are as follows: 2 required term courses from Group 1 a minimum of 2 term-courses from Group 2 a minimum of 2 term-courses from Group 3.

Admission requirements, standards etc.

Linguistics training at graduate level in major universities shows that the rate of success depends on familiarisation with mathematics and/orlanguages that have a different organization of grammar (e.g., Latin, Greek, Sanskrit or non-Indo-European languages). Since one goal of the Minor in Linguistics is to prepare the students for admission to graduate programs in related areas, students are strongly encouraged (under Group 3) to take the courses that will provide them with the proper background. A mark of C or higher in every course is required for granting of the Minor. Prerequisites for courses included in the threegroups do not count toward the eight term-courses for the Minor.

List of courses

Group 1 - required (2 term-courses)	
LING 2101	Linguistics 1
LING 3202	Linguistics 2
Group 2 - Linguistics options (minimum 2 term-courses)	
LING 1102	English Syntax
LING 3111	Language Acquisition
LING 3113	Phonetics & Phonology
LING 3114	Syntax
LING 3212	The History of the English Language
LING 3223	Semantics
LING 3224	Cognition and Language
Group 3 - related options (minimum of 2 term courses)	
CS 4613	Programming Languages
CS 4913	Theory of Computation
ED 3561	Introduction to Second Language Education
ENGL 3601	Introduction to Literary Theory
FR 1203	Communicating in French I
FR 1204	Communicating in French II
FR 2203	Communicating in French III
FR 2204	Communicating in French IV
FR 1304	French for Immersion Students I
FR 2304	French for Immersion Students II
GER 1003	Basic German
GER 1004	Improving Basic German
GER 2003	Creative German
GRK 1001	Greek Introduction to Ancient Greek
GRK 1002	Greek Introduction to Ancient Greek
HUM 2121	Effective Writing I
HUM 3121	Effective Writing II
LAT 1001	Introductory Latin I
LAT 1002	Introductory Latin II
LAT 2001	Intermediate Latin I
LAT 2002	Intermediate Latin II
MATH 2003	Discrete Mathematics
PHIL 3063	Introduction to Language and Semantics
PSYC 3693	Cognitive Processes
PSYC 4733	Cognitive Neuroscience
SOCI 4263	Discourse and Text
SPAN 1203	Introductory Spanish I
SPAN 1204	Introductory Spanish II
SPAN 2203	Intermediate Spanish I
SPAN 2204	Intermediate Spanish II

MATHEMATICS

Mathematics Major

1. A student in the BA degree who wishes to major in Mathematics must complete a minimum of 16 term-courses in Mathematics or approved substitutes as follows:
a. MATH 1003 , MATH 1013 , MATH 1503 , MATH 2513 , MATH 2523 , MATH 2203

b. MATH 3212 , MATH 3713 , MATH 3733 , STAT 3083 , STAT 3093

c. At least five upper level mathematics term-courses. A maximum of one upper level Statistics term-course may count toward the five courses.

2. In addition, at least one-term course in Computer Science is required. **NOTE:** Suggested elective for the first year is STAT 1793 (or equivalent).

Minor in Mathematics

A student who intends to pursue a Minor in Mathematics is required to take 8 term-courses in Mathematics. Credit must be obtained for MATH 1003 , MATH 1013 and either MATH 1503 or MATH 2213 . The remaining 5 term-courses of the Minor must consist of Mathematics courses at the second year level, or above. A maximum of 2 term-courses of Statistics courses, at any level, may count towards the 5 term-courses.

PHILOSOPHY

Major and Minor

Major

Students in the BA degree program who wish to take a Major or Double Major in Philosophy should consult with a Faculty advisor in Philosophy on successful completion of 20 term-courses.

A single Major in Philosophy will consist of at least fourteen term-courses in Philosophy, passed with a grade of C or better, including:

a. PHIL 1001 and PHIL 1002;

b. PHIL 1053;

c. Eight term-courses at the advanced level.

A double Major in Philosophy will consist of at least ten term courses in Philosophy, including PHIL 1001, PHIL 1002, and PHIL 1053, passed with a grade of C or better, of which at least six term-courses must be at the advanced level.

Minor

The Minor in Philosophy will consist of a maximum of four term courses in Philosophy at the lower level including PHIL 1001, PHIL 1002 and PHIL 1053 and a minimum of four term-courses at the upper level for a total of eight term courses. A grade of C or better is required in all courses.

POLITICS

Honours, Majors and Minor

Honours

Students interested in an Honours degree in Politics must apply to the Department of History and Politics after they complete 60 ch of studies. To be eligible to apply students must have a minimum grade point average of 3.0 in Politics courses and a minimum cumulative grade point average of 3.0. These minimums must be maintained for the duration of the program. No grade lower than C in a Politics course will count for credit towards the required credits in Politics for an Honours degree.
The Honours Politics programme consists of 18 term-courses of Political Science courses. This shall be comprised of the 14 term-courses required for a Major in Politics, plus an additional 4 term-courses of upper level Political Science courses which must include POLS 4001 Honours Seminar in Politics and POLS 4000 Honours Thesis, as well as one-term course in another 4000 level course.

For the award of a first-class Honours degree, a grade point average of 3.6 is required in all Politics courses above the introductory level. For a second-class Honours degree an average of 3.3 is required in these courses. In both cases a minimum cumulative grade point average of 3.3 is required.

Major

Students choosing the discipline major must complete a minimum of 14 term-courses in Politics, as follows:

· POLS 1201, and POLS 1301;
· two of the following: POLS 2201/POLS 2301/ POLS 2401/POLS 2601;
· one of the following: POLS 3401/POLS 3101/POLS 3603/POLS 3425;
· and POLS 3901 or one 4000 level POLS course

The remaining 8 term-courses must be upper level courses selected by the student in consultation with the faculty advisor in Politics. No grade lower than a C in a Politics course will count for credit towards a Majors degree in Politics.

Unless otherwise noted:

1. the required prerequisite for entry into any upper-level course in Canadian Politics (any course with the number 1, 2 or 5 as its second digit) is POLS 1201 ;

2. the required prerequisites for entry into any upper-level courses in Comparative Politics (any course with the number 3 as its second digit) and International Politics (any course with the number 6 as its second digit) are POLS 1301 and/or POLS 2601 .

3. the required prerequisites for entry into any upper-level courses in Political Theory (any course with the number 4 as its second digit) is POLS 2401 .

Exceptions are subject to approval by the Chair of the Department, in consultation with the Politics faculty.

Double Major

Double major students in Politics and in another discipline must complete 12 term-courses in Politics, as follows:

· POLS 1201, and POLS 1301;
· two of the following: POLS 2201/POLS 2301/ POLS 2401/POLS 2601;
· one of the following: POLS 3401/POLS 3101/ POLS 3603/ POLS 3425;
· and POLS 3901 or one 4000 level POLS course.

The remaining 6 term-courses must be upper level courses selected by the student in consultation with the faculty advisor in Politics.
No grade lower than a C in a Politics course will count towards a Double Majors in Politics.

Minor

A Minor in Politics requires the completion of 9 credit hours from any of the lower level courses in Politics and 15 credit hours of upper level courses. No grade lower than a C in a Politics course will count towards a Minor in Politics.

PSYCHOLOGY

General Information and Curriculum

Successful completion of PSYC 1003 or an equivalent is necessary before taking PSYC 1004 . Both PSYC 1003 and PSYC 1004 must be completed before taking any of the remaining psychology courses.

Majors and Honours

MAJOR

To qualify for a Major degree a student must accumulate 14 approved term-courses in Psychology. Five term-courses are compulsory as follows: PSYC 1003 , PSYC 1004 , PSYC 2102 , PSYC 2901 (or equivalent), PSYC 4053 . A minimum grade of C (2.0) is required for all Psychology courses taken to meet the Majors requirement.

A student who wishes to do a double major in Psychology and another discipline must complete 12 term-courses including 8 term-courses in upper level courses and all the compulsory courses for the single Major in psychology. A minimum grade of C(2.0) is required for all psychology courses taken to meet the Double Majors requirement.

HONOURS

The Honours program in Psychology provides a broad knowledge of this field and its research methods. Students planning to pursue graduate studies in psychology are advised to consider this program.

Students may apply to the Honours program at the end of their third year (that is to 30 term courses). To be eligible to apply they must have a minimum cumulative grade point average of 3.3 (B+), as well as, a minimum grade point average of 3.6 in all psychology courses at the 2000, 3000, and 4000 level. Please note that these minimum requirements do not guarantee acceptance into the Honours program; admittance is competitive and students must obtain a faculty member willing to supervise them. As well, space may be limited. Students must complete 17 approved term-courses in Psychology for the Honours degree. Of the 17 term-courses the following 8 term-courses are compulsory: PSYC 1003 , PSYC 1004 , PSYC 2102 , PSYC 2901 (or equivalent), PSYC 3913 , PSYC 4053 , PSYC 4143 , PSYC 4145 .

An additional 9 term-courses derived from a selection of 3 term-courses from each of the following 3 groups is necessary.

Group I: Biological/Cognitive Basis of Behaviour I

PSYC 3343 , PSYC 3383 , PSYC 3503 , PSYC 3513, PSYC 3603 , PSYC 3632 , PSYC 3693 , PSYC 3711 , PSYC 3723 , PSYC 3743 , PSYC 3752 , PSYC 4021 , PSYC 4583 , PSYC 4693 , PSYC 4733 , PSYC 4833

Group II: Social/Personality

PSYC 2201 , PSYC 2401 , PSYC 3222 , PSYC 3232 , PSYC 3265 , PSYC 3265, PSYC 3293 , PSYC 3352 , PSYC 3412 , PSYC 3453 , PSYC 3461 , PSYC 4463

Group III: Clinical/Applied

PSYC 3033 , PSYC 3313 , PSYC 3323 , PSYC 3362 , PSYC 3393 , PSYC 3493 , PSYC 3553 , PSYC 3724 , PSYC 3725 , PSYC 3803 , PSYC 4213 , PSYC 4214 , PSYC 4233 , PSYC 4263 , PSYC 4264 , PSYC 4493 PSYC 4813 .

All Psychology courses taken for the Honours degree must be passed with at least a C (2.0). Furthermore, to graduate with an Honours degree in Psychology an overall cumulative grade point average of 3.3 (B+) is necessary, as well as, a cumulative grade point average of 3.3 in all required Psychology courses. For a First Class Honours designation, a grade point average of 3.6 is required in such Psychology courses. For an Honours designation, a grade point average of 3.3 is required in such Psychology courses.

CERTIFICATE IN MENTAL HEALTH STUDIES

This Certificate is intended to provide additional education to professionals working in mental health-related fields (e.g., nursing, outreach/support workers, youth workers, correctional officers, social workers, counselors) who are interested in advancing their knowledge about mental health topics that relate to their work (e.g., information about mental health disorders and psychosocial issues impacting on personal functioning, lifespan development, and intervention). This Certificate will complement the education of professionals who have non-university and other university-level degree programs that did not offer as in-depth a psychological focus on mental health topics.

The Certificate will require completion of **12 term-courses** (36 credit hours). Students will be required to complete three **(3) mandatory** undergraduate term-courses (PSYC 1003, PSYC 1004, and PSYC 3553) and select a minimum of **9 elective term-courses**: Two (2) from each of the four groups and an additional term-course from any of the four groups as outlined in the list of courses below. All courses for the Certificates are degree-credited courses. The duration of the program will be 1-2 years of full-time study, or up to 4 years of part-time study.

Individuals who successfully complete Certificate courses and who are subsequently admitted to a degree program normally will receive credit towards a degree for those courses acceptable for credit in the particular degree program.

To be eligible to register for the Certificate in Mental Health Studies, students must meet the following requirements:

a) There is no minimum age requirement for admission. To be eligible to apply for the Certificate in Mental Health Studies, candidates must have obtained their high school diploma (or its equivalency) and pursued a basic level (i.e., normally 30 credit hours) of approved post-secondary training in a mental health, social service, or health-related field from either an accredited community college or university. Interested applicants should note that the Certificate requires students to be prepared for university-level study given that all courses for the Certificate are undergraduate degree-credit courses.

b) Each student entering the Certificate program on a full-time basis must have the prior approval of the Faculty of Arts.

c) A Certificate will not be awarded to a student currently enrolled in psychology degree programs at the University of New Brunswick or at another university, but students who have withdrawn from an undergraduate degree program in psychology may apply for the Certificate.

d) To earn the Certificate a student must successfully complete the number of credit hours in approved courses specified for the Certificate, achieve a grade of at least C in all required courses and achieve a cumulative grade point average of at least 2.0 across all courses used to complete the Certificate.

e) A maximum of 50% of total program requirements may be transferred upon approval from the Faculty of Arts from another degree, Certificate, or similar program whether taken at UNB or elsewhere. However, 50% of the Certificate courses must be taken at the University of New Brunswick. Courses taken more than five years ago will be approved on an individual basis. Relevant courses transferred from elsewhere will be assessed by the Faculty of Arts at the time the candidate applies for the Certificate.

List of all required courses.

PSYC 1003, PSYC 1004, PSYC 3553 (prerequisite PSYC 1003 and PSYC 1004).

List of all elective courses.

Group I		
PSYC 3393	Systems of Therapy	Prerequisites: PSYC 1003 & 1004
PSYC 3493	Changing Behaviour	Prerequisites: PSYC 1003 & 1004

PSYC 3362	Guidance & Counselling	Prerequisites: PSYC 1003 & 1004
PSYC 3313	Introduction to Psychological Testing	Prerequisites: PSYC 1003 & 1004, PSYC 2102.
PSYC 4265	Field Placement in Clinical Psychology	Prerequisites: Permission of the instructor and PSYC 1003, 1004, 3553, PSYC 3493, as well as PSYC 3362, OR PSYC 3393; Minimum CGPA=3.3 (B+)
PHIL 3133	Health Care Ethics I	Prequisites: One term-course in Philosophy or permission of the instructor.
Group II		
PSYC 2201	Child Development	Prerequisites: PSYC 1003 & 1004
PSYC 3293	Aging	Prerequisites: PSYC 1003 & 1004, PSYC 2201 OR ED 3021
PSYC 4493	Developmental Psychopathology	Prerequisites: PSYC 1003 & 1004, PSYC 2201, PSYC 3553 OR permission of instructor
Group III		
PSYC 3033	Health Psychology	Prerequisites: PSYC 1003 & 1004
PSYC 3263	The Psychology of Criminal Behaviour	Prerequisites: PSYC 1003 & 1004
PSYC 3725	The Dementias	Prerequisites: PSYC 1003 & 1004
PSYC 4813	Substance Abuse and Dependence	Prerequisites: PSYC 1003 & 1004, PSYC 3752 OR PSYC 4833
Group IV		
PSYC 3711	Biological Psychology	Prerequisites: PSYC 1003 & 1004
PSYC 3723	Human Neuropsychology	Prerequisites: PSYC 1003 & 1004, PSYC 3711.
PSYC 3752	Drugs and Behaviour	Prerequisites: PSYC 1003 & 1004
PSYC 4833	Psychopharmacology	Prerequisites: PSYC 1003 & 1004, PSYC 3711

SOCIOLOGY

General Information and Curriculum

Unless otherwise indicated, students must complete Sociology 1001 before taking any sociology courses at the 2000 level or above. Students are required to complete at least 3 term-courses in Sociology at the lower level (1000-2000 courses) before enrolling in any upper level Sociology courses. Students who are not majoring or honouring in Sociology will be admitted to a 4000 level course only if they have completed 6 term-courses of Sociology and have consulted with the instructor. A minimum grade of C (2.0) is required for all sociology courses taken to meet the Majors, Honours requirements or prerequisites.

Admission to Major, Double Major and Honours Options

Students apply for permission to Major in Sociology in the term in which they complete 20 term-course study. In addition to SOCI 1001, students intend-
ing to Major or Honour in Sociology must have completed at least 3 term-courses
 in Sociology with a grade of C or better prior to admission into the program.

Note: Most courses have a prerequisite; students are responsible for ensuring they have completed the appropriate prerequisites.

MAJOR

Students choosing Sociology as a Major must have their program approved by the Department, and must complete a minimum of 14 term-courses in Sociology, including the following required 6 term-courses:

SOCI 1001	Introduction to Sociology
SOCI 3000	Theoretical Foundations of Sociology
SOCI 3104	Quantitative Methods in the Social Sciences
SOCI 3105	Qualitative Methods in the Social Sciences
1 term-course	4000 Level Sociology Courses

DOUBLE MAJOR

A student who wishes to do a double major in sociology and another discipline must complete 12 term-courses of sociology, including all compulsory
courses for the single major in sociology.

HONOURS

Students must apply to the Department for permission to honour in Sociology in the term in which they complete 20 term-courses of studies. Only under exceptional circumstances will students be permitted to enter the Honours program after this time.

To be eligible to apply for the Honours program in Sociology, a student must meet the requirements for admission to the major and have a minimum cumulative grade point average of 3.3. The decision to admit a student to the Honours program rests with the Sociology faculty.

For the award of a High Honours degree, a grade point average of 3.6 is required in Sociology courses above the introductory level and for an Honours degree an average of 3.3 is required. In both cases a minimum cumulative grade point average of 3.3 is required.

Students choosing to Honour in Sociology must have their program approved by the Department, and must complete a minimum of 16 term-courses in Sociology including the following required 10 term-courses and an honours thesis:

SOCI 1001	Introduction to Sociology
SOCI 3000	Theoretical Foundations of Sociology
SOCI 3104	Quantitative Methods in the Social Sciences
SOCI 3105	Qualitative methods in the Social Sciences
SOCI 4014	Designing Research Proposals
SOCI 4015	Honours Thesis
3 additional term-courses of 4000 level SOCI courses.	

SPORT AND EXERCISE PSYCHOLOGY

General Information

The Sport and Exercise Psychology Major provides an academic oppor-
tunity for systematic study in the fields of Kinesiology and Psychology.
NOTE: A student cannot complete a double major in Sport & Excercise
Psychology.

Kinesiological Characteristics

Kinesiological analysis of sport assumes the study of human beings from
a movement science and physical activity perspective. Sport and physi-
cal activity provide the environmental setting for this analysis.

Psychological Characteristics

Psychological characteristics of the participant are studied from theoreti-
cal and conceptual approaches such as body image, self-concept, exer-
cise adherence, risk-taking, situational specificity of behaviour,
aggression, motivation, self-efficacy, need achievement, anxiety,
arousal, kinesthetic satisfaction, and general personality and perfor-
mance relationships.

Eligibility

Admission to the Sport and Exercise Psychology Major is open to any
Arts student. Students interested in the Psychological and/or Kinesiolog-
ical aspects of sport may find the program to be of particular interest.
Students should indicate their interest in the program in their first year of
study and must select the major no later than the start of their third year.

Program of Study

To qualify for the interdisciplinary Major degree, a student must complete fourteen
(14) approved term-courses from the disciplines of Sport and Exercise Psychology
and Psychology. Students who are seeking to complete a Double Major should select
their courses in consultation with a faculty advisor. A minimum grade of C (2.0) is
required for all courses taken to meet the interdisciplinary Major's requirement with
the exception of SEP 2021 , SEP 2023 and SEP 2032 where a minimum grade of B-
is required. A student majoring in Sport and Exercise Psychology must complete nine
(9) required lower level term-courses in Sport and Exercise Psychology and
Psychology, with a grade of C or better (**NOTE:** SEP 2021, SEP 2023, SEP 2032
require a grade of B- or better). They must also complete five (5) required upper level
term-courses in Sport and Exercise Psychology and Psychology, with a grade of C or
better(**NOTE:** SEP 2021, SEP 2023 and SEP 2032 require a grade of B- or better), of
which 1 term-course must be PSYC 3313 or PSYC 4233 . These courses must be
selected in consultation with a faculty advisor and must include at least 3 approved
upper level term-courses in Sport and Exercise Psychology and 4 approved upper
level term-courses in psychology.

A student who wishes to do a double major in Sport and Exercise Psychology and
another discipline must complete, with a grade of C or better (**NOTE:** SEP 2021, SEP
2023, and SEP 2032 require a grade of B- or better), one (1) required upper level
term-course from Sport and Exercise Psychology and two (2) required upper level
term-courses from Psychology. Students must also complete all required lower level
term-courses with a grade of C or better (**NOTE:** SEP 2021, SEP 2023, and SEP
2032 require a grade of B- or better) for the single major in Sport and Exercise
Psychology.)

Administration

The Sport and Exercise Psychology Major will be jointly administered by
the Departments of Psychology and Social Science.
Curriculum

FIRST AND SECOND YEAR (20 term-courses): includes nine (9)
<u>required</u> lower-level term-courses from the following list and eleven (11)
<u>elective</u> lower-level term courses.

Required Courses		
PSYC 1003	Introduction to Psychology I	
PSYC 1004	Introduction to Psychology II	Prerequisite: PSYC 1003 with a grade of C or better
PSYC 2102	Research Methods in Psychology	Prerequisites: PSYC 2901 with a grade of C or better.
PSYC 2201	Child Development	Prerequisite: PSYC 1004 with a grade of C or better
PSYC 2901	Introduction to Statistical Analysis for Psychologists	Prerequisite: PSYC 1004
SEP 1001	Introduction to Kinesiology	

SEP 2021 (B- or better)	Youth In Sport	Prerequisites: SEP 1001 (with a grade of C or better) or permission of instructor
SEP 2023 (B- or better)	Introduction to the Sociology of Sport	Prerequisite: SEP 1001 (with a grade of C or better) or permission of instructor
SEP 2032 (B- or better)	Introduction to Sport Psychology	Prerequisite: SEP 1001 (with a grade of C or better) or permission of instructor
Electives: eleven (11) lower-level term courses from the Faculty of Arts, Science, Applied Science and Engineering and/or Business		

THIRD AND FOURTH YEAR (20 term-courses): includes five (5)
<u>required</u> upper-level term-courses from the following list and fifteen (15)
<u>elective</u> upper-level term courses.

* NOTE: A Grade of C or better is required for all required upper level
term-courses for the Sport and Exercise Psychology Major.

Required Term-courses (5 term-courses)		
SEP 3031	Exercise Psychology	Prerequisites: SEP 2021 , SEP 2023 and SEP 2032 with grades of B- or better or by permission of instructor
SEP 3032	Sport Psychology	Prerequisites: SEP 2021 , SEP 2023 and SEP 2032 with grades of B- or better or by permission of instructor
PSYC 3033	Health Psychology	Prerequisite: PSYC 1004 with a grade of C or better.
PSYC 3313	Introduction to Psychological Testing	Prerequisite: PSYC 2102 with a grade of C or better
OR		
PSYC 4233	Programme Evaluation	Prerequisites: PSYC 2102 with a grade of C or better
PSYC 3632	Motivation	Prerequisite: PSYC 1004 with a grade of C or better
Electives: fifteen (15) upper-level term-courses from the Faculty of Arts, Science, Applied Science and Engineering and/or Business.		

STATISTICS

Statistics Major

1. A student in the BA degree who wishes to major in Statistics must complete

a minimum of 16 term-courses in Statistics and Math (as designated below)

and 2 term-courses in Computer Science for a total of 18 term-courses.

a. MATH 1003 , MATH 1013 , MATH 1503 , MATH 2203 , MATH 2513 , MATH

2523, STAT 1793 , STAT 2793

b. MATH 3713 , MATH 3733 , STAT 3083 , STAT 3093

c. At least four upper level term-courses in Statistics, in addition to STAT 3083

and STAT 3093

2. At least two term-courses in Computer Science are required.

NOTE: Suggested elective for the first year is STAT 1793 (or equivalent).

Minor in Statistics

A student who intends to pursue a Minor in Statistics is required to take 24 ch in

Statistics. A maximum of 9 ch from Mathematics may be selected. The Minor

must be declared at the same time as the Major.

BACHELOR OF BUSINESS ADMINISTRATION

FACULTY OF BUSINESS

General Office:	Philip W. Oland Hall, Room 245
Mailing Address:	Faculty of Business, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5570 / 800-50-UNBSJ
Fax:	(506) 648-5574
Email:	
Website:	http://unb.ca/saintjohn/business

FACULTY

Dean: Dr. Regena Farnsworth

Asst. Dean, Undergraduate Studies and Student Relations: Brenda Collings

Director of Graduate Studies in Business: Dr. Henryck Sterniczuk

· Cho, Richard: BSc (Ind Eng) Seoul Natl, MSc (Korean Adv Inst of Science and Tech), PhD (Wat). Asst Prof - 2005
· Civi, Emin : BSc (Econ), MA (Istanbul), PhD (Celal Bayuar). Asst Prof - 2005
· Collings, Brenda: BBA (UNB), MBA (Dal), CA Sr Instructor - 2007
· Conrod, Terry, BSc, BEng, MBA (UNBSJ) - Instructor - 2009
· Dewar, Keith, BES, PhD (Wat), BEd (Lakehead), ODH (Guelph), MA (Car) Prof - 2002
· Doiron, Daniel, BScEE (UNB), SMMoT (MIT), Instructor - 2003
· Dunstan, Judith E., BBA (Acad), LLB (Tor), CA, Sr Teach Assoc - 1998
· Farnsworth, Regena BBA (Chapman), MBA (UTA), PhD (Texas A & M), Acting Dean, Assoc Prof - 1999
· Fleet, Gregory, BA, MA, PhD(W.Ont), Assoc Prof - 2000
· Gates, Allan
· Huq, ABM Saiful, BA, MA (Dhaka), MA, PhD (Boston), Assoc Prof - 2001
· Hurley, Catherine, BBA, MBA (UNB), CA, Sr Teaching Assoc - 2001
· Hussain, Md. Mostaque, B.Comm. Hons., M.Comm, LLB (Dhaka), MBA, Ph.D. (Vaasa, Finland) Assoc. Prof. 2006
· Jolliffe, Lee, BA (W. Laur), MA (Tor), PhD (Leic), Assoc Prof - 2001
· Kim, Dongmin: BA, MBA, Yonsei, PhD (Br.Col), Asst Prof - 2005
· Mendelson, Morris, BA (C'dia), MSc (St Marys (Can)), PhD (Qu), Asst Prof - 2001
· Rinehart, Shelley, BA, MA (UNB), PhD (U of Oklahoma), Prof - 1988
· Roumi, Ebrahim, BSc (Arya-Mehr), MSc, PhD (Wat), Prof 1988
· Siddiquee, Mohammad
· Stec, Deryk
· Sterniczuk, Henryk, MB, PhD (Warsaw), Prof 1987
· Tlaiss, Hayfaa, BSc (Lebanese American University), MBA (Lebanese American University), PhD (The University of Manchester) - Lecturer, 2010
· Tucker, Suzanne

GENERAL INFORMATION

The Faculty of Business offers a four-year program (equally accessible to part-time students) leading to the degree of Bachelor of Business Administration. The objectives of the program are to provide all students with a solid basic understanding of the fundamental human, physical and conceptual relationships that underlie the organization and management of profit and non-profit organizations; to provide individual students with an opportunity to study, in greater depth, those areas of business they find most interesting; to give students the opportunity to obtain the breadth of background in the Arts and Sciences required to appreciate the environment in which organizations must function; and above all, to develop problem-solving abilities and flexibility in students to help them cope with the challenges presented by a rapidly changing society.

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I. Cooperative Education Option

The Faculty of Business offers a 4-year Cooperative Education option within the BBA program. Consistent with the philosophy of Cooperative education, the program is designed to alternate study terms and meaningful work terms. The number of positions is limited and, therefore, restricted to students with a B- average or higher after their first year. Students may apply for the Co-op program during their second semester. Co-op students are also required to maintain a B- GPA or higher throughout their academic terms.

II. Opportunities for Graduates

The program has been designed to prepare its graduates, by means of a well-rounded theoretical and practical education, to enter the administrative levels of private and public corporations, institutions, and agencies. It also prepares students interested in a career in accountancy to undertake on-the-job training leading to professional certification. Holders of the BBA degree may be exempt from part of the required term of service, part of the course of study, and some of the examinations prescribed by the organizations awarding the professional designations "Chartered Professional Accountant (CPA)". Students interested in the accounting profession should discuss their interest with their faculty advisor, or consult the CPA Accounting Associations directly.

III. Business Administration and Law

BBA students who have completed three years of the BBA program may be admitted to the UNB Faculty of Law and may qualify for the BBA degree by successfully completing the first year of the Law program. To qualify for the BBA, such students must have credit for all of the REQUIRED courses specified for the BBA degree (except BA 4101) and must have a session grade point average of at least 2. 0. Students must apply to and be accepted by the Faculty of Law. The current regulations of that Faculty require a minimum grade point average of 2.7 (on a 4. scale) before a student without a degree will be considered for admission. The average admission GPA for students accepted in 2008 was 3.8. The final grade-point average for BBA degree purposes will be determined by including the results in the first year of the Law program as part of the "final" credit hours used.

IV. Certificate Programs in Administration

The University of New Brunswick, Saint John Campus offers five certificate programs in Administration. This includes a certificate program in Business Administration Level I and Level II, Accounting, Electronic Commerce and Human Resource Management.

These certificate programs are designed to provide individuals, especially working adults, with an opportunity to engage in systematic and co-ordinated study directed towards an academic goal. Participants enrolled in the certificate programs will have an opportunity to study the basic principles of administration and management; to improve their analytical skills; to increase their awareness of the various factors contributing to effective decision-making and to understand the basic functions of organizations.

The certificate programs will be of particular interest to individuals who are engaged in administration, contemplating a career in administration or management and wish to expand their knowledge in the related subject areas.

The courses in the certificate programs are presented at the undergraduate level of study and provide a framework for theoretical analysis of general principles of administration through lectures, discussions and individual study. By combining accumulated work experience and formal classroom learning, participants will be able to relate theory and practice as part of their continuing development.

All courses for the certificates are degree-credit courses. Individuals who successfully complete certificate courses and subsequently are admitted to a degree program will receive credit towards a degree. Credit will be granted for those courses accepted by the particular degree program. Individuals admitted to a BBA degree program will normally be able to apply certificate courses completed successfully to their degree program.

For further information on these Certificate Programs please see the section entitled Certificate Programs in Business Administration, in the Saint John Programs Section of this Calendar.

V. Graduate Studies in Business

The Faculty of Business offers graduate studies in Business leading to the Master of Business Administration (MBA) on a full-time or part-time basis. Students may concentrate in international business or electronic commerce at the graduate level. Applicants who have previously received an undergraduate degree and who want to study business should contact the Faculty of Business at 648-5746 to receive information on the entrance requirements of the MBA. The full-time program is a very intensive 12-month, co-op MBA. Part-time students may choose their courses from evening and Saturday offerings.

VI. University Regulations on Admission and Academic Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar, and in particular the subsection headed "Grading and Classification". The General University Regulations will govern any point not covered in the regulations that follow. Questions concerning the application of regulations should be directed to the Registrar.

VII. Transfers and Graduates of a Community College or Equivalent System to the BBA degree

The University of New Brunswick has specific articulated agreements with a number of domestic and international colleges. Such agreements provide for 2-year block transfer into our Applied Degree programs. See Saint John degree programs/Bachelor of Applied Management for additional information. Also, please consult Admissions at the Registrar's office for an updated listing of such arrangements.

Generally, up to a maximum of 60chs toward the BBA degree may be granted. College transfer students will be required to successfully complete, including any transfer credits, a total of 120 ch in order to graduate with a BBA degree. Only courses with a minimum grade of 65% will be considered for transfer. Entering students will be advised of their status as it is provided in the Admission Regulations of the University, Section S - Transfer Students.

VIII. BBA Regulations for Full-time and Part-time Students in the Degree Program

A. Grading and Classification

The regulations in respect to the BBA degree and the Certificates are expressed in terms of letter grades, credit hours and grade point averages. These are explained in Section B of the Calendar. In order to take a Business Administration (BA) course that has a prerequisite, student must earn a C or better in the prerequisite course(s), regardless of the program in which the student is registered.

B. Credit Hours

The number of credit hours assigned each course is stated in Section F of this Calendar. (In most cases the Faculty of Business assigns a 6 ch weight to a two-term course and a 3 ch weight to a term course.)

Due to differences in the methods used by the various Faculties in the calculation of credit hours, students who elect to register for courses taught outside of the Faculty of Business should note the following:

1. For purposes of the BBA degree, any course taught outside of

the Faculty of Business, which has a course number ending in zero and which is taught over the full academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught, up to a maximum of 6.

2 . For purposes of the BBA degree, any course taught outside of the Faculty of Business, which has a course number ending in other than zero and which is offered in one term of the academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught, up to a maximum of

3. Normally courses of less than 3 credit hours will not be considered for credit.

C. Grade Point Average

1. See Section B of this Calendar for detailed regulations on standing and promotion requirements.

2. A student who has been registered in the BBA program and who withdrew while on probation or who was required to withdraw from the program will not be eligible to re-enter the program without the approval of the Faculty of Business.

3. To earn the BBA degree, a student must successfully complete at least 120 ch in approved courses and must achieve a minimum grade of C in all courses designated as required or elective.

D. Transfer Students

The University regulations in respect to students transferring to the BBA degree program from another UNB degree program and students transferring to UNB from another university or post-secondary institution are as stated in the General Regulations of the University.

Course credits may only be transferred from another university when the grade is equivalent to at least a C at UNB.

At least half the credit hours for the BBA degree must be taken at UNB and must normally include all the required courses in the BBA degree program. (Students may be permitted to take some of these courses elsewhere with the prior permission of the Faculty of Business and the Registrar.)

E. The BBA as a Second Degree

Graduates of UNB are required to successfully complete a minimum of 30 additional credit hours at UNB; graduates of other recognized universities must successfully complete a minimum of 60 ch at UNB. All graduates must have credit for all the required, elective and option courses (or their equivalent) in the BBA program, and must comply with the regulations in Section C above.

F. Changes in Degree Requirements

Improvements in the BBA program may lead to changes in the requirements for the degree. The University reserves the right to require candidates already enrolled to meet the revised requirements.

G. Normal Course Load

The normal course load for students in the BBA program will be five courses per term. Students with a cumulative gpa of at least 2.7 may, with the written permission of the Manager of Undergraduate Programs or the Dean of the Faculty of Business, take a maximum of six courses in a given term. The normal course load for students accepted into the co-op program is six courses per term.

H. Repeating Courses

A student who fails to obtain a grade of C or better in a required course must retake the course as soon as it becomes available during a session in which the student is in attendance.

A student may take a course a maximum of three times (including Ws but excluding courses which are designated with the # notation). Beyond that, the student must obtain the permission of the Dean of the students Faculty to register again in the repeated course. See University Regulations section VIII.I.

I.   Majors, Minors and Concentrations

1. See Section XI, regarding the BBA with a major in Economics.

2. See Section XII regarding the BBA with a major in French.

3. See Section XIII regarding the BBA with a minor in French.

4. See Section XV regarding the BBA with a major in Human Resource Management.

5. See Section XVI regarding the BBA with a major in Accounting.

6. See Section XVII regarding the BBA with a major in Electronic Commerce.

7. See Section XVIII regarding the BBA with a major in Tourism.

8. See Section XIX regarding the BBA with a major in Marketing

9. A student qualifying for the BBA degree who has met the requirements for a Single or a Double Major in the Bachelor of Arts program may request the Registrar to note on the student's transcript that the Major requirement in the external discipline has been met. Students are advised that the Faculty of Business must approve their entire program with the Major requirement approved by the external discipline. **Note:** Students pursuing minors or double majors either within or outside the Faculty of Business may not double count any course or courses which may be common to more than one program.

10. Majors in specific Business disciplines other than HRM, Accounting and Electronic Commerce are not offered although a student may concentrate in a particular Business area (Business and Public Policy, Finance, Industrial Relations, Marketing, Operations Research or Organizational Behaviour) or in Computer Science by selecting appropriate option courses. Students should note that not all elective or optional courses are offered each year. The timetable should be consulted for current offerings.

11. Minors in specific Business disciplines are not offered. The Faculty of Business will accept all minors as laid out by the offering faculty except as noted below.

    a. A Minor in Economics will be awarded to BBA students who achieve a minimum grade of C in:

       i. ECON 2013 & ECON 2023 and

       ii. any additional 9 credit hours in upper level Economics courses. (ECON 2103 and ECON 3114 are recommended for 6 of the 9 credit hours.)

    b. A minor in Math will be awarded to BBA students who achieve a minimum grade of C in:

       i. MATH 1003 , MATH 1013 , and either MATH 1503 or MATH 2213 , and

       ii. an additional 15 ch in Math courses at second year level or above. Maximum 6 ch of approved substitutes may be allowed in consultation with the Department of Mathematical Sciences.

12. **Business Minor**

    Non-business students may earn a minor in business by successfully completing, with a grade of C or better, 24 credit hours of business courses as follows:

    BA 1216 Accounting for Managers I
    BA 1501 Introduction to Business
    BA 2303 Principles of Marketing
    BA 2504 Introduction to Organizational Behaviour
    And any four additional business courses of which a minimum of 2 must be at the 3000 or 4000 level.

    NOTE: Students are responsible for ensuring they have completed appropriate pre-requisites for all business courses. Students should note, for example, that the prerequisite for BA 1216 is MATH 1853 .

13. **Concentrations** are offered in Accounting, Electronic Commerce, Finance, Human Resource Management, and Marketing. Concentrations are completed by achieving a cumulative GPA of at least 3.0 for 12 ch of approved electives in the area of interest. Approved courses for each subject of concentration are as follows:

Accounting

1. BA 3235 Intermediate Accounting I*
2. BA 3236 Intermediate Accounting II*
3. BA 3224 Accounting for Manager III*

4. And one of:
    a. BA 4207 Current Accounting Issues
    b. BA 4221 Advanced Management Accounting
    c. BA 4223 Accounting Information Systems
    d. BA 4229 Advanced Financial Accounting I *
    e. BA 4231 Advanced Financial Accounting II*
    f. BA 4237 Income Taxation*
    g. BA 4238 Auditing*
    h. BA 4242 Accounting Theory
    i. BA 4203 Independent Study - Accounting
    j. Or other course(s) as approved by the Faculty of Business
       * denotes CPA entry courses

Electronic Commerce

1. BA 2123 Introduction to Electronic Commerce
2. BA 2663 Technology Fundamentals of Electronic Commerce
3. And at least two of the following:
    a. BA 3125 Industry Impact of Electronic Commerce
    b. BA 3126 Frontiers of E-commerce I
    c. BA 3305 Marketing on the Internet
    d. BA 3718 Legal, Privacy & Security Issues in Electronic Commerce
    e. BA 4108 Management of New Enterprise
    f. BA 4126 Frontiers of E-commerce II
    g. BA 4223 Accounting Information Systems
    h. BA 4506 Organizations and Electronic Commerce
    i. BA 4866 Management of Technology
    j. Or other course(s) as approved by the Faculty of Business

Finance

1. 6 chs of approved Finance Electives
2. 6 chs of approved Finance or Non-Finance Electives
· Available Finance electives are:
    a. BA 3421 Personal Financial Planning
    b. BA 3426 Corporate Finance *
    c. BA 4437 Investment Analysis and Portfolio Management
    d. BA 4455 Derivatives: Options and Futures
·   *denotes CPA entry courses

    Approved non-Finance electives are:
    a. ECON 2103 Financial Institutions and Markets
    b. ECON 3114 International Financial Institutions and Markets
    c. ECON 3412 International Macroeconomics and Finance
    d. or other course(s) as approved by the Faculty of Business

Human Resources Management

At least four of the following electives:

g. BA 2758 Employment Law
h. BA 3129 Business Research Methods
i. BA 3813 Introduction to Industrial Relations
j. BA 4813 Negotiations and Dispute Resolutions
k. BA 4853 Recruitment and Selection
l. BA 4854 Training and Development
m. BA 4855 Compensation Structure Development
n. BA 4856 Evaluating and Rewarding Employee Performance
o. BA 4857 Management of Occupational Health and Employee Wellness
p. BA 4866 Management of Technology
q. Or other course(s) as approved by the Faculty of Business

Marketing

1. BA 3129 Business Research Methods
2. BA 3328 Consumer Behaviour
3. And two of:
    a. BA 4107 Studies in Small Business
    b. BA 3305 Marketing on the Internet
    c. BA 3339 Marketing Communications
    d. BA 3371 Marketing of Services
    e. BA 4334 Public and Non-profit Marketing
    f. BA 4398 International Marketing
    g. Or other course(s) as approved by the Faculty of Business

IX. Degree Standing on Graduation

At graduation all successful candidates for the degree of Bachelor of Business Administration shall be listed in alphabetical order within the appropriate degree category as stated below:

a. **Distinction** A student who attains a cumulative grade point average of at least 3.8 over the final 60 ch of course work and no grade less than B- (2.7) over the final 60 ch of course work shall graduate with Distinction.

b. **First Division** A student who attains a cumulative grade point average of at least 3. 5 shall graduate in First Division.

c. **Second Division** A student who attains a cumulative grade point average of at least 2. 5 but less than 3. 5 shall graduate in Second Division.

d. **Third Division** A student who attains a cumulative grade point average of less than 2. 5 shall graduate in Third Division.

X. Business Administration Curriculum and Degree Requirements

1. Students must successfully complete at least 120 ch of course work and must obtain a grade of at least C in all required and elective courses specifically required for the degree.

2. The normal course load for students in the BBA program will be five courses per term. Students with a cumulative gpa of at least 2.7 may, with the written permission of the Manager of Undergraduate Programs or the Dean of the Faculty of Business, take a maximum of six courses in a given term.

3. Candidates for the degree must successfully complete the following credit hours: a) 54 required, b) 18 Business electives, c) 6 Social Science electives, d) 6 Humanities and Languages electives, e) 36 options, of which a maximum of 18 may be chosen from Business and a maximum of 12 of the 36 may be at the introductory level.

   An elective course is one chosen from a specified group of courses, e.g. "from Social Science or Business". An option course is an approved course chosen by the student from any approved discipline.

Electives:

Humanities and Languages	Classics, English, French, German, Greek, History, Humanities, Latin, Philosophy, Spanish, (or other courses as approved by the Faculty of Business)
Social Sciences	Gender Studies, Geography, Information & Communication Studies, International Studies, Linguistics, Politics, Psychology, Social Science, Sociology (or other courses as approved by the Faculty of Business)
Business	All courses prefixed with BA which are not listed as required in section 5 below.

Options: Except as noted below, options may be chosen from any of the elective areas listed above as well as: Biology, Chemistry, Computer Science, Economics, Geology, Hospitality & Tourism Management, Information Technology, Mathematics, Physics, Science, or other courses as approved by the Faculty of Business.

4. It is the responsibility of students to ascertain that their elective and option courses are acceptable for BBA degree credit. Credit will not be granted for CHEM 1831 , ESL 1301 , ESL 1302 , ESL 1303 , FREN 1103 , IT 1703 , ECON 1004 , PSYC 1273 or MATH 1863 , MATH 2633 OR MATH 3633 in the BBA program. Credit will be granted for only one of MATH 1001, or MATH 1003, or MATH 2853 .

   Students enrolled in a degree or certificate program under the aegis of the Faculty of Business are not to register in the following courses or similar courses without prior permission of the Faculty of Business. (The content of these courses is similar to required or option BBA courses.)

   ECON 1073 , PSYC 2901 , PSYC 3913 , STAT 1793, STAT 2793 , STAT 2263 , STAT 2264 , STAT 2593 , STAT 3093 .

   Note: Students should contact the Faculty of Business at the beginning of each regular academic year for a revised list of courses in this category.

5. **Course Requirements**

   Students are responsible for ensuring that they meet all the requirements specified for the degree. These include the minimum credit hour requirements, minimum grade point averages, minimum grades in specified courses, successful completion of all specifically required courses and compliance with the restrictions on elective and option courses as in regulation X.3 above.

   Students are advised to consult Section F of this Calendar for detailed course descriptions, including the number of credit hours assigned to each course.

Example of a Typical Student's Program
(15 ch per term, total 120 ch)

FIRST YEAR	
Fall Term	
MATH 1853	Math for Business I
ECON 1013	Intro to Economics-Micro
BA 1501	Introduction to Business
Social Science Elective*	
Humanities or Language Elective*	
Winter Term	
BA 1605	Business Decision Analysis I
ECON 1023	Intro to Economics-Macro
BA 1216	Accounting for Managers I
Social Science Elective	
Humanities or Language Elective	
SECOND YEAR	
Fall Term	
BA 2217	Accounting for Managers II
BA 2504	Introduction to Organizational Behaviour
BA 2606	Business Decision Analysis II
Business Elective/Option** - 6 ch	
Winter Term	
BA 2303	Principles of Marketing
BA 2858	Introduction to Human Resource Management
BA 3623	Management Science: Deterministic Models
Business Electives or Option Courses - 6 ch	
THIRD YEAR	
Fall Term	
BA 3425	Managerial Finance
Business electives or option courses - 12 ch	
Winter Term	
BA 3304	Marketing Management
BA 3653	Production & Operations Management
BA 3672	Introduction to Management Information Systems
BA 3705	Business Law
Business Electives or Option Courses - 3 ch	
FOURTH YEAR	
Fall Term	
BA 4101	Competitive Strategy
Business Electives or Option Courses - 12 ch	
Winter Term	
Business Electives or Option Courses - 15 ch	

Notes:

* All students must include BA 1501 within their first 30 ch' Math 1853 within their first 30 ch; 6 chfrom the Social Science disciplines within their first 60 ch, and 6 chfrom the Humanities and Languages disciplines within their first 60 ch.

** Option courses may be selected from the offerings of any facultyprovided that the selections are in accord with regulations X.3 and 4 above, and provided they are approved by the Faculty of Busi

XI. BBA with a Major in Economics

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to major in Economics must also comply with the following regulations and requirements of the Faculty of Business and the Economics discipline:

a. Students electing to major in Economics should declare the major by the beginning of their third year. The Faculty of Business must approve all courses taken to comply with the major requirement.

b. In order to earn the major in Economics, BBA students must complete the following:

i. earn a minimum grade of C in the following compulsory courses: ECON 2013 , 2023 , 3013 and 3023 ; and

ii. successfully complete with a grade of C or better 15 ch of elective Economics courses or approved substitutes from disciplines other than Economics up to a maximum of 6 ch. Many upper-level business courses qualify as approved substitutes; a current list is available from the Faculty of Business or the Economics discipline.

Note: Students may not double count courses required for the general BBA.

XII. BBA with a Major in French Communication and Culture

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to major in French must also comply with the following regulations and requirements of the Faculty of Business and the French discipline:

a. Students electing to major in French Communication and Culture should declare the major by the beginning of their third year. All courses taken to comply with the major requirement must be approved by the Department of Humanities and Languages and by the Faculty of Business.

b. i. A BBA student who wishes to major in French Communication and Culture will normally have completed four term courses in French (FR 1203 , 1204 and 2203 , 2204) and have received a grade of C or above. A student who has successfully completed a school French immersion program may begin a major in French Communication and Culture following completion of FR 1304 and 2304 with a grade of B or above. Students receiving a grade between C and B- in FR 2304 would normally proceed to FR 2203 and 2204 . A BBA with a major including French Communication and Culture will consist of at least eight term courses in French at the upper level.

ii. All students must earn a grade of C or above in FR 3203 , FR 3204 FR 4204 and one of 3704 , 3714 , 3724 and four term courses of approved French Communication and Culture upper-level electives.

XIII. BBA With a Major in French (Honours) Communication and Culture

In addition to the above requirements for the major, students must obtain a GPA of 3.3 on compulsory and elective term-courses required for the major.

XIV. BBA with a Minor in French Communication and Culture

Students completing a French Minor are required to complete at least four term courses at the upper level in French Communication and Culture, with a maximum of 12 ch at the lower level (FR 1203 , 1204 and 2203, 2204). FR 3203 and FR 3204 will be required; the remaining two term courses will be chosen from advanced courses. A minimum grade of C, in lower level courses, and C, in upper level courses, is required. The Minor must be declared at the same time as the Major. Students who have completed FR 1304 and FR 2304 and are admitted into FR 3203 will also do four term courses at the upper level.

XV. BBA with a Major in Human Resource Management

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to major in Human Resource Management must also comply with the following regulations and requirements.

a. Students electing to major in Human Resource Management should declare the major by the beginning of their third year. The Faculty of Business must approve all courses taken to comply with the major requirement.

b. In order to earn the major in Human Resource Management, BBA students must:

i. maintain a minimum 3.0 (B) grade point average in the 24 ch of courses (ii, iii), and

ii. earn a minimum grade of C in the following compulsory courses: BA 2504 , 2758 , 2858 , 3129 , 3813 and 4898 ; and

iii. earn a minimum grade of C in six credit hours of electives chosen from the following: BA 3547 , 3557 , 3715 , 4813 , 4853 , 4854 , 4855 , 4856 , 4857 and 4866 .

XVI. BBA with a Major in Accounting

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to major in Accounting must also comply with the following regulations and requirements.

a. Students electing to major in Accounting should declare the major by the beginning of their third year. The Faculty of Business must approve all courses taken to comply with the major requirement.

b. In order to earn the major in Accounting, BBA students must in addition to the general requirements of the BBA degree.

i. earn a minimum grade of C in the following compulsory courses. Please note that (*) denotes CPA entry courses. BA 1218 , BA 3224* , BA 3235* , BA 3236* ,BA 4229* ; and

ii. earn a minimum grade of C in three of the following elective courses: BA 4207 , BA 4221 , BA 4223 , BA 4231*, BA 4237*, BA 4238*, BA 4242 ;

iii. earn a minimum grade of C in one of the following elective courses: BA 3426*, BA 4437 ,BA 4455 , ECON 3114 or other approved finance course.

XVII. BBA with a Major in Electronic Commerce

In addition to complying with the existing curriculum requirements and regulations governing the award of a BBA degree, BBA students wishing to major in electronic Commerce must also comply with the following regulations and requirements.

a. Students electing to major in Electronic Commerce should declare the major by the beginning of their third year. The Faculty of Business must approve all courses taken to comply with the major.

b. In order to earn the major in Electronic Commerce, BBA students must:

i. earn a minimum grade of C in the following compulsory courses: BA2123 , BA2663 , BA3126 ,BA 3129, BA3305 , and BA 3718 ;

ii. earn a minimum grade of C in six credit hours of elective courses chosen from the following: BA, 3328, BA 4108, BA 4126, BA 4223, BA 4866, ICS 2001, and one of IT 2773 or CS 1073; or any other 6 credit hours on approval of the Faculty.

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XIX. BBA with a Major in Marketing

In addition to complying with the existing curriculum requirements and regulations governing the award of the BBA degree, BBA students wishing to major in Marketing must also comply with the following regulations and requirements.

a.Students electing to major in Marketing should declare the major by the beginning of their third year. The Faculty of Business must approve all courses taken to comply with the major requirement."

b.In order to earn the major in Marketing, BBA students must:

> i. maintain a minimum 3.0 (B) grade point average in the 27 chs of courses (ii, iii, iv), and

> ii. earn a minimum of grade C in the following compulsory courses: BA 2303 , BA 3304 , BA 3328 , BA 3129 , BA 4101 ; and

> iii. earn a minimum grade of C in a minimum of six credit hours of electives chosen from the following: BA 2501 , BA 3123 , BA 3134 , BA 3301 , BA 3305 , BA 3339 , BA 3371 , BA 4107 , BA 4193 , BA 4303 , BA 4334 , BA 4398 , BA 4653

> iv. earn a minimum grade of C in a maximum of six credit hours of electives chosen from the following: PSYC 3412 , PSYC 3313 , PSYC 3503 , PSYC 3493 , PSYC 2401 , SOCI 2250 , SOCI 3214 , SOCI 4315 , PHIL 2513 or other course(s) as approved by the Faculty of Business

XX. BBA CO-OP OPTION

The Curriculum

The Faculty of Business offers a Co-operative Education option within the BBA program. While the program is designed to be completed in four years, students may take longer to complete the program. Students may also major and take the Co-op option. Consistent with the philosophy of Co-operative education, the program is designed to alternate study terms and relevant work terms, as follows:

Co-op Program Academic / Work Term Sequence

	Fall	Winter	Spring/Summer
	Sept-Dec	Jan-April	May-Aug
Year 1	Academic Term 1	Academic Term 2	
Year 2	Academic Term 3	Work Term 1	Academic Term 4
Year 3	Work Term 2	Academic Term 5	Work Term 3
Year 4	Academic Term 6	Academic Term 7	

Every co-op student shall complete three work terms with full-time academic semesters directly before and after each work term. The co-op program considers students full-time if they are enrolled in at least 12 credit-hours of course-work, not including the work term reports: BA 2903 , BA 3903 or BA 4903 , or any required ESL support courses. Academic course requirements and work terms are listed in Table A.

TABLE A: Example of a typical student's program:

FIRST YEAR

Fall Term (September - December)

> BA 1501   Introduction to Brusiness
>
> MATH 1853   Math for Business I
>
> ECON 1013   Intro to Economics - Micro
>
> Social Science elective*
>
> Humanities or Language Elective*

Winter Term (January - April)

> BA 1605   Business Decision Analysis I
>
> ECON 1023   Intro to Economics - Macro
>
> BA 1216   Accounting for Managers I
>
> Social Science elective*
>
> Humanities or Language Elective*

SECOND YEAR

Fall Term (September - December)

> BA 2217   Accounting for Managers II
>
> BA 2504   Introduction to Organizational Behaviour
>
> BA 2606   Business Decision Analysis II
>
> Business Electives or Option Courses** - 9 ch

Winter Term (January - April) Work Term I

Spring/Summer Term (May - August)

> BA 2303   Principles of Marketing
>
> BA 2858   Introduction to Human Resource Management
>
> BA 2903   Work Term Report I
>
> BA 3425   Managerial Finance
>
> BA 3623   Management Science: Deterministic Models
>
> Business Electives or Option Courses - 6 ch

THIRD YEAR

Fall Term (September - December) Work Term II

Winter Term (January - April)

> BA 3304   Marketing Management
>
> BA 3653   Production and Operations Management
>
> BA 3672   Introduction to Management Information Systems
>
> BA 3705   Business Law
>
> BA 3903   Work Term Report II
>
> Business Electives or Option Courses - 6 ch

Summer Term (May - August) Work Term III

FOURTH YEAR

 Fall Term (September - December)

> BA 4101   Competitive Strategy
>
> BA 4903   Work Term Report III
>
> Business Electives or Option Courses - 15 ch

Winter Term (January - April)

> Business Electives or Option Courses - 15 ch

Notes:
* All students must include B A 1501 within their first 30 ch Math 1853 within their first 30 ch; 6 ch chosenfrom the Social Science disciplines of Anthropology, Political Science, Psychology or Sociology within their first 60 ch, and 6 ch from the Humanities and Languages disciplines of Classics, English, French, German, History, Humanities, Latin, Philosophy or Spanish within their first 60 ch.

** Option courses may be selected from the offerings of any facultyprovided that the selections are in accord with regulations X. (3) and (4) of the Business Administration Curriculum and Degree Requirements of the university calendar, and provided they are approved by the Faculty of Business.

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The sequence of academic terms and work terms outlined above is not flexible. Only in unusual circumstances will the Director or Coordinator of the Co-op Program approve deviation from the regular sequence.

If students' course selections deviate from the schedule above they are responsible for obtaining academic advising from either a Faculty of Business or Co-op advisor. Students are responsible for their own academic planning and course selection.

Each work term is normally 12 to 16 weeks in duration.

Admission

Students must apply for the Co-op program during their second semester. Entrance to the Co-op program is a four-step process, as follows:

Step One: *Academic Achievement* - Obtain a B- (2.7) average or higher after their first year to be eligible for the entry-level Professional Development Workshop Series.

Step Two: *Professional Development* - Successfully complete all required elements of the entry-level professional development seminars (PDSs).

Step Three: *Mock Job Interview* - Pass a mock job interview

Step Four: *The Job Competition* - Obtain a position for Work Term One.

Students who are unsuccessful in any one of the four steps will remain in the traditional BBA program. To remain eligible for each Co-op work term, students must attend and complete assignments for all mandatory professional develop seminars in academic terms three, four and five.

For additional details and for information pertaining to transfer students, please read the Co-op students' handbook available from the Faculty of Business, P.O. Box 5050, Saint John, N.B., E2L 4L5. Web address: www.unbsj.ca/business.

Admissions Policy for International Students Entering the BBA Co-op Program

In addition to the above criteria, students require a TOEFL score of 550 (or equivalent) to enter the BBA Co-op program if English is not their first language.

Advancement

To complete the program and earn a Co-op designation, students must

· maintain a minimum GPA of 2.7 (B-) throughout the program
· successfully complete all PDSs
· perform satisfactorily in all three work terms
· obtain a grade of C or higher on three work term reports

If a student's GPA falls below 2.7 but not lower than 2.5 in any one academic semester directly before or after the work terms, he/she will be placed on co-op program probation. For additional information, please refer to the co-op students' handbook.

Work Term Reports

The work term report plays a pivotal role in the success of our Co-operative Education Program. Work term reports BA 2903 , BA 3903 and BA 4903 are written during the first, second and third work terms respectively. They are required courses carrying 1 credit hour each and requiring a minimum grade of C.

Students must achieve a grade of C on BA 2903 , BA 3903 and BA 4903 to be allowed to continue in the program.

Students who withdraw or are required to withdraw from the co-op program before they have completed BA 2903 , BA 3903 and BA 4903 may not use the credit from BA 2903 and/or BA 3903 and/or BA 4903 in conjunction with a lab credit toward their BBA degree.

The Co-op Fee

A comprehensive Co-operative Education Program includes many important components. Each component provides tangible benefits which are not offered to students in the traditional BBA program. Information on fees may be found in Section C of this calendar. Co-operative Education fees are used to develop and support the following areas:
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1. Professional Development Seminars
2. Providing feedback to students in order to help them improve performance
3. Employer recruitment
4. Organizing job interviews with employers
5. Mid-Work term performance evaluations
6. Heightening the profile of our co-op program with schools, businesses, and community

Students who do not abide by Co-op Program regulations set out in the calendar and the Co-op Students' Handbook, available from the Co-op Office, will be asked to withdraw from the Co-op Program.

XXI. CERTIFICATE PROGRAMS IN BUSINESS ADMINISTRATION

GENERAL REGULATIONS

The following regulations apply to the certificate programs in business:

1. a. *Certificate in Business Administration Level I, Certificate in Accounting, Certificate in Electronic Commerce and Certificate in Human Resource Management:*
A maximum of 50% of total program requirements may be transferred from another degree, certificate or similar program whether taken at the University of New Brunswick or elsewhere. However, 50% of the required business courses must be taken at the University of New Brunswick. Courses taken more than five years ago will be approved on an individual basis.

   b. *Business Administration Certificate Level II:*
A maximum of 75% of total program requirements may be transferred from another degree, certificate or similar program taken at the University of New Brunswick. For students transferring credits from outside the University of New Brunswick, only 50% of total program credits will be transferable. However, 50% of the required business courses must be taken at the University of New Brunswick. Courses taken more than five years ago will be approved on an individual basis.

2. Each student entering a certificate program on a full-time basis must have the prior approval of the Faculty of Business.

3. A certificate will not be awarded to a student enrolled for a degree, but students who have withdrawn from an undergraduate degree program may apply for the appropriate certificate.

4. To earn the Certificate in Business Administration Level I, Level II, the Certificate in Accounting, or the Certificate in Electronic Commerce a student must successfully complete the number of credit hours in approved courses specified for the certificate, achieve a grade of at least C in all specifically required courses and achieve a cumulative grade point average of at least 2.0.

5. To earn the Certificate in Human Resource Management, a student must achieve a cumulative grade point average of at least 3.0 (B) over 24 credit hours required, (excluding BA 1605 and BA 2606).

6. There is no minimum age and no specific prerequisites for entrance into the Business Administration Certificate Level I, Level II or the Certificate in Accounting. Admission information concerning the Certificate in Electronic Commerce is shown on page 12 and the Certificate in Human Resource Management on page 15 of the Certificate Programs brochure available from the Faculty of Business or at www.unbsj.ca/business/students/advising. Although, there are no specific entrance requirements for the Business Administration Certificate Level I, Level II or the Certificate in Accounting students will undertake university-level study and assignments demanded in degree-credit courses. Some courses such as Finance, Computer Science and Business Decision Analysis require at least a background knowledge of high school mathematics.

GENERAL INFORMATION

Admission:

The certificate programs are open to all interested individuals. With the exception of the Certificate in Electronic Commerce and the Certificate in Human Resource Management, there are no specific academic prerequisites for students enrolled in the business certificate programs on a part-time basis, only a desire and willingness on the part of the

student to engage in learning at a university level. However, students engaged in full-time study must receive Faculty approval to be admitted to the program.

Application forms are available at www.unbsj.ca or from the Admissions Office (506-648-5674).

Additional Information:

A brochure entitled Certificate Programs in Administration provides full information on regulations and course requirements and can be obtained by dialing (506)648-5570 or 1-800-50-UNBSJ, by writing to The Faculty of Business, University of New Brunswick, P.O. Box 5050, Saint John, NB, E2L 4L5, or emailing business@unbsj.ca. It may also be viewed and printed at www.unbsj.ca/business/students/advising.

Business Administration Certificate Level I

REQUIREMENTS:

A Business Administration Certificate Level I will be awarded to individuals who:

    a. achieve a cumulative grade point average of at least 2.0 over the 30 credit hours required, and

    b. successfully complete (with a C or better):

BA 1216	Accounting for Managers I (See note A)	3 ch
BA 2217	Accounting for Managers II	3 ch
BA 2303	Principles of Marketing	3 ch
BA 2504	Introduction to Organizational Behaviour	3 ch
BA 3425	Managerial Finance	3 ch
Plus six credit hours in Economics (ECON 1013 and 1023)		6 ch
Business elective		3 ch
Plus six credit hours of non-business courses to be approved by the Faculty of Business (See note A).		6 ch
		30 ch

NOTES:

A. Although, the usual math prerequisites are waived for certificate students, it is recommended that students planning to proceed with the following: Business Administration Certificate Level II, Human Resource Management Certificate or the BBA or BAM degrees choose Math 1853 as an elective before studying BA 1216 and BA 1605 . Most business courses have prerequisites. Students who do not have credit for grade 12 academic math and who intend to continue on to the BBA degree are urged to take MATH 1863 as one of their Business Administration Certificate Level I electives.

B. Please note that although MATH 1863 is a credit towards the Certificate, it cannot be used as a credit towards the BBA, or BAM degrees.

Business Administration Certificate Level II

REQUIREMENTS:

The requirements for the Business Administration Certificate Level II are stated in terms of cumulative credit hours. The 30 credit hours required for the Business Administration Certificate Level I are included as part of the stated requirement of 60 credit hours for the Business Administration Certificate Level II.

A Business Administration Certificate Level II will be awarded to individuals who:

    a. achieve a cumulative grade point average of at least 2.0 over the 60 credit hours required, and

    b. successfully complete (with a C or better):

BA 1216 (See note C)	Accounting for Managers I	3 ch
BA 1605	Business Decision Analysis I (See note C)	3 ch
BA 2217	Accounting for Managers II	3 ch
BA 2303	Principles of Marketing	3 ch
BA 2504	Introduction to Organizational Behaviour	3 ch
BA 2606	Business Decision Analysis II	3 ch
BA 2858	Introduction to Human Resource Management	3 ch
BA 3425	Managerial Finance	3 ch
Plus six credit hours in Economics (ECON 1013 and 1023) (See Note A.)		6 ch
Plus a total of 30 credit hours in Arts (Humanities, Social Science Languages and Mathematics), Business Administration, Computer Science, Data Analysis, Engineering or Science. (See Notes A & B).		30 ch
		60 ch

NOTES:

A. Students who plan to enrol in the Business Administration degree program (BBA) after completing the Business Administration Certificate Level II are advised to elect MATH 1863 (if necessary), MATH 1853 , ECON 1013 and ECON 1023 as part of their certificate program.

B. Six (6) credit hours in Humanities or Languages and six (6) credit hours in Social Sciences (other than Economics) must be completed within the Business Administration Certificate Level I requirements and/or the 30 optional credit hours of Business Administration Certificate Level II.

C. The normal prerequisite will be waived for students registered in this program.

Certificate in Accounting

REQUIREMENTS:

A Certificate in Accounting will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 33 credit hours required, and

b. successfully complete (with a C or better):

BA 1216	Accounting for Managers I (see Note A below)	3 ch
BA 1218	Accounting Lab	0 ch
BA 1605	Business Decision Analysis I (see Note A below)	3 ch
BA 2217	Accounting for Managers II	3 ch
BA 3224 *	Accounting for Managers III	3 ch
BA 3235 *	Intermediate Accounting I	3 ch
BA 3236 *	Intermediate Accounting II	3 ch
BA 3425	Managerial Finance	3 ch
BA 3672	Intro to Management Information Systems	3 ch
BA XXXX	Accounting Elective	3 ch
BA 4229	Advanced Financial Accounting	3 ch
Accounting or Finance Elective (See note B below)		3 ch
		33 ch

Note:

A. The normal prerequisite for this course will be waived for students registered in this program.
B. 3 ch accounting or finance elective chosen from BA 3421, BA 3426*, BA 4221, BA 4223,BA 4237* , BA 4238 * , BA 4242 , BA 4437 , or BA 4455 or other course(s) approved by the Faculty of Business.
*denotes CPA entry courses.

Certificate in Community Leadership
Eligibility
Open to BBA and BAM students at UNB Saint John who will be entering the 3rd year of their program.

· Applicants must have a CGPA of 2.7 or higher

· Applicants must have a combination of academic success, community service and other extra-curricular activities.
Admission

·   Complete and submit an application form.

·   Submit a statement outlining your interest in the program and

·

    explaining your vision of the role of community leaders.

· Submit a resume detailing community service and extra-curricular activities you have been or currently are involved in.

· Submit an unofficial transcript.

For continued participation in the program students will be required to maintain a CGPA of 2.7 or higher. Enrolment in the program will be limited to a maximum of 15 students each year.

Certificate in Electronic Commerce

Admission to the Certificate in Electronic Commerce program will require a minimum of either:

1. 30 credit hours at a recognized post secondary institution with a minimum cumulative grade point average of 2.7 (B-) or

2. At least one year's relevant work experience in the electronic commerce area to be approved on an individual basis by the Dean in consultation with the Electronic Commerce faculty.

REQUIREMENTS:

A Certificate in Electronic Commerce will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 30 credit hours required, and

b. successfully complete (with a C or better):

BA 1216	Accounting for Managers (See note below)	3 ch
BA 2123	Introduction to Electronic Commerce	3 ch
BA 2303	Principles of Marketing	3 ch
BA 2504	Introduction to Organizational Behaviour	3 ch
BA 2663	Technology Fundamentals of Electronic Commerce	3 ch
BA 3126	Frontiers of E-Commerce I	3 ch
BA 3305	Marketing on the Internet	3 ch
BA 3672	Introduction to Management Information Systems	3 ch
BA 3718	Legal, Privacy and Security Issues in Electronic Commerce	3 ch
Plus 3 credit hours of electives chosen from the following:		3 ch
BA 3328	Consumer Behaviour	
BA 3661	Supply Chain Management	
BA 4108	Management of New Enterprise	
BA 4223	Accounting Information Systems	
BA 4866	Management of Technology	
IT 2773	Java Programming for the Internet or CS 1073 Intro to Computer Programs in Java	
ICS 2001	Transformations in Media	
	Or any other three hours on approval	
		30 ch

Note: The normal prerequisite for this course will be waived for students registered in this program.

Certificate in Human Resource Management

Admission to the Certificate in Human Resource Management program will require a minimum of either:

1. 30 credit hours at a recognized postsecondary institution with a minimum cumulative grade point average of 2.7 (B-) in all course work completed, or

2. At least 24 months of relevant work experience in the human resource area to be approved on an individual basis by the Faculty of Business in consultation with Organizational Behaviour/Human Resource Management faculty.

Because the courses offered in this program are largely upper level, the above admission criteria will be waived only in the most exceptional circumstances. However, if an applicant to the program believes that his or her application deserves special consideration related to either of the criteria above, he or she may submit a Permission and Request form to the Faculty of Business undergraduate studies office with an explanation for the reason for the request.

REQUIREMENTS:

The Certificate in Human Resource Management will require the successful completion of 10 term courses (30 credit hours) as detailed below. For those candidates who have already received credit for more than fifteen credit hours of required courses, course selections may be made from the list of electives as replacements for any credit hours above fifteen.

A Certificate in Human Resource Management will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 3.0 (B) over 24 credit hours required, (excluding BA 1605 and BA 2606); and

b. successfully complete (with C or better):

BA 1605	Business Decision Analysis I (See note below)	3 ch
BA 2504	Introduction to Organizational Behaviour (See note below)	3 ch
BA 2606	Business Decision Analysis II	3 ch
BA 2758	Employment Law	3 ch
BA 2858	Introduction to Human Resource Management	3 ch
BA 3129	Business Research Methods	3 ch
BA 3813	Introduction to Industrial Relations	3 ch
BA 4898	Strategic Human Resource Policy	3 ch
Plus 6 credit hours of electives chosen from the following:		6 ch
BA 3547	Organizational Communication (3 ch)	
BA 3557	The Management of Planned Change (3 ch)	
BA 3715	Labour Law (3 ch)	
BA 4813	Negotiations and Dispute Resolution (3 ch)	
BA 4853	Recruitment and Selection (3 ch)	
BA 4854	Training and Development (3 ch)	
BA 4855	Compensation Structure Development (3 ch)	
BA 4856	Evaluating and Rewarding Employee Performance (3 ch)	
BA 4857	Management of Occupational Health and Employee Wellness (3 ch)	
BA 4866	Management of Technology (3 ch)	
		30 ch

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BACHELOR OF HEALTH SCIENCES
Department of Nursing and Health Sciences

General Office:	K.C. Irving Hall, Room 329
Mailing Address:	UNBSJ Department of Nursing and Health Sciences 100 Tucker Park Road, P.O. Box 5050, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5542
Fax:	(506) 648-5784
Email:	nursingsj@unbsj.ca
Website:	http://www.unb.ca/saintjohn/sase/department/nursing

FACULTY

Chair: Dr. Robert Moir (Acting Chair)

· Carr, Tracy, BN (UNB), MSc (Tor), PhD (UNB), Prof – 1995
· Clark, C. Roberta, RN Dip (Miramichi), BN (UNB), MN (Dal), Assoc Prof – 1992
· Doucet, Shelley, BN (UNB), MScN (UWO), PhD (UNB), Asst Prof – 2012
· Furlong, Karen, RN Dip (SJSN), BN (UNB), MN (UNB), Diploma University Teaching (UNB), PhD, CNA Certification Neuroscience Nursing, Sr Teaching Assoc - 2000
· Keeping-Burke, Lisa, BN (MUN), MN (MUN), PhD (McG), Asst Prof – 2012
· Logue, Nancy, BN (UNB), MN (Dal), PhD (c), Diploma in University ·Teaching, Sr Teach Assoc – 1995
· Mawhinney, Kathleen BN (UNB), MN (UNB), Diploma in University Teaching (UNB), Instructor – 2010
· McCloskey, Rose, BSc (Acad.), RN Dip (Hfx.Inf.SN), BN (UNB), Diploma in ·Adult Ed. (St FX), MN (UNB), PhD (UNB), CNA Certification Gerontology Diploma University Teaching (UNB), Prof – 2000
· McCormack, Dianne, BN (MUN), MSc (McG.), PhD (McG) Prof -1998
· O'Brien-Larivee, Catherine, BN (UNB), MSc Applied Nursing (McG), Sr Teaching Assoc – 2004
· Pastirik, Pam, BN (UNB), MSN (UBC), Sr. Teaching Assoc -2002
· Yetman, Linda, RN Dip (SJGH, St. John's, NL), BN (U of Leth), MEd (OISE), ACNP Dip (U of T), PhD (U of C) - Assoc Prof - 2011

To be admitted to the Bachelor of Health Sciences (BHS) degree, students must be accepted by a Canadian Medical Association (CMA) or Council on Accreditation for Respiratory Therapy Education (CoARTE) accredited program in Nuclear Medicine, Radiation Therapy, Respiratory Therapy or Radiography or have completed such an accredited program.

To earn the degree, students must successfully complete 140 credit hours. **Note:** 70 credit hours are required to be taken at UNB and 70 credit hours are allotted on successful completion of the accredited program. Proof of acceptance to or completion of the accredited program must be submitted to the Registrars Office before entrance to the BHS program will be granted.

 Students entering the University who have not yet been admitted to an accredited program should enroll in the B.Sc. program.

Admission Policy on English Language Proficiency
The language of our program is English and our prospective students whose mother tongue is not English may prove English proficiency in one of the following ways:
i. Minimum TOEFL score on a paper-based test of 600.
ii. Minimum CanTEST scores of 5.0 on reading and listening, and 4.5 on writing.
iii. A Minimum of 4 years full-time study in the English language in Canada.
Notwithstanding the above, students must demonstrate competence in speaking, listening, reading and writing English to meet course requirements.

Required Courses:

YEAR 1:

· MATH 1001 (3 ch) or Math 1003 (3 c)
· BIOL 1105/BIOL 1205/ BIOL 1017 (8ch) *
· CHEM 1041 / CHEM 1046 / CHEM 1072 / CHEM 1077 (10 ch)
· PHYS 1011 / PHYS 1021/PHYS 1012/PHYS 1022 (10 ch)
· PSYC 1003 / PSYC 1004 (6 ch)

YEARS 2, 3, and 4:

In addition to the requirements of the appropriate accredited program, students must complete the following University courses:
· BA 2504 (3 ch)
· HSCI 3032 (3 ch)
· STAT 2263 (3 ch)
· one of PSYC 3383 , PSYC 3693 , PSYC 3711 , PSYC 3723 , PSYC
· 3724 or PSYC 3752 (PSYC 3711 is strongly recommended) (3 ch)
· HSCI 3061 (3 ch)
· PHIL 3133 (3 ch)
· HSCI 3092 (3 ch
· PSYC 3033 (3 ch)
· one elective of 3000/4000 level in PSYC, NURS or BIOL courses (3 ch)
· one elective of any level (3 ch)
· one elective of 3000/4000 level (3 ch)

Bachelor of Health Sciences Post Diploma Program

This program is open only to students who hold a diploma from an appropriate accredited program and are qualified to practice (as recognized by the appropriate national and provincial bodies) in an area of health sciences in which a BHS is offered.

Course requirements are the same as for the regular BHS degree, however students who have previously completed a first year of university studies at an Association of Universities and Colleges of Canada (AUCC) recognized university may apply for credit toward the BHS degree.

Minor in Health Sciences
Admission to the Minor is open to students in any discipline if their faculty has a provision for a Minor and they have successfully completed 60 ch of course work and earned an average grade of C or better in allcourses. Application to the Minor is normally made in the second year of a students program for admission in year 3. Students must select the Minor in consultation with the Nursing & Health Sciences Coodinator for Science, Applied Science & Engineering, and this should normally be done at the same time as they declare a Major.

The Health Sciences Minor requires 24 ch of course work consisting of HSCI 2001 and HSCI 4144 plus 18 ch selected from courses listed in the two groupings below. Of these 24 ch, a maximum of 12 ch may be at the lower (1xxx, 2xxx) level. At least 6 ch of courses must be selected from each of the two groupings below. A grade of C or better must be achieved in each course taken for the Minor.

Life & Behavioral Sciences Grouping:		
Lower Level		
BIOL 1205	Biological Principles, Part II	(3 ch)
BIOL 1411	Anatomy & Physiology I	(3 ch)
BIOL 2015	Introductory Genetics	(4 ch)
BIOL 2831	Pathophysiology I	(3 ch)
CHEM 2421	Organic Chemistry I	(3 ch)
STAT 2263	Statistics for Health Sciences	(3 ch)
Upper Level		
BIOL 3132	Advanced Biochemistry	(3 ch)
BIOL 3245	Environmental Chemistry	(4 ch)
BIOL 3251	Introductory Microbiology	(3 ch)
BIOL 3665	Introduction to Environmental Law	(4 ch)
PSYC 3033	Health Psychology	(3 ch)
PSYC 3293	Psychology of Aging	(3 ch)
PSYC 3343	Human Sexuality	(3 ch)
PSYC 3725	The Dementias	(3 ch)
PSYC 3752	Drugs & Behavior	(3 ch)
Social Sciences / Humanities / Business Grouping		
Lower Level		
SOCI 2376	Sociology of Health, Illness & Healing	(3 ch)
ECON 2213	Poverty, Inequality & Income Redistribution	(3 ch)
PHIL 1053	Introduction to Logic	(3 ch)
POLS 1201	Introduction to Canadian Politics	(3 ch)
BA 2001	Business Communication	(3 ch)
Upper Level		
PHIL 3133	Health Care Ethics I	(3 ch)
PHIL 3134	Health Care Ethics II	(3 ch)
SOCI 4555	Gender & Organization	(3 ch)
POLS 3501	Contemporary Issues in Public Policy	(3 ch)

BACHELOR OF INFORMATION SCIENCES

General Information

The Bachelor of Information Sciences (BISc) program is by design an interdisciplinary program involving core courses taken primarily from Business Administration, Computer Science, Economics, Mathematics and Statistics. The core subjects are particularly relevant to the collection, treatment, understanding and management of data (information) encountered in other academic disciplines as well as in business, industry, government and other areas. Emphasis is placed on the statistical methods and modern computing techniques of handling these data, the design and application of mathematical models, and the management of information within organizations.

This four-year degree program is offered in cooperation and in conjunction with departments in the Faculty of Science, Applied Science and Engineering, the Faculty of Business and the Faculty of Arts.

For general regulations on admission, please consult the appropriate section of the University calendar. Transfer into the BISc from another UNB degree program is not permitted if the GPA for the most recent assessment period is below 2.0. For transfer from another university, a CGPA equivalent to 2.0 at UNB is required.

UNB Saint John also offers a Bachelor of Arts with a Major in Information and Communication Studies. This interdisciplinary program explores the influences of communication technology, the media industries and information policy on society. Additional detail and program requirements can be found in this section of the Calendar under Bachelor of Arts, Information and Communication Studies.

General Regulations

It is recommended that students read the General University Regulations, Section B of the calendar, and in particular the subsection headed "Grading System and Classification".

Curriculum

The basic curriculum of the degree consists of a specified set of core courses and a set of regulations governing the choice of others. A student's program is chosen in consultation with a faculty advisor. Two specializations are offered. Years 1 and 2 are the same in both specializations. In Years 3 and 4, students must choose to follow the Decision and Systems Science Specialization or the Decision and Business Management Specialization.

I. Required Courses

Years 1 and 2

BA 1501 , BA 1216 , BA 2504 , CS 1073 , CS 1083 , CS 1303 , CS 2043,INFO 1103 , ECON 1013 , ECON 1023 , ECON 2013 , ECON 2023 , MATH 1003 , MATH 1013 , MATH 2213 , STAT 1793 , STAT 2793 .

Years 3 and 4

Decision and Systems Science Specialization

BA 2303 , CS 2113 or CS 3113 , CS 2253 , CS 2383 , CS 3403 , CS 2998 , CS 3983 , CS 4525 , DA 4993 , ECON 3665 , MATH 2903 , MATH 2913, MATH 3343 , STAT 3083 , STAT 3093 , STAT 4703 .

Decision and Business Management Specialization

BA 2123 , BA 2217 , BA 2303 , BA 2858 , BA 3425 , BA 3623 , BA 3672 , ECON 3013 , ECON 3023 , ECON 3665,ECON 4645 , MATH 2903 , MATH 2913 .

II. Regulations Governing Course Selection

1. At least 6 ch of courses selected from HUM 2003, HUM 1021 , HUM 2021 , ICS 1001 , ICS 2001 , ICS 3001 , ICS 3005 , any ENGL course, WLIT 2503 , PHIL 1053 and PHIL 2111 .

   Decision and Systems Science Specialization

2. At least 3 ch of courses must be chosen from upper-level Computer Science, Mathematics or Statistics courses. These courses are in addition to those listed in I.

3. Three credit hours (3 ch) from either MATH 3753 or MATH 3903.

4. Three credit hours (3 ch) in upper-level Statistics. These courses are in addition to those listed in I or chosen to fulfill II.2.

5. At least 3 ch selected from disciplines in Arts or Business to be approved by faculty advisor.

Decision and Business Management Specialization

6. At least 12 ch of courses selected from disciplines in Arts, Business or Science, Applied Science and Engineering to be approved by faculty advisor.

7. Twelve credit hours (12 ch) of courses selected from CS 2253 , CS 2998 ,CS 3033, CS 3403, CS 3423, CS 4033, CS 4525, DA 4403.

A grade of C or better is required in all required courses and all courses selected under II.1 - II.7.

An example of what would typically be taken by a student in the first year of the degree program follows:

BA 1501	Introduction to Business	(1st term)
BA 1216	Accounting for Managers I	(2nd term)
MATH 1003	Intro to Calculus I	(1st term)
MATH 1013	Intro to Calculus II	(2nd term)
CS 1073	Intro to Computer Programming I (in Java)	(1st term)
CS 1083	Intro to Computer Programming II (in Java)	(2nd term)
ECON 1013	Introduction to Microeconomics	(1st term)
ECON 1023	Introduction to Macroeconomics	(2nd term)
Plus specified Arts electives (Regulation II.1) equivalent to 2 term courses.		

Certificate in Data Analysis

The Certificate in Data Analysis is offered to afford individuals an opportunity to study the basic skills in mathematics, statistics, computer science and data analysis. The program will be of particular interest to those who wish to gain an insight into the way in which computer programs are developed and how they can be used effectively in the analysis of both scientific and business data.

Subject to the General Regulations listed below, the certificate program is open to all interested individuals. There are no specific academic prerequisites, but only a desire and willingness on the part of each student to engage in learning at a university level.

A certificate will be awarded to a student upon successful completion of the program.

General Regulations

1. Each person entering the program must have the approval of the Department of Computer Science and Applied Statistics or the Department of Mathematical Sciences.

2. A maximum of 12 ch or the equivalent may be transferred from another degree or similar program, whether taken at this university or elsewhere.

3. A certificate will not be awarded to a student enrolled for a degree but students who have withdrawn from an undergraduate degree program may apply for the certificate.

4. Normally a student must have grade 12 mathematics to enter the program. Math 1863 may be taken as one of the optional courses in the certificate program by those students who do not have grade 12 mathematics from high school or feel that they are weak in the subject. It should be noted that MATH 1863 does not count as a credit course in the BISc degree.

5. To earn a certificate a student must successfully complete 34 ch in approved courses specified for the certificate and must achieve a grade point average of at least 2.0. It should be noted that students must obtain a grade of C or better in certain courses if they are to be used as prerequisites for subsequent courses.

Requirements

,Students must complete at least 34 ch as follows:

1.	MATH 1003	Intro to Calculus I	3 ch
	STAT 1793	Intro to Applied Statistics	3 ch
	CS 1073	Intro to Computer Programming I (in Java)	4 ch
2.	At least 15 chosen from:		
	MATH 1013	Intro to Calculus II	3 ch
	CS 1083	Intro to Computer Programming II (in Java)	4 ch
	CS 1303	Discrete Structures	4 ch
	CS 2043	Software Engineering I	4 ch
	CS 2113	Scientific Computing	4 ch
	INFO 1103	Data and Information Management	4 ch
	DA 3203	Data Analysis using Statistical Software Pkgs.	4 ch
	Other choices may be approved in consultation with the Department of Computer Science & Applied Statistics or the Department of Mathematical Sciences.		
3.	Sufficient additional credits, chosen in consultation with the Department of Computer Science & Applied Statistics or the Department of Mathematical Sciences, to bring the total to 34 ch.		

Further information may be obtained by contacting the Department of Computer Science and Applied Statistics or the Department of Mathematical Sciences.

BACHELOR OF NURSING
Department of Nursing &Health Sciences

General Office:	K.C. Irving Hall, Room 329
Mailing Address:	UNB Saint John Department of Nursing & Health Sciences 100 Tucker Parker Road P.O. Box 5050, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5542
Fax:	(506) 648-5784
Email:	nursing@unbsj.ca
Website:	http://www.unbsj.ca/sase/nursing/

FACULTY

·Carr; Tracy, BN (UNB), MSc (Tor), PhD (UNB), Prof – 1995
·Clark, C. Roberta, RN Dip (Miramichi), BN (UNB), MN (Dal), Assoc Prof – 1992
·Doucet, Shelley, BN (UNB), MScN (UWO), PhD (UNB), Asst Prof – 2010
·Furlong, Karen, RN Dip (SJSN), BN (UNB), MN (UNB),PhD, Diploma University Teaching (UNB), PhD,CNA Certification Neuroscience Nursing, Sr Teaching Assoc – 2000
·Keeping-Burke, Lisa, BN (MUN), MN (MUN), PhD (McG), Asst Prof – 2012
·Logue, Nancy, BN (UNB), MN (Dal), PhD, Diploma in University Teaching, Sr Teach Assoc – 1995
·Mawhinney, Kathleen BN (UNB), MN (UNB), Diploma in University Teaching (UNB), Instructor – 2010
·McCloskey, Rose, BSc (Acad.), RN Dip (Hfx.Inf.SN), BN (UNB), Diploma in Adult Ed. (St FX), MN (UNB), PhD (UNB), CNA Certification Gerontology Diploma University Teaching (UNB), Prof – 2000
·McCormack, Dianne, BN (MUN), MSc (McG.), PhD (McG) Prof –1998
·O'Brien-Larivee, Catherine, BN (UNB), MSc Applied Nursing (McG), Diploma University Teaching 2004, Sr Teaching Assoc – 2004
·Pastirik, Pamela, BN (UNB), MSN (UBC), CNA certification of Perinatal Nursing, Sr. Teaching Assoc -2002
·Yetman, Linda, RN Dip (SJGH, St. John's, NL), BN (U of Leth), MEd (OISE), ACNP Dip (U of T), PhD (U of C) - Assoc Prof - 2011

Program Goal

The goal of the Nursing Programs at UNB Saint John is to educate caring professional nurses. Faculty believe that professional nursing encompasses five interrelated areas of competency: knowledge and its application, communication, critical thinking/skills of analysis, professional identity, and social justice/ effective citizenship.

BN Program

In 1989, the membership of the Nurses' Association of New Brunswick (NANB) voted to establish a baccalaureate degree in Nursing as the entry level to the profession by the year 2000. In 1994, the Minister of Advanced Education and Labor announced the government's support of this goal by transferring the total responsibility for nursing education in New Brunswick to the universities. In the Fall of 1995, Bachelor of Nursing Program at the Saint John campus of UNB admitted its first students.

The degree program spans four years of general and professional education. On completion of the program, graduates are eligible to write the Licensure Examination NCLEX RN to procure registration in the Province of New Brunswick. Those who are successful are eligible to obtain registration across Canada.

UNB Saint John's four-year Baccalaureate Program in Nursing includes a majority of course work in nursing, and courses from the liberal arts and sciences. Many nursing courses provide opportunities for clinical practice. Students work with individuals, families, groups and communities, and with persons at various stages of the life cycle and in a variety of settings.

Costs

Nursing students practice in a variety of clinical facilities and agencies. All students will be expected to travel out of town for some clinical experiences. In some instances, accommodation will be required. Students may also be expected to complete clinical experiences during evenings, nights, and weekends to accommodate availability of clinical facilities and/or instructors. Normally clinical courses are completed by the end of May (BN program). However, depending on the availability of clinical facilities and/or instructors, these time frames may need to be extended. Students will be provided with notice of clinical scheduling as soon as it is feasible. All students must provide proof of required immunizations. Clinical agencies may not permit students who are not fully immunized to access facilities and may ask students at any time to provide proof of the following mandatory immunizations: Diptheria, Pertussis, Tetanus, Polio, Haemophilus Influenza type B, Measles, Mups, Rubella and Varciella; appropriate Diptheria, and Tetanus boosters; and the series of Hepatitus B immunizations and titre status. Students also must have an initial 12-step Mantoux test for Tuberculosis. Further details are contained in the relevant Faculty policy.

Additionally, in order to participate in nursing clinical, students must have current CPR Certification Basic Rescuer (Level C). In order to access clinical agencies, students must submit a yearly Criminal Record check. In addition, some clinical agencies require students to have a Social Development Reference Check as described in the Family Services Act of New Brunswick, prior to the clinical practice experience.

Regulations

University Regulations

Students are responsible to read carefully Section B of this Calendar, General University Regulations, and in particular the subsection headed Grading and Classification.

Transfer and mature students are particularly advised to consult Section B. Students applying for a second undergraduate degree will take Nursing courses and the required Arts and Science courses in the program, if they have not already taken them. Questions concerning the application of regulations must be made to the Registrar in writing.

Any point not covered in the following regulations will be governed by the General University Regulations.

Admission Policy on English Language Proficiency
Complete four or more consecutive years of full-time education in English in a country where English is the principle language.
(unb.ca/international/prospective/adminreq/englishlanguage.html)

The language of our program is English and prospective students whose mother tongue is not English may prove English language proficiency in one of the following ways:
i. Minimum TOEFL score on a paper-based test of 600.
ii. Minimum CanTEST scores of 5.0 on reading and listening, and 4.5 in writing.
iii. A Minimum of 4 years full-time study in the English Language in a country where English is the principle language.

Notwithstanding the above, students must demonstrate competence in speaking, listening, reading and writing English to meet course requirements.

General Regulations
Admissions, Transfers and Progression Committee
The mandate of the Department Committee is to make decisions on issues that pertain to admissions, transfers, and progression of students through the Nursing Program and to implement the Level 1 suspension investigation process as per the Unsafe Practice Policy.

Admission: Candidates who are interested in pursuing nursing education are advised to read the document Becoming a Registered Nurse in New Brunswick: Requisite Skills and abilities (nanb.nb.ca/index.php/career/requisite-skills).

1. University regulations state that a student whose assessment grade point average (GPA.) falls below 2.0 will be placed on academic probation (UNB Calendar: Standing and Promotion Requirements). In addition to this regulation, a Nursing student whose assessment GPA. falls below 1.7 may be required to withdraw from the program

2. The Department of Nursing & Health Science has an approved departmental -

grading scheme and the following grades are required in the Nursing program:

· at least a C grade in all required Nursing classroom courses
· a credit in all required Nursing clinical courses
· at least a C grade in all required non-nursing courses
· at least a D grade in all electives, both Nursing and non-nursing

3. A student must receive a passing grade in all required nursing and non-nursing courses in each year of the program before proceeding to the next year of the program.

4. A student who fails a clinical course may normally be allowed to repeat the course; a student who twice fails to achieve a passing grade in any Nursing clinical course will be required to withdraw from the Nursing program.

5. As outlined in the Unsafe Practice Policy, student actions that compromise patient safety and serious breaches of conduct will result in a Level I suspension from clinical practice. In such circumstances these students will be reviewed by the Admissions Transfers and Progression Committee.

6. Students who have serious breaches of conduct in class, lab or clinical settings will be reviewed by the Admissions Transfers and Progression Committee and the student may be required to withdraw from the Nursing Program.

7. A student must receive a "credit" in Nursing Clinical course an at least a "C" in its co-requisite Nursing classroom course before proceeding to subsequent clinical courses. In instances where a Nursing classroom course and Nursing clinical course are co-requisites, a failure in one results in a requirement to repeat and pass both courses.

8. A student who has been absent from Nursing clinical courses for 8 months or longer may be required to repeat and pass relevant Nursing courses as determined by the Department Admissions, Transfers, and Progression Committee.

9. A student who fails to receive a credit in NURS 4152 Concentrated Clinical Practice III will be required to repeat and pass relevant clini- cal and classroom courses under the supervision of Nursing faculty before being permitted to repeat the Concentration.

10. Students must complete the program within 6 years of enrolment.

Curriculum for BN Students
Credit hour requirements for Nursing program
Degree program Minimum 136 ch.
(See Section F of the Calendar for course descriptions)
Year I
Term 1: NURS 1011 (3 ch); NURS 1032 (3 ch); BIOL 1441 (4 ch); PSYC 1003 (3 ch); Open Elective *(3 ch).

Term 2: NURS 1225 (3 ch); NURS 1235 (3 ch); BIOL 1442 (4 ch); PSYC 1273 (3 ch); Open Elective *(3 ch).

Year II
Term 1: NURS 2041 (4 ch); NURS 2157 (4 ch); NURS 2177 (3 ch); BIOL 2831 (3 ch); STAT 2263 (3 ch).

Term 2: NURS 2063 (4 ch); NURS 2132 (3 ch); NURS 2135 (3 ch); NURS 2145 (3 ch); NURS 2189 (4 ch); BIOL 2852 (3 ch).

Year III
Term 1: NURS 3064 (4 ch); NURS 3067 (4 ch); NURS 3092 (3 ch), NURS 3061 (6 ch); Biol (3 ch).

Term 2: NURS 3033 (3ch); NURS 3071 (3 ch); NURS 3073 (6ch); NURS 3081 (3ch); NURS3703 (5 ch).

Year IV
Term 1: Open Elective* (3 ch); NURS 4211 (3 ch); NURS 4321 (3ch); NURS 4322 (6ch)

Term 2: NURS 4166 (2ch); NURS 4176 (3ch); NURS 4142 (3 ch); NURS4152 (7 ch)
* Only 2 of the 3 electives may be chosen from the same discipline. Please note UNIV 1003 is not an approved elective for the BN program.

Bachelor of Nursing Degree for Registered Nurses Bridge Pilot
Licensed Practical Nurses (LPNs) will be able to gain access to an LPN Bridge, a cluster of required university courses that, upon successful completion, qualify them to apply for admission to the Bachelor of Nursing (BN) degree if they (1) hold current memberships in the Association of New Brunswick Practical Licensed Nurses (ALBLPN) in good standing, and (2) are a graduate of either the 18 month or two year NBCC Practical Nurse program. NBCC graduates of the 18-month program must be graduates from 2003 and onward and NBCC graduates from the 2-year program must be graduates from 2009 and onward. If an 18 month graduate, the applicant must provide proof of successful completion of both the Adult Physical Assessment (NCSI 1038) and the Introduction to Pharmacology (PHMC 1018) courses. Students must have achieved a minimum grade of 75% in every course in their previous LPN program and in each of the additional courses identified, if applicable. Finally, students require successful completion of High School Math 112 (a) with a minimum grade of 60%. Since there are non academic requirements associated with the next step in the admission process, namely being admitted to the BN program, students are advised to familiarize themselves with admission requirements before applying the Bride Courses.

The following required courses comprise the LNP Bridge:

NURS 2011 (3ch) - Concepts for Professional Nursing Practice
HUM 1021 (3ch) - Effective Writing I
STAT 2263 (3ch) - Statistics for Health Sciences
BIOL 2831 (3ch) - Pathophysiology I
NURS 2051 (3ch) - Clinical Decision Making
PSYC 1003 (3ch) - Introductory Psychology I

To subsequently be admitted to the BN Program, LPN Bridge applicants must meet the following requirements: (1) a minimum Grade Point Average (GPA) of 3.0 on the six courses that comprise the Bridge with no grade less than C in any one course, (2) and provide proof of current registration with the Association of New Brunswick Practical Licensed Nurses (ANBPLN) in good standing (3) a completed criminal record check, (4) current CPR certification, (5) current immunization status as per the policy of the Department of Nursing & Health Sciences. Once admitted, students will join an existing BN class for the third and fourth year of the BN program.

BN/LPN Requirements: A minimum of 85 comprised of 18 ch from the Bridge plus 67 ch from years 3 & 4 of the BN (Basic) Curriculum.

Bachelor of Nursing Degree for Registered Nursing
This BN/RN program is for graduated of two- and three-year diploma nursing programs. Requirements for admission include proof of successful completion of a diploma in nursing and have an active registration with the Nurses Association of New Brunswick.

Many students choose to pursue this degree on a part-time basis. Full-time BN/RN students complete the Program within 6 years of enrollment. Part-time BN/RN students must complete the Program within 10 years of enrolling in the first nursing courses.

Credit hour requirements for BN/RN Program

BN/RN Program Minimum 58 ch

Required Non-Nursing Courses (6 ch)
PHIL 3133, STAT 2263 or equivalent (3 ch)

Electives (18 ch)

1. Students take a minimum of 18 ch of open electives.
2. Students may be granted 3 ch or one open elective for one current CAN certification.
3. No restrictions are placed on the level at which elective courses are taken; students are advised to take upper-level electives where and when possible.

Required Nursing Courses (34 ch)

(See Section F of the Calendar for course descriptions)
NURS 2011(3ch); NURS 3033 (3 ch); NURS 3081 (3 ch); NURS 3092 (3 ch);

BACHELOR OF SCIENCE

FACULTY OF SCIENCE, APPLIED SCIENCE AND ENGINEERING

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Phone:	(506) 648-5615
Fax:	(506) 648-5650
Email:	sci-eng@unbsj.ca
Website:	http://www.unbsj.ca/sase/

FACULTY

Dean: Ruth Shaw, PhD

Department of Biology
· Bertola, Robert, Adjunct Prof - 2013
·Berthe, Franck, Adjunct Prof - 2006
·Burridge, Les, Adjunct Prof - 2007
· Chasse, Joel, Adjunct Prof – 2008
· Cooper, Andrew, Adjunct Prof - 2013
·Chopin, Thierry B. R., BSc (Lyon), MSc (Brest), DEA (Paris), PhD (Brest), Prof - 1989   ·Dowding, Barbara, BSc, MSc (Nfld), Sr Instructor - 2001
·Frego, Katherine, BSc (Winn), MSc (Manit), PhD (Tor) Prof - 1993
·Forward, Benjamin, Adjunct Prof - 2009
·Fraser, Albert, Adjunct Prof - 2010
·Gray, Christopher, BSc (Univ College of Wales, Bangor), MSc Zoology, PhD Chemistry (Rhodes University, South Africa), Assoc Prof - 2011 - Cross-Appointed Biology/Chemistry
·Houlahan, Jeff, BA (Carl), BSc, PhD (Ott), Prof - 2003
·Hunt, Heather, BSc, PhD (Dal), Assoc Prof – 2002
·Johnson, John, BSc, MSc, PhD (UNB), Prof - 1989
·Kidd, Karen, BSc (Guelph), PhD (Alta), Prof - 2004
·Kieffer, James, BSc (Ott), MSc, PhD (Qu), Prof - 1996
·Lawton, Peter, Adjunct Prof - 2010
·Litvak, Matthew K., Adjunct Prof- 2010
·MacDonald, Bruce A., BSc (Acad), MSc (UNB), PhD (MUN) Prof, Assoc Dean Graduate Studies - 1992
·MacLatchy, Deborah L., Adjunct Prof - 2007
· Major, Heather, BSc (Dal), MSc (MN), PhD (Simon Fraser), Asst Prof - 2013
· Martyniuk, Christopher, BSc (Simon Fraser), MSc (Guelph), PhD (Ott) Adjunct Prof- 2013
·McAlpine, Donald, Adjunct Prof - 2006
·Methven, David, Adjunct Prof - 2006
·Miron, Gilles, Adjunct Prof - 2003
·Munkittrick, Kelly, BSc, MSc (Guelph), PhD (Wat), Prof & Canadian Research Chair and Scientific Director for the Canadian Water Network - 2001
·Page, Fred, Adjunct Prof - 2009
·Pohle, Gerhard, Adjunct Prof - 2010
· Reid, Gregor, Adjunct Prof -2013
·Reiman, Tony, Adjunct Prof - 2009
· Robinson, Gilles, Adjunct Prof - 2012
·Robinson, Shawn, Adjunct Prof - 2007
·Rochette, Rémy, BSc, PhD (Laval), Assoc Prof -2001
·Sainte-Marie, Bernard, Adjunct Prof - 2010
· Sibley, Paul, Adjunct Prof - 2013
· Taylor, Sherry, Adjunct Prof - 2012
·Stephenson, Robert, Adjunct Prof - 2010
·Terhune, John M., BScAgr, MSc (Guelph), Lic Scient (Aarhus), Prof - 1975
· Thompson, Dean, Adjunct Prof - 2008
·Trippel, Edward, Adjunct Prof - 2009
·Turnbull, Stephen D., BSc (Manit.), BEd, MSc, PhD (UNB), Sr Teaching Assoc (Saint John) - 1994
·Ugarte, Raul, Adjunct Prof - 2009
·Wilson, Lucy, BA (UNB), DEA, PhD (Univ.of Paris VI), Prof - 2011
· Williams, Jim, Adjunct Prof - 2009

Department of Computer Science & Applied Statistics
·Baker, Christopher, BSc (Univ of Newcastle upon Tyne, UK), PhD (Univ of Wales, UK), Prof - 2012
·Belacel, Nabil, Adjunct Prof (Joint Appt: Faculty of CS UNBF) - 2003
·Garey, Lawrence E., BSc (St FX), MA, PhD (Dal), Prof Emeritus - 2009
·Gupta, Rameshwar D., BSc, MSc (Meerut), MA, PhD (Dal), Prof Emeritus - 2010
·Kaser, Owen, BCSS (Acad), MS, PhD (SUNY, Stony Brook), Assoc Prof - 1993
·LeMire, Daniel, Adjunct Proffesor, (University of Quebec) - 2005
·Light, Janet, BEng (Madras), MEng (Bharathiar), PhD (Avinashilingam), Prof & Chair - 2012
·Mahanti, Prabhat, BSc (Calc), MSc, PhD (Indian Inst. of Technology), Prof - 2001
·Shaw, Ruth, BScDA, MScCS, PhD (UNB), Prof - 1986
·Stewart, Connie, BSc (UNB), MSc (Dal), PhD (Dal), Asst Prof - 2004
·Tasse, Josee, BScCS (Montr), PhD (McG), Assoc Prof - 1997
·Zou, Liwen, MScCS (Dal), MScStat (Dal), PhD (Stats-Dal), Asst Prof - 2013

Department of Engineering
·Christie, James S., BScE, MScE, PhD (UNB), PEng, Prof - 1989
·Cotter, G. Terrance, BScE, MScE (UNB), PhD (Purdue), PEng, Hon Research Prof - 1972
·Gadoura, Idris, BSCE (Libya), MSCE, PhD (HUT, Finland), Senior Teaching Assoc - 2006
·Prasad, Ramesh C., BScE (BhU), MTech (IIT), MScE, PhD (UNB), PEng, Hon ·Research Prof - 1982
·Riley, Peregrine, BScE (Qu), PhD (UNB), PEng, Sr Teaching Assoc and Chair- 1986
·Roach, Dale, BScEng, PhD (UNB), PEng, DUT, Senior Teaching Assoc - 2000
·Sollows, Kenneth F., BScE, MScE, PhD (UNB), PEng, Assoc Prof - 1985
·Walton, Byron A., Eng Cert (Mt.All.), BScE (NSTC), MScE (UNB), PEng, Senior Teaching Assoc- 1975

Department of Mathematical Sciences
·Alderson, Timothy, BSc, MSc, PhD (UWO), Prof & Chair - 2010
·Hamdan, Mohammad, BSc, MSc, PhD (Windsor), Prof -1991
·Kamel, Merzik T., BSc (Assiut), MSc, PhD (Windsor), Prof- 1981
·McKay, Rebecca, BSc (MUN), MSc, PhD (Dal), Instructor-2012
·Stoica, George, MSc (Bucharest), PhD (Paris), Prof - 2000

Chemistry
·Feicht, Anton, BSc, PhD (UNB), Sr Teaching Assoc - 2001
·Fullerton, Frances, BSc (UNB), Sr Teaching Assoc - 1986
·Gray, Christopher, BSc (Univ College of Wales, Bangor), MSc Zoology, PhD ·Chemistry (Rhodes University, South Africa), Assoc Prof - 2010
·Humphries, Robyn E., GRIC (Tees Poly), MSc (Sus), PhD (LUT), Assoc Prof - 2011
·Kayser, Margaret, BSc, MSc, PhD (Ott), Honorary Research Assoc, Prof Emeritus - 2009
·Xiao, Shaorong, Cert. In IT, MSc, PhD (C.Lancs), Sr Teaching Assoc - 2011

Geology
·Logan, Alan, BSc, PhD (Dunelm), Honorary Res Prof - 2002

Nursing and Health Sciences
·Carr, Tracy, BN (UNB), MSc (Tor), PhD (UNB), Prof - 2011
·Clark, C. Roberta, RN Dip (Miramichi), BN (UNB), MN (Dal), Assoc Prof - 1992
·Doucet, Shelley, BN (UNB), MScN (UWO), PhD (UNB), Asst Prof - 2012
·Durier-Copp, Martine, Adjunct Professor - 2010
·Furlong, Karen, RN Dip (SJSN), BN, MN (UNB), Sr Teach Assoc - 2011
·Keeping-Burke, Lisa, BN (Mem), MN (Mem), PhD (McGill), Asst Prof - 2012
Logue, Nancy, BN (UNB), MN (Dal), Sr Teach Assoc - 1995
·Mawhinney, Kathleen BN (UNB), MN (UNB), Instructor - 2010
·McCloskey, Rose, BSc (Acad.), RN Dip (Hfx.Inf.SN), BN, MN, PhD (UNB), Prof - 2011
·McCormack, Dianne, BN (MUN), MSc (McG.), Prof -1998
·O'Brien-Larivee, Catherine, BN (UNB), MSc Applied Nursing (McG), Sr Teach Assoc - 2010
·Pastirik, Pam, BN (UNB), MSN (UBC), Sr Teach Assoc - 2011
·Roy, Sandra, MN (UNB), BN (UNBSJ), Instructor - 2011
Yetman, Linda, BN (Lethbridge), MEd (Tor), PhD (Calgary), Assoc Prof- 2011

Physics
·Backman, Philip J., BSc (Dal), MSc (UND), Sr Teach Assoc - 2012
·Xu, Li-Hong, BSc (Suzhou), PhD (UNB), Prof - 1994

Students are strongly encouraged to read Section B of the Calendar for general regulations governing the degree. General information on the B.Sc. degree can also be found in Section G. of the Calendar.

In the Faculty of Science, Applied Science and Engineering, the minimum acceptable grade in a required course or course being used as a prerequisite is normally a grade of "C". Any student who fails to obtain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed, unless the course is a normal part of the final year of the program, and is being taken for the first time in the final year.

Students in the degree programs of Bachelor of Science, Bachelor of Science in Computer Science, Bachelor of Information Sciences, and Bachelor of Nursing, who complete the requirements for approved minor programs at UNB, will receive recognition of the minor upon completion of the respective degree program.

Students who have completed three full years of a BSc program with the University of New Brunswick and enter a program leading to a degree in a science-based health profession at a recognized school may be granted the BSc degree. To be eligible for consideration under this policy; (1) a student must be enrolled in a professional program that includes the equivalent of at least 7 term courses in science which are recognized by the Faculty of Science, Applied Science and Engineering at UNB to be of upper level science material; (2) a student must have successfully completed at least 7 of these recognized course equivalents.

The Faculty has determined that these requirements can be satisfied bystudents who have successfully completed two years of Medicine, Dentistry or Veterinary Medicine, or three years of Pharmacy, or graduated from Optometry. Students wishing to be considered for a BSc general degree who satisfy the above conditions must apply in writing, complete with official transcripts, to the Registrar.

CURRICULUM

Although similar, the first-year requirements for the various BSc options differ from one another. They are specified separately for each option.

In the second and succeeding years, students will typically specialize by taking courses appropriate to one of many options that are available to them.

Nine of these (Biology, Chemistry, Environmental Biology, Geology, Marine Biology, Physics, Psychology, Mathematics, and Statistics) lead naturally to specialization. Seven interdepartmental programs (Biology-Chemistry, Biology-Mathematics/Statistics, Biology-Psychology, Chemistry-Geology, Chemistry-Mathematics, Chemistry-Physics and Mathematics-Economics) are available. The remaining option, General Science, provides a variety of choices in both Science and Arts electives.

Note: Students should note that the full four years required for programs in Mathematics, Statistics, Economics, Psychology, Biology, Marine Biology, Environmental Biology, Biology-Psychology, Mathematics-Economics, Information Sciences and Computer Science may be completed on the Saint John campus and that the Marine Biology and Information Sciences programs are offered only on the Saint John campus. The full four years of a General Science option are also offered at Saint John.

CERTIFICATE PROGRAMS IN SCIENCE, APPLIED SCIENCE AND ENGINEERING

Certificate in Community Leadership

Eligibility

 Open to BSc students at UNB Saint John who will be entering the 3rd year of their program.
 Applicants must have a CGPA of 2.7 or higher.
 Applicants must have a combination of academic success, community service and other extracurricular activities.

Admissions

 Complete and submit an application form to the Dean of Science, Applied Science and Engineering Office.
 Submit a statement outlining your interest in the program and explaining your version of the role of community leaders.
 Submit a resume detailing community service and extra-curriculur activities you have been or currently are involved in.
 Submit an unofficial transcript.

To be awarded the Certificate, students admitted to the program will be required to complete a minimum of 160 hours of community service, 4 courses from a listing of applicable courses, 3 workshops, and 1 training session. All components must be completed before a student earns the Certificate designation. For continued participation in the program, students will be required to maintain a CPGA of 2.7 or higher. Enrolment in the program across Faculties will be limited to a maximum of 15 students each year.

BIOLOGY, ENVIRONMENTAL BIOLOGY, AND MARINE

BIOLOGY OPTIONS

Honours and Majors Programs

Students planning on specializing in Biology, Environmental Biology or Marine Biology are requested to seek counselling from the SASE Undergraduate Advisor. Courses required in the second year should normally betaken before the third year, and must be completed by the end of the third year. Students honouring in Biology, Environmental Biology orMarine Biology must take BIOL 4090 as one of their advanced Biology courses.

Biology, Environmental Biology, and Marine Biology Major can specialize in Zoology. Information on the specific courses required for this specialization is available from the Department of Biology. Biology Majors completing more 50 ch of upper level Biology course may add these extra credit hours to the total required for graudation.

Students should note that courses offered by other disciplines form an important complementary part of the overall course of studies. STAT 1793 could be replaced by PSYC 2901 , and STAT 2793 could be eplaced by PSYC 3913, but only if students encounter timetabling difficulties.

BIOLOGY OPTION

The following courses are required for all Biology, Majors and Honours students:

First Year

1. BIOL 1105 , 1205 , 1017 .
2. CHEM 1041 , 1046 , 1072 , 1077 .
3. MATH 1001 .
4. STAT 1793 .
5. GEOL 1044 , 1074 .
6. And a minimum of 6 ch in approved electives, for a total of 40 ch.

Second Year

1. BIOL 2125 , 2485 , 2585 , 2615 , Plus one of either 2015 , 2065 or 2245 .
2. CHEM 2401 or 2441 .
3. STAT 2793 .
4. A minimum of 9 ch in approved electives.

It is expected that students will take a minimum of 36 ch during their second year.

Third and Fourth Years

1. 42 ch of advanced Biology courses. This can include BIOL 4090 and the two remaining second year elective Biology courses (BIOL 2015, 2065 or 2245).
2. 18 ch of approved electives with at least a minimum 12 ch being from non-Biology electives.
3. A total of at least 137 ch is required for graduation.

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ENVIRONMENTAL BIOLOGY OPTION

All properly qualified students entering the first year of the BSc Environmental Major program will normally complete the following courses

First Year

1. BIOL 1105 , 1205 , 1017 , 1302
2. CHEM 1041 , 1046 , 1072 , 1077
3. GEOL 1044
4. ECON 1013 , 1023
5. MATH 1001
6. A minimum of 3 ch in approved electives, for a total of 38 ch.

Second Year

1. BIOL 2125 , BIOL 2485 , BIOL 2585 , BIOL 2615 , plus one of BIOL 2015 , BIOL 2065 , BIOL 2245 .
2. CHEM 2441 and BIOL / CHEM 3245 or CHEM 2401 and CHEM 2422 .
3. STAT 1793
4. ECON 3755

Third and Fourth Years

1. BIOL 3055 , 3565 , 4825 , 4861 , 4875
2. SOCI 1001 and either BIOL 3665 or 1/2XXX Arts elective (3 ch).
3. STAT 2793
4. 13 ch upper level Biology Grouped Electives
5. 6 ch electives non-Biology science courses, 9 ch electives Arts or Business, 9 ch electives.
6. A total of at least 136 ch is required for graduation.

MARINE BIOLOGY OPTION

All properly qualified students entering the first year of the BSc Marine Biology program will normally complete the following courses:

First Year

1. BIOL 1105 , 1205 , 1017 , 1202 .
2. CHEM 1041 , 1046 , 1072 , 1077 .
3. MATH 1001 , STAT 1793 .
4. GEOL 1044 .
5. A minimum of 6 ch in approved electives, for a total of 38 ch.

Second Year

1. BIOL 2125 , 2485 , 2585 , 2615 , plus one of BIOL 2015 , 2065 or 2245 .
2. CHEM 2401 or CHEM 2441 .
3. STAT 2793.

It is expected that students will take a minimum of 36 ch during their second year.

Third and Fourth Years

1. BIOL 3173 plus 42 ch from advanced Biology courses. This can include BIOL 4090 and the two remaining second year elective Biology courses (BIOL 2015, 2065 or 2245). 30 ch must be from courses designated as having a marine content including BIOL 3165 , 3215 , 3605 , 3663 , 3685 , 3755 , 3955 , 4215 , 4592 , 4645 , 4775 .
2. 18 ch of approved electives with at least a minimum 12 ch being from non-Biology electives.
3. A total of at least 139 ch is required for graduation.

Note Concerning Transfer to the Fredericton Campus

Students are strongly advised to seek academic advising from a

member of the Biology Department on the Fredericton Campus prior to commencing the transfer process.

CHEMISTRY OPTION

The first year of five UNBF programs is offered on the Saint John campus: Major, Honours, Honours Co-op, Medicinal Chemistry Majors, and Medicinal Chemistry Honours. Some *upper year level courses are also available. A Minor program is offered for students in other departments within and outside of the Faculty of Science, Applied Science and Engineering who are interested in a coherent package of chemistry courses.

First Year

☐ CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077 .
☐ PHYS 1011/12, PHYS 1021/22, MATH 1003, MATH 1013
☐ Either BIOL 1105 , BIOL 1205 , BIOL 1017 and 6ch approved electives.
☐ BIOL 1006 will need to be completed in Fredericton to obtain a full year Biology credit.

The minimum credit hour requirements beyond first year are:

Major:	72 ch Chemistry, 3 ch Biology, 6 ch Mathematics, 18 ch approved electives.
Honours:	76 ch Chemistry, 3 ch Biology, 6 ch Mathematics, 18 ch approved electives.
Honours Co-Op:	76 ch Chemistry, 3 ch Biology, 6 ch Mathematics, 18 ch approved electives, two work terms.
Medicinal Chemistry Major:	68 ch Chemistry, 3 ch Biology, 6 ch Mathematics, 18 ch approved electives.
Medicinal Chemistry Honours:	74 ch Chemistry, 3 ch Biology, 6 ch Mathematics, 18 approved electives.
Minor:	24 ch Chemistry

Note 1: See Chemistry Option Fredericton for detailed description.
Note 2: A minimum of 12ch of the electives must be from the Faculty of Arts, of which 6 ch must be chosen from ENGL, PHIL 2111 , PHIL 2112, PHIL 3241 , PHIL 3242 , PSYC 3752 or equivalents.

Second/Third/Fourth Year Courses
☐ CHEM 2009
☐ CHEM/BIOL 2065 Biochemistry
☐ CHEM 2416, 2421, 2422, and 2457 – Organic Chemistry
☐ CHEM/BIOL 3245 Environmental Chemistry
☐ CHEM 3335 Chemical Management Practices
☐ CHEM 3435 Biomolecules and Primary Metabolism
☐ CHEM 4435 Biologically Active Natural Products and Secondary Metabolism

GEOLOGY OPTION

The Saint John campus offers courses designed to lay the groundwork for the Geology degree, which must be completed on the Fredericton campus. Please see the Fredericton Degree Programs section for descriptions of the three Geology programs: Pass, Major and Honours.

The following courses are designed for Pass, Major and Honours students:
First Year

1. GEOL 1044 , GEOL 1074 .
2. MATH 1003 , MATH 1013 .
3. CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077 .
4. A minimum of 14 ch in approved electives, for a total of at least 40 ch.

Students are required to successfully complete BIOL 1105 , BIOL 1006 (Fredericton), BIOL 1205 , BIOL 1017 , and PHYS 1010 , PHYS 1020 (or Fredericton equivalents PHYS 1040 , PHYS 1045) prior to graduation. These courses need not be completed in the first year of study, but it is recommended that as much as possible of this requirement be completed before transferring to the Fredericton campus.

After the first year of study, completion of GEOL 1703 , Field School (7 days), is recommended. See Course Descriptions - Fredericton.

Second Year

1. Depending on availability, students are encouraged to take as many as possible of GEOL 2131 , GEOL 2142 , GEOL 2201 , GEOL 2212 , GEOL 2321 , GEOL 3222 and GEOL 3442 .
2. MATH 2003 , MATH 2013 .
3. CHEM 2601 , CHEM 2622 .
4. CS 1003 .
5. Enough approved electives to make a minimum total of 40 ch.

After the second year of study, completion of GEOL 2703 , Field School (14 days), is recommended. See Course Descriptions - Fredericton.

GENERAL SCIENCE OPTION

1st Year (Minimum 36 ch)

CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077 ; MATH 1003 , MATH 1013 ; and PHYS 1010 , PHYS 1020 plus one combination of; BIOL 1105 , BIOL 1205 , BIOL 1017 and PYSC 1003 , PYSC 1004 or GEOL 1044 ,and GEOL 1074 . **(See Note #1)**

2nd Year (Minimum 31 ch)

BIOL 1105 , BIOL 1205 , BIOL 1017 and PYSC 1003 , PSYC 1004 or GEOL 1044 , GEOL 1074 ; 21 ch at the second year level in two areas of concentration selected from Biology, Chemistry, Geology, Mathematics, Physics, Psychology, Statistics or Engineering.

3rd and 4th Years (Minimum 64 ch)

42 ch Upper level Biology, Chemistry, Geology, Mathematics, Physics, Psychology, Statistics or Engineering. (At least 12 ch in the two areas of concentration selected, with no more than 24 ch in one area.)

22 ch Approved electives. (At least 12 ch must be selected from Arts, Business, Computer Science, Data Analysis). Recommended electives: HUM 2121 , HUM 3121 , PHIL 1053 , PHIL 2111 , PHIL 2112 , PHIL 3241 , PHIL 3243

Total 135 ch minimum

Note 1: Both the BIOL 1105 , BIOL 1205 , BIOL 1017 , PSYC 1003 , PSYC 1004 combination and GEOL 1044 , GEOL 1074 must be completed before graduation. Course selection in the first year should be done in a manner which allows progression to the two areas of concentration planned for the upper years.

For graduation, students will be listed in three divisions as for other BSc students, but a student achieving a cumulative grade point average of 3.5 or better will graduate with distinction.

Note 2: The General Science options offered on the two campuses differ from one another. The regulations governing the General Science option offered at UNBF are given in Section G.

Note 3: Courses from other institutions will be considered for credit toward this program, pending approval by the Department of Physical Sciences. This affords the students an opportunity to participate in "study abroad" or pursue study in a topic area that is currently not available on the Saint John campus.

MATHEMATICS OPTION

MATHEMATICS MAJOR

First Year (Minimum 38 ch)

a. MATH 1003 , MATH 1013 , MATH 1503

b. At least 18 ch in lecture courses and at least 8 ch in laboratory courses chosen from

  o BIOL 1105 , BIOL 1205 , BIOL 1017

  o CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077

  o GEOL 1044 , GEOL 1074

  o PHYS 1011, PHYS 1012, PHYS 1021, PHYS 1022

c. A minimum of 3 ch in approved electives.

NOTE: Geology courses include laboratory component.

Second Year (Minimum 31 ch)

MATH 2203 , MATH 2513 , MATH 2523 plus approved electives equivalent to seven term courses.

Third Year and Fourth Year (Minimum 60 ch)

a. MATH 3213 , MATH 3713 , MATH 3733 , STAT 3083 , STAT 3093 plus 15 ch of upper level MATH courses. One (3ch) upper level STAT course may be counted as part of these 15 ch.

b. Plus 21 ch of upper level (3-4000 level) elective courses approved by the department.

c. An additional 9 ch of electives at any level.

NOTE:

(i) At least 3 ch of Computer Science are required in the program.
(ii) STAT 2593 is recommended prior to taking STAT 3083 .

Mathematics Minor

A student who intends to pursue a Minor in Mathematics is required to take 24 ch in Mathematics. Credit must be obtained for MATH 1003 , MATH 1013 and either MATH 1503 or MATH 2213 . The remaining 15 ch of the Minor must consist of Mathematics courses at the second year level, or above. A maximum of 6 ch of Statistics courses, at any level, may count towards the 15 ch.

CALCULUS CHALLENGE EXAM

This examination which is held in early June is open to students registered in a Calculus course at a high school that has made arrangements with the Department of Mathematical Sciences. A fee will be charged.

Students who qualify for credit will receive a certificate entitling them to credit for and thereby exemption from Math 1003 when they register at UNBSJ. Upon the student's acceptance of the credit, the letter grade of the exam will be recorded on their transcript.

CERTIFICATE IN MATHEMATICS FOR EDUCATION

The Certificate in Mathematics for Education is open to all interested students, however it is primarily intended for current and future school teachers for whom mathematics is a potential teachable subject, or ones who simply wish to expand their knowledge in the field of Mathematics.

This Certificate can be taken as a stand-alone program or in conjunction with a degree program, with the approval of the appropriate faculty.

Candidates for admission to the Certificate must meet the University's requirements for admission to any of the faculties, or the requirements for admission as mature students.

The Certificate consists of 30 credit hours (10 courses) as outlined below. A grade of C or better is required in each of the courses.

Mathematics Requirement:	
MATH 2633	Fundamental Principles of Elementary School Mathematics
MATH 3633	Fundamental Principles of School Mathematics
MATH 1003	Introduction to Calculus I*
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra** (or equivalent)
MATH 2203	Discrete Mathematics
MATH 3093	Elementary Number Theory
Statistic Requirement:	
STAT 1793	Introduction to Applied Statistics (or equivalent)
Education Requirement:	
ED 3424	Teaching Elementary School Mathematics

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Additional Requirement:

1. One of Math 2203 or Math 3343.

2. Three credit hours in Mathematics, Statistics or Computer Science, chosen in consultation with the Department of Mathematical Sciences; BA 3623 or ECON 3665 may be accepted as substitutions.

Notes:
* Students who do not have the pre-requisite for this course are required to pass MATH 1863 before enrolling in Math 1003.
** This course involves the use of MATLAB (a software package for Mathematical simulation).

MATHEMATICS AND ECONOMICS OPTIONS

The motivation for the program is to equip students with the necessary analytical skill to pursue a graduate degree in either Economics or Mathematics. The combination of Mathematics in their Economics courses and the rigorous techniques from Mathematics will aid students in their problem-solving skills.

First Year (Minimum 38 ch)

a. MATH 1003 , MATH 1013 , MATH 1503

b. At least 18 ch in lecture courses and at least 8 ch in laboratory courses chosen from:

- o BIOL 1105 , BIOL 1205 , BIOL 1017

- o CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077

- o GEOL 1044 , GEOL 1074

- o PHYS 1011, PHYS 1012, PHYS 1021, PHYS 1022

c. A minimum of 3 ch in approved electives.

Second Year (Minimum 31 ch)

MATH 2513 , MATH 2523 , ECON 2013 , ECON 2023 , plus approved electives equivalent to 6 term courses.

Third Year and Fourth Year (Minimum 60 ch)

Economics Requirements:

- ECON 3013 , ECON 3023 plus 21 ch of economics courses or approved substitutes. ECON 3665 is highly recommended.

Mathematics Requirements:

- MATH 3713 , MATH 3303 (or approved substitute), STAT 3083 , STAT 3093

- Three chosen from: MATH 3073 , MATH 3243 , MATH 3503 , MATH 3733 , MATH 3753

- Two chosen from: STAT 3703 , STAT 4043 , STAT 4243 , STAT 4703

Plus an additional 6 ch of electives at any level.

NOTE:

1. Students are strongly advised to take the required courses ECON 1013 / ECON 1023 in their first year.

2. At least 3 ch of Computer Science are required in the program.

3. STAT 2593 is recommended prior to taking STAT 3083 .

4. Students who are interested in pursuing graduate work in Mathematics must take MATH 3733 .

5. Credit will not be given for both STAT 4703 and ECON 4645 .

PHYSICS OPTION

The first year of UNBF Physics Program is offered on the Saint John Campus. The two programs are:

1. **Honours:** This program is designed primarily for qualified students intending to pursue a postgraduate education. The Honours program requires more specialization and a greater overall course load than the Major program.

2. **Major:** The Major program allows a wider choice of courses outside the Physics Department and a somewhat reduced course load.

In addition a student may specialize in Physics or Applied Physics. The Applied Physics program may be entered by any student with a satisfactory record in either first year Science or first year Engineering. It is recommended that students in Applied Physics take, CS 1003 in the first year. The Applied Physics program is not an Engineering program and does not satisfy the requirements for a P.Eng. qualification.

All properly qualified students entering the first year of the BSc Physics program will normally complete the following courses:

First Year

- PHYS 1011, PHYS 1012, PHYS 1021, PHYS 1022

- MATH 1003 , MATH 1013

- CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077

- Either BIOL 1105 , BIOL 1205 , BIOL 1017 and 6 ch of electives; or GEOL 1044 , GEOL 1074 and 6 ch of electives

PSYCHOLOGY OPTION

General Information and Curriculum

The Psychology discipline offers Majors and Honours Bachelor of Science degrees. Course requirements common to the Majors and Honours BSc degree are as follows:

- · PSYC 1003 , 1004
- · PSYC 2102
- · PSYC 2901
- · PSYC 3913 (in third or fourth year)
- · PSYC 4053 (in third or fourth year)

Each degree program requires the equivalent total of 20 full courses

and course selection for each program should conform to the following pattern.

First and Second Year

- · BIOL 1205 , 2615
- · CHEM 1041 , 1046 , 1072 , 1077
- · MATH 1001
- · PSYC 1003 , 1004 , 2102 , 2901 (or equivalent)
- · 1 additional full course equivalent in Psychology.
- · 2 full course equivalents from list A.
- · 2 1/2 full course equivalents as electives.

Third and Fourth Year

- · PSYC 3913 ; PSYC 4053
- · 4 1/2 full course equivalents in Psychology .
- · 2 full course equivalents from List A (1 full course equivalent must be from either the third or fourth year).
- · 2 1/2 full course equivalents as electives from either the third or fourth year.

List A:
Biology,
Chemistry,
Computer Science,
Data Analysis,
Geology,
Mathematics,
Physics,
Statistics.

BSc Major Program

A student must successfully complete the equivalent of 20 full courses conforming to the above pattern and all required psychology courses must be passed with at least a C (2.0).

BSc Honours Program

An Honours BSc has requirements beyond those outlined above. PSYC 4143 , 4145 must be taken. In addition 27 ch of elective psychology courses must be chosen in the following manner. At least 9 ch must be successfully completed from each of the three groups outlined below:

1. **Biological/Cognitive Basis of Behaviour:** PSYC 3343 , PSYC 3383 , PSYC 3503 , PSYC 3603 , PSYC 3632 , PSYC 3693 , PSYC 3711 , PSYC 3723 , PSYC 3743 , PSYC 3752 , PSYC 4021 , PSYC 4583 , PSYC 4693 , PSYC 4733 , PSYC 4833 ;

2. **Social/Personality:** PSYC 2201 , PSYC 2401 , PSYC 3222 , PSYC 3232 , PSYC 3263 , PSYC 3293 , PSYC 3352 , PSYC 3412 , PSYC 3453 , PSYC 3461 , PSYC 4463 ;

3. **Clinical/Applied:** PSYC 3033 , PSYC 3313 , PSYC 3323 , PSYC 3362 , PSYC 3393 , PSYC 3493 , PSYC 3553 , PSYC 3724 , PSYC 3725 , PSYC 3803 , PSYC 4213 , PSYC 4214 , PSYC 4233 , PSYC 4493 , PSYC 4813 .

An Honours student must successfully complete an Honours Thesis (PSYC 4143 and 4145). This typically requires that a student conceive, plan, perform and report an experiment under the supervision of a Faculty advisor. Normally, the thesis research is completed during the student's final year of study.

Applicants to the Honours program should apply in writing to the Coordinator of the Honours program. To be eligible to apply they must have a minimum cumulative grade point average of 3.3 (B+), as well as, a cumulative grade point average of 3.6 in all psychology courses at the 2000, 3000, and 4000 level. Please note that these minimum requirements do not guarantee acceptance in the Honours program; admittance is competitive and students must obtain a faculty member willing to supervise them. As well, space may be limited.

Furthermore, to graduate with an Honours degree in Psychology, an overall cumulative grade-point average of 3.3 (B+) is necessary, as well as, a cumulative grade point average of 3.3 in all required Psychology courses. For a First Class Honours designation, a grade point average of 3.6 is required in such Psychology courses. For an Honours designation, a grade point average of 3.3 is required in such Psychology courses.

BIOLOGY-PSYCHOLOGY OPTION

Honours and Majors Program

This interdepartmental program offers both majors and honours. Within the majors program there is a pre-professional stream that is intended for students who are considering a career in a health related profession.

First Year

CHEM 1041, 1046, 1072, 1077, BIOL 1105, 1205, 1017, MATH 1001, PSYC 1003, PSYC 1004, 9 ch of approved electives (total 36 ch).

Second Year

BIOL 2015 , 2065 , 2615 , CHEM 2401 or CHEM 2421 , PSYC 2102, PSYC 2901 (or equivalent), plus 11 ch of approved electives (total 33 ch).

Third and Fourth Years

BIOL 4935, PSYC 3913, 4053, plus approved electives equivalent to 54 ch (total 63 ch). The electives in years 2, 3 and 4 must contain at least 24 ch in psychology courses and at least 24 ch in biology courses at the second year level or above. At least 132 approved credits are required to complete the program of which a minimum of 46 ch must be beyond the second year level.

Honours Program

To register for the honours program, students must have a cumulative grade point average of at least 3.0 at the end of the third year and must take BIPS 4001 and BIPS 4002. To graduate with honours, a cumulative GPA of 3.0 must be maintained at the completion of the study. Students are required to take the same program of study as required for the majors program with the following exceptions. In addition to BIPS 4001 and 4002, students must take a minimum of 21 credit hours of psychology courses at the second year level or above and at least 21 credit hours of biology courses at the second year level or above. Enrolment in BIPS 4001 and 4002 is limited and students must arrange their thesis research supervision with an individual faculty member, preferably during their third year

Pre-Professional Stream Program

To be admitted into the Pre-Professional Stream Program students must achieve a minimum cumulative grade point average (CGPA) of 3.7 at the end of their first year. And, to remain within the Pre-Professional Stream Program, students must maintain a minimum CGPA of 3.7 per year. Students at the end of their second year of study may be considered for admission to the program if their CGPA is 3.7 or higher. Admission to the program is competitive and students who meet the minimum requirements will not necesaarily be accepted. Students should also note that admission into a health-related professional program is very competitive and should consider alternative program career choices, as well as their preferred choice of career. Students who successfully complete the program will receive the Pre-Professional notation on their transcripts.

Pre-Professional Stream Curriculum

Required courses, in addition to required courses in the majors program, are:

Required Courses	
BIOL 2485 - Introduction to Microbiology (4ch) **OR** BIOL 3251 - Introductory Microbiology (3ch)	CHEM 2416 - Organic Chemistry Laboratory I (2 ch)
BIOL 3435 - Biomolecules & Primary Metabolism (3 ch)	CHEM 2421 - Organic Chemistry I (3 ch)
BIOL 4435 - Biologically Active Natural Products & Secondary Metabolism (3 ch)	CHEM 2422 - Organic Chemistry II (3 ch)
BIPS 4000	CHEM 2457 - Organic Chemistry Laboratory (2 ch)
PHIL 3133 - Health Care Ethics I (3 ch)	

The three required courses in Biology (BIOL 2485, BIOL 3251, BIOL 4435) may be used to replace the electives in Biology within the Majors Program. Students in the Pre-Professional Stream Program are eligible to also take the Honours Program. It is recommended that students in the Pre-Professional Stream Program take elective courses in English.

Recommended Electives	
MATH 1013 - Introduction to Calculus II (3 ch)	PHYS 1801 - Introductory Physics for Biological Sciences (5 ch)
Prerequisite:	**OR**
MATH 1003 with a grade of C or higher	PHYS 1011/PHYS 1021 - Introductory Physics I 93 ch)/Experiments in Introductory Physics I (2 ch)
OR	
MATH 1001 with a grade of B or higher	PHYS 1012/PHYS 1022 - Introductory Physics II (3 ch)/Experiments in Introductory Physics II (2 ch)
Students are strongly urged to check on admission requirements for the professional school(s) of their choice when considering electives.	

STATISTICS OPTION

STATISTICS MAJOR

First Year (Minimum 38 ch)

a. MATH 1003 , MATH 1013, MATH 1503

b. At least 18 ch in lecture courses and at least 8 ch in laboratory courses

chosen from:

- · BIOL 1105 , BIOL 1205 , BIOL 1017
- · CHEM 1041 , CHEM 1046 , CHEM 1072 , CHEM 1077
- · GEOL 1044 , GEOL 1074
- · PHYS 1011 , PHYS 1012, PHYS 1021, PHYS 1022

c. A minimum of 3 ch in approved electives.

NOTE: Geology courses include laboratory component.

Second Year (Minimum 31 ch)

MATH 2513 , MATH 2523, STAT 1793 , STAT 2793 plus
electives equivalent to six term courses. It is recommended that some of
these electives be Computer Science courses.

Third Year and Fourth Year (Minimum 60 ch)

a. MATH 3713 , MATH 3733 , STAT 3083 , STAT 3093, plus 15 ch of upper

level STAT courses, which may include DA 4993. An upper level MATH

course may
contribute to these 15 ch.

b. Plus 24 ch of upper level (3-4000 level) elective courses approved
    by the department

c. Plus an additional 9 ch of electives at any level.

Notes:

1. At least 6 ch of Computer Science are required in the program.

2. MATH 3633 cannot be taken for credits in Statistics Major.

MINOR IN STATISTICS

A student who intends to pursue a Minor in Statistics is required to take
24 ch in Statistics. A maximum of 9 ch from Mathematics may be
selected. MATH 3633 cannot be taken for credits in Minor in Statistics. The
Minor must be declared at the same time as the Major.

INTERDEPARTMENTAL PROGRAMS

There are a number of interdepartmental programs available to students
interested in moving into an interdisciplinary area. Students should con-
sult the appropriate departments for advising. In some cases, students
may have to transfer to the Fredericton campus to complete the program
depending on availability of courses. See Section G of this calendar for
program details.

PRE-PROFESSIONAL PROGRAMS IN SCIENCE

Students intending to apply to professional schools, such as schools of Medicine, Dentistry, or Veterinary Medicine, should consult the admissions information for the individual school they intend to apply to. Students may be required to complete a specific entrance test for a particular profession, e.g. the Medical College Admission Test (MCAT) in the case of schools of medicine.

Students should select a B.Sc. program and ensure that they complete all core requirements for the selected program. In addition, the courses indicated below are strongly recommended. Students are also strongly advised to take courses in English and the Humanities and Social Sciences. The B.Sc. Biology-Psychology major accommodates the following course selection and is the most common "pre-med" program.

FIRST YEAR

· BIOL 1105 , 1205 / 1017 , CHEM 1041 , 1046 , 1072 , 1077 , MATH 1003 , 1013 , PHYS 1010 / 1020 , 6 ch of English

SECOND, THIRD & FOURTH YEARS

Pre-Dentistry

· BIOL 2065 , 2245 , 2485 , 3055 , 3635
· CHEM 2401 , 2416 , 2422 , 2457
· 12 ch Humanities and/or Social Sciences

Pre-Medicine

· BIOL 2065 , 2245 , 2485 , 3055 , 3635
· CHEM2401 , 2416 , 2422 , 2457
· At least one Statistics course
· Humanities and Social Sciences electives

Pre-Veterinary Medicine

· BIOL 2015 , 2485
· CHEM 2401 , 2416
· At least one Statistics course
· 9 ch Humanities and/or Social Sciences

BACHELOR OF SCIENCE IN COMPUTER SCIENCE
Department of Computer Science and Applied Statistics

General Office:	Sir Douglas Hazen Hall, Room 305
Mailing Address:	Department of Computer Science and Applied Statistics, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5970
Email:	csas@unbsj.ca
Website:	http://www.unbsj.ca/sase/csas/

FACULTY
Chair: Dr. Janet Light

· Baker, Christopher, BSc (Univ of Newcastle upon Tyne UK), PhD (Univ of Wales, UK), Prof – 2008
· Belacel, Nabil, Adjunct Prof (Joint Appt: Faculty of CS UNBF) – 2003
· Garey, Lawrence E., BSc (St FX), MA, PhD (Dal), Prof Emeritus - 2007
· Gupta, Rameshwar D., BSc, MSc (Meerut), MA, PhD (Dal), Prof Emeritus - 2010
· Kaser, Owen, BCSS (Acad), MS, PhD (SUNY, Stony Brook), Assoc Prof - 1993
· Light, Janet, BEng (Madras), MEng (Bharathiar), PhD (Avinashilingam), Prof & Chair - 2002
· Lemire, Daniel, Adjunct Professor, (University of Quebec)- 2005
· Mahanti, Prabhat, BSc (Calc.), MSc, PhD (Indian Inst. of Technology), Prof - 2001

· Shaw, Ruth, BScDA, MScCS, PhD (UNB), Prof, and Dean- 1986
· Stewart, Connie, BSc (UNB), MSc (Dal), PhD (Dal) Assoc Prof - 2004
· Tasse, Josee, BScCS (Montr.), PhD (McG.), Assoc Prof – 1997
· Zou, Liwen, BEng (BUU), MCS (Dal), PhD (Dal), Asst Prof - 2013

General Information:

The Department of Computer Science and Applied Statistics offers a four-year undergraduate program accredited by the Canadian Information Processing Society (CIPS), leading to a Bachelor of Science in Computer Science (BScCS). Both honours and specializations are also offered along with the BScCS program. A set of core courses an some student-selected courses (electives) comprise the requirements of the degree.
Our department also offers other related programs: Certificate programs in Computer Science and Data Analysis, as well as a CS minor and an IT minor. A multi-disciplinary four-year undergraduate program leading to a Bachelor in Information Sciences (BISc) is also available. For general regulations on admission, please consult the appropriate section of the University calendar. Transfer into the BScCS from another UNB program is not permitted if the GPA for the most recent assessment period is below 2.0. For transfer from another university, a CGPA equivalent to 2.0 at UNB is required.

Regulations:

1. The total curriculum consists of a minimum of 141 credit hours.
2. A grade of C or better in such a course must repeat it until that grade level is attained.
For students admitted to the programme in May 2003 or after, a grade of C or better is required in all required core courses, all courses offered for specializations or honours, and all CS courses.
3. It is recommended to take a minimum of 12ch of courses having a significant writing component. This requirement is mandatory for students contemplating a transfer into the Bachelor of Computer Science program at UNB Fredericton. Normally, courses with the prefix ENGL, HIST, or POLS satisfy this requirement. Other courses may also be acceptable. It is the responsibility of the student to ensure that a particular course has a significant writing component, by discussing with the instructor before taking the course. The student should also keep a course outline and at least one writing assignment, as a proof of the significant writing component.

Curriculum

The basic degree curriculum consists of a set of core requirements plus elective courses. It is expected that students will take four (4) years of study at 5 term courses per term to complete the program. The specific requirements are listed below:

Computer Science Core Requirements:

CS 1073	Intro to Computer Programming I (in Java)
CS 1083	Intro to Computer Programming II (in Java)
CS 1303	Discrete Structures
CS 2043	Software Engineering I
CS 2253	Machine Level Programming
CS 2333	Compatability and Formal Languages
CS 2383	Data Structures and Algorithms
CS 3403	Operating Systems
CS 3813	Computer Architecture and Organization
CS 3913	Algorithmics
CS 3983	Professional Practice
CS 4613	Programming Languages
CS 4983	Technical Report or CS 4993 (Honours Project)
ECE 2213	Digital Systems
Or CS 2803	Logic Design
INFO 1103	Data and Information Management
At least one of:	
CS 3033	Software Design and Development
CS 3113	Introduction to Numerical Methods
CS 3123	High-Speed Computing
CS 3893	Computer Networking
At least two of:	
CS 4033	Software Project Management and Quality Assurance
CS 4073	Software Process Improvement
CS 4083	Leading-Edge Technology in Software Development

CS 4093	Team Software Development Project	
CS 4103	Parallel Programming with MPI	
CS 4113	Advanced Scientific Computing	
CS 4123	Topics in High-Performance Scientific Computing and Visualization	
CS 4525	Database Management Systems II	
CS 4843	Wireless and Mobile Computing	
CS 4893	Network Programming	
CS 4913	Theory of Computation	

Mathematic and Statistics Core Requirements:

MATH 1003 Intro to Calculus I
MATH 1013 Intro to Calculus II
MATH 2213 Linear Algebra
or MATH 1503 Introduction to Linear Algebra

STAT 1793 Introduction to Probability and Statistics I
STAT 2793 Introduction to Probability and Statistics II

Also, at least one three credit hour upper-level MATH/STAT elective is required. MATH 3633 (Fundamental Principles of School Mathematics) cannot be used to satisfy this requirement, as it cannot be taken for credit by Computer Science students.

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Breadth Core Requirements:

Students should complete at least 30ch of approved courses (representing approx. 10 courses) from the areas of Arts, Business Administration, Engineering, and Science. MATH, STAT and SWE courses are not eligible for this requirement. Courses from other areas, as well as selected ECE courses (Electrical Engineering courses, not Computer Engineering courses), may be taken toward this requirement with prior approval from the Department Chair.

At least 6ch of these (2 courses) must be at the 2000 level or above.

It is strongly recommended that in order to meet this requirement, the student takes half of these courses in Science, Engineering, and/or Business, and half of these courses in Humanities and Social Sciences. Note that Honours students have to include Science courses, as described below.
The following courses cannot be used toward this breadth requirement, because of their heavy statistics content: BA 1605, BA 2606, BA 3129, ECON 4645, PSYC 2102, PSYC 2901, PSYC 3913, SOCI 3104.

Free Electives:

In addition to the courses taken to satisfy the core curriculum requirements, BScCS students must complete at least 24 ch approved free electives (22ch if CS4993 is chosen in lieu of CS4983) to get a total of 141 ch. Students can choose combinations of electives to allow them to complete an area of specialization with the BScCS degree, to complete a Minor in another area, or simply to acquire more breadth in their studies. Students are encouraged to take one course (or more) in a newer area of computing.

Areas of Specialization:

The basic degree is obtained by satisfying the basic curriculum outlined above. In addition to the basic degree, three specializations or curriculum options are available, as described below:

1. Specialization in High-Performance Scientific Computing
2. Specialization in Software Engineering, and
3. Specialization in Networking

To obtain a specialized degree, students must complete all required core courses listed in the chosen area of specialization, and they must obtain a cumulative grade point average of 2.5 or greater.

SPECIALIZATION IN HIGH-PERFORMANCE SCIENTIFIC COMPUTING

Note: Admission to this specialization has been suspended.

Required Courses	
CS 3113	Introduction to Numerical Methods
CS 3123	High-Speed Computing
CS 4103	Parallel Programming with MPI
CS 4113	Advanced Scientific Computing
CS 4123	Topics in High-Performance Scientific Computing and Visualization

SPECIALIZATION IN SOFTWARE ENGINEERING

Required Courses	
CS 3033	Software Design and Development
CS 4525	Database Management Systems II
In addition, at least three (3) of the following four (4) courses must be completed.	
CS 4033	Software Project Management and Quality Assurance
CS 4073	Software Process Improvement
CS 4083	Leading-Edge Technology in Software Development
CS 4093	Team Software Development Project

NOTE: The Specialization in Software Engineering is not an accredited engineering program and does not lead to registration as a Professional Engineer.

SPECIALIZATION IN NETWORKING

Required Courses	
CS 3893	Computer Networking
CS 4843	Wireless and Mobile Computing
In addition, at least three (3) of the following four (4) courses must be completed.	
MATH 3343	Networks and Graphs
CS 3123	High Speed Computing
CS 4893	Network Programming
CS 4713	Fundamentals of Simulation

Honours Degree Curriculum, Basic and Specialized:

Students in the BScCS degree program may elect, after their first or second year, an Honours degree program, with or without a specialization. Students who satisfy the requirements for an honours and/or specialized degree will have that designation on their final transcript. The honours degrees are designed to prepare students for graduate work.

The requirements for the basic BScCS degree must be met. Within the constraints of those basic requirements, the student must complete:

· A full-year course sequence in Science that includes labs, as part of the breadth core requirements:
  · BIOL 1105/ BIOL 1205/ BIOL 1017
  · or CHEM 1041/CHEM 1046/ CHEM 1072/ CHEM 1077;
  · or GEOL 1044/ GEOL 1074;
  · or PHYS 1011/PHYS 1012/ PHYS 1021/PHYS 1022;
  · or a Science sequence as approved by the department
· CS 3xxx or CS 4xxx (4 ch) An extra upper-level CS elective, excluding CS3403, CS 3813, CS3913, CS 4613, and CS 4993.
· One CS topics course, covering an emerging area of computer science or recent advances in one area. Such course can be one of: CS3403, CS4123, CS4973, or CS4999. The Department Chair must approve the topic chosen.
· CS 4993 with a grade of B or better , in lieu of CS 4983

An honours degree with specialization requires that the student meet the requirements of both the honours degree and the specialization. It further requires:

· **Honours in High-Performance Scientific Computing:** STAT 3083 and STAT 3093.
· **Honours in Software Engineering:** STAT 3703 .
· **Honours in Networking:** no additional courses required

A cumulative grade point average greater than or equal to 3.0 is required to achieve the honours degree. Students who satisfy the requirements for an Honours degree will receive "First Class Honours" if their CGPAs are greater than or equal to 3.5. If their CGPAs are greater than or equal to 3.0 and less than 3.5, they will receive "Second Class Honours".

Certificate in Computing

This certificate program is designed to provide individuals, especially working adults, with an opportunity to acquire the formal background necessary to become effective participants in the Information Technology Industry. Since the courses taken in the Certificate are also appropriate for the BScCS, students who later decide to pursue a BScCS will normally be able to transfer their credits into that programme.

Although the scheduling of courses cannot be guaranteed, it is likely that the Certificate can be completed on a part-time basis in five terms.

The Certificate is also available to students who do not meet the entrance requirements of the BScCS program; in fact, there are no specific entrance requirements except the formal approval of the Department of Computer Science & Applied Statistics. However, students who do not have Grade 12 Math will have to pass Math 1863 before they take the required CS courses.

Core Courses

CS 1073	Intro to Computer Programming I (in Java)
CS 1083	Intro to Computer Programming II (in Java)
CS 1303	Discrete Structures
CS 2043	Software Engineering I
INFO 1103	Data and Information Management

CS 2383	Data Structures and Algorithms
CS 2998	Programming Project
ICS 1002	Foundations of Information and Communication Studies

Electives : (At least 12ch required)

Electives may be chosen from any of the 2000-, 3000-, or 4000-level Computer Science courses.

A grade of C or better is required in all courses credited toward the Certificate.

CS Minor

This program aims to prepare graduates from other disciplines to a career in areas of arts and business computer applications, such as in media, banking, data analyzing etc. There are potentially many rich opportunities for cooperation between the knowledge of arts and business disciplines with computer science for the above career.

Prerequisites	
Grade 12 High School Math	
Required courses	
CS 1073	Intro to Computer Programming I (in Java)
CS 1083	Intro to Computer Programming II (in Java)
CS 1303	Discrete Structures
CS 2043	Software Engineering I
CS 2253	Machine Level Programming
CS 2283	Data Structures and Algorithms
INFO 1103	Data and Information Management
Additional 4 ch from upper level CS courses (CS 2998 can be used to meet this requirement).	
CS credits required = 32 ch min	

Note: A grade of C or better is required in all courses credited towards the minor in CS.

IT Minor

In the last few years information technology (IT) has emerged to play an important role in most work environments. Organizations of all kinds have become more dependent on computing infrastructure than before. IT people are required to select, manage, and maintain IT infrastructure to meet organizational needs. This program aims to prepare graduates from other discipline to a career in IT.

Prerequisites	
None. However, students who do not have NB Grade 12 Math will have to pass Math 1863 before they take the required CS courses (or permission of instructor).	
Required courses	
IT 1713	Multimedia and Information Highway
IT 1813	Introduction to Data Management
IT 2773	Java programming for the Internet
OR	
CS 1073	Intro to Computer Programming I (in Java)
CS 1083	Intro to Computer Programming II (in Java)
CS 2043	Software Engineering I
INFO 1103	Data and Information Management
Additional 8 ch from upper level courses in CS/IT (or CS2998 + 4ch from upper level courses in CS/IT	
Total CS/IT credits required = 29 ch min	

Note: A grade of C or better is required in all courses credited towards the minor in IT.

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BACHELOR OF SCIENCE IN ECONOMICS

Description of program

The Bachelor of Science in Economics is an undergraduate degree with an emphasis on mathematical and quantitative courses that provides an excellent entry into the workforce and background for graduate school in economics and/or finance.
A student must complete at least 120 ch (40 term courses), with a minimum of C+ grade in the required Economics courses, and a grade of C in each of the other required courses. The program components are as follows:
Required Courses:

48 credit hours, as follows: IT 1703 or IT 1803 , MATH 1003 , MATH 1013 , MATH 1503, MATH 2513, MATH 2523, STAT 1793 , STAT 3083, STAT 3093 , ECON 1013 , ECON 1023 , ECON 2013 , ECON 2023 , ECON 3013 , ECON 3023 , ECON 4645 .

Additional Requirements:

- At least 18 ch of additional courses in Economics. (ECON 3665 and ECON 4013 are recommended.)
- At least 9 ch of additional upper level courses in Mathematics, or acceptable substitutes from the Faculty of Science, Applied Science & Engineering.
- Additional 3 ch in Computer Science or Information Technology.
- At least 6 ch of additional upper level courses in Statistics.
- At least 21 ch of additional courses offered by the Faculty of Science, Applied Science & Engineering, or acceptable substitutes.

Electives:

At least 15 ch in Business, Computer Science, Information Technology, Data Analysis, Mathematics, Statistics, Economics, English, History, Politics and Sociology.

CS 4093	Team Software Development Project
CS 4103	Parallel Programming with MPI
CS 4113	Advanced Scientific Computing
CS 4123	Topics in High-Performance Scientific Computing and Visualization
CS 4525	Database Management Systems II
CS 4843	Wireless and Mobile Computing
CS 4913	Theory of Computation
CS 5065	Introduction to Functional Programming

BACHELOR OF SCIENCE IN ENGINEERING

Department of Engineering

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Mailing Address:	Department of Engineering, University of New Brunswick, 100 Tucker Park Road, Saint John, N. B., Canada, E2L 4L5
Phone:	(506) 648-5595
Email:	eng@unb.ca
Website:	http://www.unbsj.ca/engineer

FACULTY

Chair: Peregrin Riley, PhD, PEng

Christie, James S., BScE, MScE, PhD (UNB), PEng, Prof - 1989

Cotter, G. Terrance, BScE, MScE (UNB), PhD (Purdue), PEng, Hon Research Prof - 1972

Gadoura, Idris, BScE (Libya), MScE, PhD (HUT, Finland), Senior Teaching Associate 2006

Prasad, Ramesh C., BScE (BhU), MTech (IIT), MScE, PhD (UNB), PEng, Emeritus Prof - 1982

Riley, Peregrine, BScE (Qu), PhD (UNB), PEng, Senior Teaching Associate and Chair - 1986

Roach, Dale, BScEng, PhD (UNB), PEng, DUT, Senior Teaching Associate - 2000

Sollows, Kenneth F., BScE, MScE, PhD (UNB), PEng, Associate Prof - 1985

Sun, Ligun, BScE (NWPU, China), MScE (NWPU, china), PhD (TsU, China), Hon Res Assoc·

Varner, Joshua, BSc, MSc (UNB), Instructor - 2010

Walton, Byron A., Eng Cert (Mt.All.), BScE (NSTC), MScE (UNB), PEng, Senior Teaching Associate - 1975

Wang, Yunli, BScE (Harbin, China), MScE (TsU, China), Adjunct Prof

The Engineering programs are based on Department course credit requirements established by the Faculty of Engineering as detailed in Section G of this Calendar. The courses available will satisfy up to one-half of the total course requirements for Chemical, Civil, Computer, Electrical, Mechanical, and Software Engineering. Geological, Forest and Geomatics Engineering students may obtain approximately one-quarter of their total course requirements.

Elective courses should be chosen to satisfy specific Department program requirements. See Section G of this Calendar.

The total number of terms required to complete an Engineering program depends on the course load taken by the student. Students who follow approved programs, and who obtain about 80-85 credit hours of approved courses at UNB Saint John, will have the opportunity to complete the Bachelor's degree requirements in Chemical, Civil, Computer, Electrical and Mechanical Engineering at UNB Fredericton in two additional fall and two additional winter terms. Students in Geomatics, Geological and Forest Engineering will require six or more terms at UNB Fredericton in addition to the program credits they obtain at UNBSJ.

For information on the Co-op Program, Professional Experience Program (PEP) and the Diploma in Technology Management and Entrepreneurship (TME), refer to Section G of this Calendar.

Engineering practice and environmental concerns cannot be separated; they are fundamental to all engineering disciplines. Engineering students with a particular interest in environmental issues are encouraged to choose the discipline most closely related to their interest. The following list indicates disciplines associated with various areas of environmental concern.

Chemical Engineering:	air and water quality
	pollution control
Civil Engineering:	hydrology
	groundwater
	solid waste management
	water and wastewater treatment
	environmental geotechnics
Computer Engineering:	digital hardware
	automotive and vehicle control
	process industries and power systems
	instrumentation and communication
Electrical Engineering:	instrumentation and control
	energy conversion and utilization
	electromagnetic interference and compatibility
Forest Engineering:	forest dynamics
	silviculture
	integrated renewable resource management
	machine/environment interactions
	hydrology
Geodesy & Geomatics Engineering:	remote sensing of the environment
	mapping of land and water resources
	monitoring of topographic change
	hazard mapping
	environmental information systems
Geological Engineering:	conservation and management of resources
	waste disposal
	environmental geotechnics
Mechanical Engineering:	alternative energy systems
	recycling systems and design for recycling
	energy conservation and utilization
Software Engineering	computer software
	information system
	system testing and maintenance

Please refer to the UNBF portion of the calendar for information on the General 1st Year Program (Engineering I), Biomedical Engineering and Mechatronics Engineering.

At UNB Saint John the following courses are equivalent to the same courses at UNB Fredericton and/or to the other UNB Fredericton courses listed opposite:
GEOL 1044 = ESCI 1001 + ESCI 1026 ;
GEOL 1044 + GEOL 1074 = ESCI 1001 + ESCI 1026 + ESCI 2022 ;
ME 3232 = CE 3963 ;
ME 3413 = CHE 2012;
ME 3513 = ME 3511 ;
CE 2703 = CHE 2703 ;
SE 1001 = GGE 1001 ;

CHE 2014 + 2CH APPROVED ELECTIVES = CHE 1004 + CHE 2004.

Note: Minimum grade of C is required for all prerequisite and all core and technical elective courses used for credit towards the B.Sc.(Eng.) degree.

Standard Engineering Programs

Courses are arranged by priority for each major program. Most programs are designed to be completed in eight terms of study. Students electing to spread their studies over nine or ten terms can defer low-priority courses to later terms and thus balance their workload. Students should consult their faculty advisors before selecting courses.
To view suggested course plans for each major, please see:
http://www.unbsj.ca/engineer/planner/index.html

BACHELOR OF SCIENCE IN FINANCIAL MATHEMATICS

General Information

Financial mathematics is the application of mathematical models to the solution of problems in the financial industry. It draws upon tools from Mathematical Sciences, Business and Economic theory. Financial institutions, insurance companies, corporate treasuries and major corporations require analysts with high skills in financial mathematics. Their responsibilities include, but are not limited to: aiding in interest rate modeling; evaluating investments; wealth valuation; decision making; and developing programmes that utilize derivatives to reduce exposure to market fluctuations and risk. Mathematical analysis has brought efficiency and rigor to financial markets and the investment process, and is becoming important in regulatory concerns.

Admission requirements are the same as for the University of New Brunswick Science Degree.

Curriculum

A student must complete at least 121 ch (the equivalent of 40 courses) with a minimum grade of C in each course in the programme. The curriculum consists of core requirement courses (76 ch) plus elective courses (15 courses adding up to at least 45 ch) drawn from Mathematics, Business Administration, Computer Science, Humanities, Economics and Statistics.

a. Required Courses

MATH 1003 , MATH 1013 ,MATH 1503, MATH 2513, MATH 2523,

MATH 2203, MATH 2903 , MATH 2913 , MATH 3073 , MATH 3713 , MATH 3903 , MATH 4903 , MATH 4993 ; ECON 1013 , ECON 1023, ECON 2013 , ECON 2023 ; BA 1216 , BA 2217 , BA 3425 , BA 4437, BA 4455 ; CS 1073 ; STAT 3083 , STAT 3093 .

b. Electives Courses

1. At least 3 ch of courses selected from HUM 2003 , HUM 1021 , HUM 3003 , HUM 2021
2. At least 6 ch of courses selected from CS 1083 , CS 2113 , CS 2513 , CS 2773 , CS 3113
3. At least 6 ch of courses selected from ECON 2103 , ECON 3114 , ECON 3412 , ECON 3665 , ECON 3835
4. At least 12 ch of courses selected from MATH 3213 , MATH 3243 , MATH 3303 , MATH 3343 , MATH 3503 , MATH 3733 , MATH 3753
5. At least 6 ch of courses selected from STAT 1793 , STAT 3703 , STAT 4243 , STAT 4703
6. At least 12 ch of elective courses approved by the Department of Mathematical Sciences.

Notes

1. Students planning to undertake graduate studies are advised to take MATH 3733 .
2. Students choosing STAT 1793 as an elective must do so before taking STAT 3083 .
3. Transfer students into this program from UNB or from other Canadian Universities may be able to substitute, with the approval of the Department of Mathematical Sciences, some of the above electives by previously obtained credits (with a C grade or higher) in Business Administration or Economics courses at the 3000 and 4000 levels.

An outline of the sequence of courses taken by a student in the first two years of the programme is as follows:

First Year	
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
BA 1216	Accounting for Managers I
CS 1073	Introduction to Computer Programming in Java
ECON 1013	Introduction to Microeconomics
ECON 1023	Introduction to Macroeconomics

Plus electives equivalent to three term courses	
Second Year	
MATH 2203	Discrete Mathematics
MATH 2513	Multivariate Calculus for Engineers
MATH 2523	Differential Equations and Infinite Series
MATH 2903	Financial Mathematics I
MATH 2913	Financial Mathematics II
BA 2217	Accounting for Managers II
ECON 2013	Intermediate Microeconomics
ECON 2023	Intermediate Macroeconomics
Plus two term elective courses	

SAINT JOHN COURSE DESCRIPTIONS

Standard Course Abbreviations

Applied Science	APSC
Biology	BIOL
Biology & Psychology Joint Honours Program	BIPS
Business Administration	BA
Chemical Engineering	CHE
Chemistry	CHEM
Civil Engineering	CE
Classics and Ancient History	CLAS
Computer Engineering	CMPE
Computer Science	CS
Data Analysis	DA
Economics	ECON
Education	ED
Electrical Engineering	EE
Engineering	ENGG
English	ENGL
French	FR
Gender Studies	GEND
Geology	GEOL
German	GER
Greek	GRK
Health Science	HSCI
History & English-Joint Honours Program	HENG
History	HIST
Hospitality and Tourism Management	HTM
Humanities	HUM
Information Systems	INFO
Information Technology	IT
Information and Communication Studies	ICS
International Studies	IS
Latin	LAT
Linguistics	LING
Mathematics	MATH
Mechanical Engineering	ME
Nursing	NURS
Philosophy	PHIL
Physics	PHYS
Politics	POLS
Psychology	PSYC
Science	SCI
Social Science	SOCS
Sociology	SOCI
Spanish	SPAN
Sport & Exercise Psychology	SEP
Statistics	STAT
Surveying Engineering	SE
University Experience	UNIV
World Literature	WLIT

Course Numbers

Although the University is on a course credit system and has tended to move away from the idea of a rigid specification with respect to which year courses should be taken, yet there is some need to provide information as to the level of the course.

The various disciplines and the courses which they offer are pre-sented in alphabetical order.

The course numbers are designated by four digits.

· First Digit designates the level of the course:

1	Introductory level course
2	Intermediate level course which normally has prerequisites.
3, 4 and 5	Advanced level course which requires a substantial back-ground.
6	Postgraduate level course

· Second and Third Digits designate the particular course in the Department, Division or Faculty.

· Fourth Digit designates the duration of the course:

0	Year (or full) course normally offered over two terms.
1-9	Other than full year courses.

· Departments may assign specific meanings to these digits; consult the departmental listings.

· Students should consult the official Web Timetable (http://www.unbsj.ca/schedules/timetable/) to find when courses are offered in a particular year and when they are scheduled. Not all courses listed are given every year.

Codes

The following codes are used in course descriptions:

A-	alternate years	R-	reading course
ch -	credit hours	S-	seminar
C-	class lecture	T-	tutorial
L-	laboratory	W-	English writing component
LE -	limited enrollment	WS -	workshop
O-	occasionally given	*-	alternate weeks

For example, 6 ch (3C 1T, 2C, 2T) designates a course with 6 credit hours: 3 class lecture hours and 1 tutorial hour per week in the first term; 2 class lecture hours and 2 tutorial hours per week in the second term.

Combinations of class lectures, laboratories, seminars, etc., are indi-cated by a slash line, e.g., 5C/L/S.

Before registration, check all course offerings in the official Timeta-ble. Not all courses listed are given every year.

APPLIED SCIENCE

APSC 1013 Mechanics I   5 ch (3C 3L 1T)

Introduction to the fundamental concepts of vector analysis and its application to the analysis of particles and rigid bodies. Newtons three laws of motion. The static analysis of particles, the kinematics and dynamics of particle motion along straight and curved paths. The static analysis of structural systems including practical applications such as the analysis of trusses, frames and machines. Lab topics such as kinematics, forces and equilibrium situations. Corequisite: MATH 1003, (MATH 1503, or MATH 2213, or equivalent).

APSC 1023 Mechanics II   5 ch (3C 3L* 1T)

Continuation of APSC 1013. The static analysis of structural systems including the analysis of internal forces and bending moments in beams. Centroids, moments of inertia and simple harmonic motion are introduced. Work, energy and momentum of particles and rigid bodies. Introduction to the rotation of a rigid body about a fixed axis, motion of a rigid body in a plane and energy, momentum and angular momentum of a rigid body in plane motion. Lab topics such as conservation laws and vibrations. Prerequisite: APSC 1013. Corequisite: MATH 1003, (MATH 1503, or MATH 2213, or equivalent).

APSC 2023 A Survey of 19th and 20th Century 3 ch (3C)
                              Physics

An introduction to ideas developed in Physics over the last two centuries. Topics will be drawn from Thermodynamics, Geometric and Physical Optics, Relativity, Quantum Mechanics and Atomic Physics. Prerequisite: APSC 1013, MATH 1013.

BIOLOGY

In the four digit number description of Biology courses taught on the Saint John campus the following code applies:

1st digit	specifies year in which course is normally taken.
2nd and 3rd	digits designate the particular course.
4th digit	designates the duration of the course as follows:

0	Course extends over both terms
1	Term course offered in first term
2	Term course offered in second term
3	Field course offered outside normal session
5	Term course offered in either first or second term

* indicates laboratory sessions are given on alternate weeks.

Prerequisites All prerequisite courses must be passed with a minimum grade of C. BIOL 1205 or equivalent is a prerequisite for all courses in Biology except 1105, 1202, 1411, 1412, 1416, 1417, 1551, 2831 and 2852.

Note: See beginning of Section F for abbreviations, course numbers and coding.

BIOL 1017 Applications in Biology, Part II   2 ch (3L)

Instruction and laboratory work dealing with the applications of Biology at the level of biological molecules, the cell and organisms . Prerequisites: BIOL 1105 with a C or better. Pre-or co-requisite: BIOL 1205.

BIOL 1105 Biological Principles, Part I   3 ch (3C)

Ecology and evolution of selected plants, animals, and additional organisms. Topics include ecosystems and ecological interactions, and adaptations in the contest of the organisms environment. **Note: Students intending to major in Biology must take BIOL 1017 and BIOL 1205. Credit can be obtained for only one of BIOL 1012 or 1105.**

BIOL 1202 Introductory Marine Science 3 ch (3C)

 An introduction to the physical, chemical, and biological aspects of marine environments. Marine management issues and laws will be discussed.

BIOL 1205 Biological Principles, Part II   3 ch (3C)

Considers the chemistry of life, maintenance of cells and organisms, energy utilization, genetic information, reproductive continuity and mechanisms of evolution. Prerequisite: BIOL 1105 with a C or better. Note: This course is designed for science students or other students planning to major in Biology. Credit can be obtained for only one of BIOL 1205 or BIOL 1001.

BIOL 1302 Introduction to Environmental   3 ch (3C)
                     Biology

Introduction to issues in environmental biology, including ecosystem health, sustainable development, environmental law, multi-stakeholder decision-making, etc. The course will use a case study method to examine local and global effects of human activity on the earths ecology and human society, focussing on environmental concerns of coastal regions.

BIOL 1411 Anatomy & Physiology I   3 ch (3C)

Basic concepts in human anatomy and physiology, with an emphasis on the normal condition. NOTE: Nursing students will not get credit for BIOL 1411. Prerequisite: Chem 122 and Biology 122.

BIOL 1412 Anatomy & Physiology II   3 ch (3C)

A continuation of BIOL 1411, basic concepts in human anatomy and physiology, with an emphasis on the normal condition. NOTE: Nursing students will not get credit for BIOL 1412. Prerequisite: BIOL 1411 or BIOL 1441.

BIOL 1441 Human Anatomy and Physiology I 4 ch (3C 3L)

Basic concepts in human anatomy and physiology with an emphasis on the normal condition. This course includes a selection of appropriate laboratory exercises. For Nursing students only. Prerequisite: CHEM 122 and BIOL 122.

BIOL 1442 Human Anatomy and Physiology II 4 ch (3C 3L)

Continuation of BIOL 1441, basic concepts in human anatomy and physiology with an emphasis on the normal condition. This course includes a selection of appropriate laboratory exercises. For Nursing students only. Prerequisite: BIOL 1441.

BIOL 1605 Introduction to Geographic Information   3 ch (2C 2L)
                      Systems and Applications
A general introduction to the theory, methods and applications of Geographic Information Systems (GIS). Students will learn the basics of GIS and how to acquire, display, edit, and analyze spatial data with specialized software. GIS is an interdisciplinary field, so students from all faculties may find this course useful.

BIOL 2015 Introductory Genetics   4 ch (3C 3L*) [W]
History of genetics, Mendelian genetics, chromosome theory of inheritance, sex determination and linkage, extensions of Mendelian analysis, genetic linkage, crossing-over, genetic mapping, extranuclear genetics, quantitative and population genetics. Prerequisites: BIOL 1205 (or BIOL 1551 with a grade of B or higher) and BIOL 1105 and BIOL 1017.

BIOL 2065 Introductory Biochemistry   4 ch (3C 3L*) [W]
             (Cross-listed: CHEM 2065)
Protein structures and function, techniques for protein analysis, examples of important proteins, mechanisms and regulations of enzymatic metabolism (basic concepts and design, followed by the study of a few pathways). Prerequisites: BIOL 1017, BIOL 1105, BIOL 1205 and CHEM 2421 .

BIOL 2125 Introductory Botany   5 ch (3C 3L)

Introduces botanical principles and processes. Includes basic anatomy and morphology on a range of scales: cellular structure and processes, tissues, organs, and their functions. Prerequisites: BIOL 1205 (or BIOL 1551 with grade of B or higher) and BIOL 1105 and BIOL 1017.

BIOL 2135 Introductory Botany for   3 ch (3C 3T)
                Non-Biologists

Introduces botanical principles and processes. Includes basic anatomy and morphology on a range of scales: cellular structure and processes, tissues, organs and their functions. Students are required to attend weekly laboratory/tutorial sessions, but will not write laboratory exam or assignments. This course is not equivalent to BIOL 2125 for credit toward a BSc, but serves as an acceptable prerequisite for BIOL 3275, 3353, 3355 or 3541 in place of BIOL 2125. Credit will not be granted for both BIOL 2125 and BIOL 2135. Prerequisites: BIOL 1205 or BIOL 1551 with grade of B or higher, or Grade 12 Biology with 80% or higher and permission of the instructor.

BIOL 2245 Introductory Molecular Cell Biology 4 ch (3C 3L*)

Studies cell membranes, motility and sensory systems; gene regulation and molecular embryology; DNA, RNA, protein synthesis, viruses and molecular genetics. Prerequisites: BIOL 1205 (or BIOL 1551 with a grade of B or higher) and BIOL 1105 and BIOL 1017.

BIOL 2345   Fundamentals of Microbiology   3 ch (3C)
Introduction to the fundamental concepts of infection disease Microbiology. Discusses bacteria, fungi, viruses, protozoa, helminths and arthropods. NOTE: This course cannot be taken by BSc majors in General Biology, Environmental Biology, or Marine Biology. Credit can only be obtained for one of BIOL 2485, BIOL 3251, BIOL 2385. Prerequisites: BIOL 1205 (or BIOL 1551 with a grade of B or higher), BIOL 1105 and BIOL 1017.

BIOL 2485 Introduction To Microbiology   4 ch (3C 3L*)

Covers the occurrence, distribution and importance of the major groups of bacteria; bacterial metabolism, growth, structure and function; introduces the role of microbes in the environment, microbial interactions, biological cycles and exploitation of microbes by industry. Labs stress techniques for observation, cultivation and characterization of bacteria and experimental concepts of the discipline. Prerequisites: BIOL 1205 (or BIOL 1551 with a grade of B or higher) and BIOL 1105 and BIOL 1017.

BIOL 2585 Introductory Ecology   4 ch (3C 4L*)

Introduces concepts of ecology common to terrestrial, fresh water and marine ecosystems. Provides a basis for further ecological or environmental studies. Introduces mans influence on ecosystems. Prerequisites: BIOL 1105 and BIOL 1017.

BIOL 2615 Introductory Zoology   5 ch (3C 3L)

Classification, functional morphology, development and evolution of the major animal groups. Prerequisites: BIOL 1205 (or BIOL 1551 with a grade of B or higher) and BIOL 1105 and BIOL 1017.

BIOL 2831 Pathophysiology I   3 ch (3C)

A review of the normal physiological mechanisms for maintaining homeostasis. This is followed by a consideration of how various perturbations (such as environmental or life style factors) and disease can disrupt the normal balance and lead to pathology. For Nursing students only, or by permission of the instructor. Prerequisite: BIOL 1441 and BIOL 1442.

BIOL 2852 Pathophysiology II   3 ch (3C)

A continuation of BIOL 2831. Prerequisite: BIOL 2831. For Nursing students only.

BIOL 3055 Animal Physiology I (A)   4 ch (3C 3L*)

A physiological approach to organismic function in animals, focussing on homeostasis and nervous, muscular, and cardiovascular systems. Prerequisites: BIOL 2615.

BIOL 3132 Advanced Biochemistry   3 ch (3C)

Emphasizes the molecular underpinnings of the healthy and diseased states by extending and integrating essential molecular concepts introduced in Introductory Biochemistry - BIOL 2065. Prerequisite: BIOL 2065.

BIOL 3140 Independent Studies   3 ch (3WS) [W]

Gives academically strong Biology Major students an opportunity to write a library research report. The student should discuss the topic with the staff member best qualified to give approval to the subject matter and to give guidance during the year. Prerequisite: Students must have a grade point average of 3.0 or better in the last two years of Biology courses.

BIOL 3165 Marine Ecology (A)   4 ch (3C 3L*)

An introduction to the interrelationships between organism and environment in marine ecosystems. Limited enrollment: preference will be given to Marine Biology Majors, then other students based on C.G.P.A. Pre-requisite: BIOL 2585.

BIOL 3245 Environmental Chemistry (A)   4 ch (3C 3L)
               (Cross Listed: CHEM 3245)

Course will provide students with a chemical basis for understanding the natural environment and current environmental issues. Topics will include: the composition of the natural environment, the chemistry supporting environmental processes, and the main reactions of natural & anthropogenic chemicals in the atmosphere, water, and soils. Note: This course may be listed as either BIOL 3245 or CHEM 3245. Credit can not be obtained for both BIOL 3245 and CHEM 3245. Prerequisite: One term of organic chemistry at the 2nd year level.

BIOL 3251 Introductory Microbiology   3 ch (3C)

Introduction to the fundamental concepts of infectious disease microbiology. Discusses bacteria, fungi, viruses, protozoa, helminths and arthropods. For Nursing students only (or with permission of Instructor).

BIOL 3275 Economic Botany   4 ch (3C 3L)

Considers the range of ways in which plants are used by humans for food, medicine, shelter, etc. Discusses the impact of plants on humans and vice versa, including the possible origins and impacts of agriculture, importance of plants in various cultures, and selection of desirable plant features by humans. Students will research an area of particular interest and present a seminar on it. Prerequisite: BIOL 2125.

BIOL 3353 Flora of New Brunswick (A)   5 ch (3C 3L)

A practical taxonomy course dealing with a range of vascular plants: ferns, fern allies, gymnosperms and flowering plants; consideration of taxonomic concepts, literature and methods used to identify various groups. Laboratory emphasis will be on features of important plant families and identification of students plant collections. Prerequisite: BIOL 2125.

BIOL 3355 Survey of the Plant Kingdom (A)   5 ch (3C/3L)

Explores diversity in form, structure and function in major plant groups, and how these organisms live and reproduce in their particular environments. Probable homologies and evolutionary relationships are discussed. Prerequisite: BIOL 2125.

BIOL 3363 Special Topics in Biology   3 ch (3C)

This course will explore topics of special interest at an advanced level. Topics will be specified by the Department. Title of topic will appear on the student transcripts. Open only to students in third year and above. Prerequisite: Permission of the Instructor.

BIOL 3364 Special Topics in Biology   4 ch(3C 3L)

This course will explore topics of special interest at an advanced level. Topics will be specified by the Department. Title of topic will appear on the student transcripts. Open only to students in third year and above. Prerequisite: Permission of the Instructor.

BIOL 3385 Advanced Microbiology 5 ch (3C 3L)
This course is an in-depth introduction into original research and experiential learning. Students will design and implement a research project involving isolation of microbes, molecular identification of cultures, fermentation and extraction of biologically active compounds. Compounds will be assess through bioassay-directed fractionation and biological activity determined through quantitative procedures. This course will include: experimental design, acquisition of new laboratory skills, statistical analysis and scientific writing.Prerequisites: BIOL 2485 and CHEM 2422.

BIOL 3435   Biomolecules and Primary Metabolism. 3 ch (3C)
   (*Cross Listed: CHEM 3435*)
This course will examine the chemistry, function, biosynthesis and metabolism of primary metabolites. Classes of compounds covered will include carbohydrates, fatty acids, amino acids, peptides, proteins and nucleic acids. Note: This course may be listed as either BIOL 3435 or CHEM 3435. Credit cannot be obtained for both BIOL 3435 and CHEM 3435. Prerequisites: CHEM 2422 and BIOL 2065.

BIOL 3541   Plant Ecology (A)   5 ch (3C 3L)
A course on the factors affecting the distribution and abundance of plants, how patterns and structure at the levels of populations and communities can be described quantitatively, and how these arise from the interaction of abiotic (climate, fire, soil) and biotic (competition, herbivory) factors. Prerequisites: BIOL 2125 and BIOL 2585.

BIOL 3553   Introduction to   4 ch (3C)
          Bioinformatics
          (Cross-Listed:CS3553)
Even before the completion of the Human Genome Sequencing Project biomedical databases have stored massive amounts of DNA and protien sequence information that have been analysed and reused in biomedical studies. Today the underlying technologies and analytical tools supporting genomic data anlaysis make up the field known as Bioinformatics. This course will introduce core topics and tools in genomics and bioinformatics explained from a practical perspective. Students taking this course will recieve hands on training in many of the following areas of study: Genome Sequencing techniques, Gene Predicition, Sequence Alignment, Sequence Databases, Genome and Protein Structure Annotation, Bioinformatic Visualization Techniques, Gene Ontology, Analysis of Scientific Literature, Biomedical Text Mining, Workflow Management Systems, Bioinformatics Web Services. Prerequisites: 60 credit hours completed in a BSc (Biology, Marine Biology, Environmental Biology, or Biology-Psychology) or in a BScCS or permission of the instructor.

BIOL 3565   Conservation Biology (A)   4 ch (2C 3L)
Emphasizes the management of environmental and ecological resources in such a way as to maintain ecosystem resources for the protection of species. Focus will be on methods of determining population habitat requirements, community interactions, impacts of habitat change, cumulative effects of environmental pressures, etc. in coastal systems. Issues such as biodiversity, habitat protection, endangered species protection, politics of conservation, etc. will also be discussed. Prerequisites: BIOL 2585.

BIOL 3622   Current Topics in Aquaculture   3 ch (3C)
This course will explore topics of special interest to aquaculturists at an advanced level. The title of the topic will be specified by the Department. The title of the topic will appear on the student's transcript. Open only to students in third year and above. Prerequisite: Permission of the instructor.

BIOL 3625   Structure and Functions of Marine   5 ch (3C 3L)
          Invertebrates
Explores the structure and functions of major marine invertebrate phyla, emphasizing comparative and organismic approaches, respectively. Topics covered include food capture and digestion, defense mechanisms, respiration, circulation, excretion, skeletal support, reproduction and life cycles, as well as locomotion. Prerequisite: BIOL 2615.

BIOL 3635   Animal Physiology II (A)   4 ch (2C 4L)
A physiological approach to organismic function in animals, focussing on endocrine and temperature effects on homeostasis; osmoregulation; and the respiratory and urinary systems. Prerequisites: BIOL 3055.

BIOL 3663   Biology and Ecology of Elasmobranchs (A)   4 ch
The course will look at the evolution, taxonomy, ecology and physiology of elasmobranch fishes, with an emphasis on sharks. The course will consist of lectures, laboratory sessions, and field trips, beginning with three days at UNBSJ followed by six days at the BBS, Bahamas. Prerequisite: BIOL 2615 .

BIOL 3665 Introduction to Environmental Law   3 ch (3A)
This course will provide a general overview of the different concepts that surround environmental law. Recent events have focused our attention on the fragility of the environment, and there is evidence of its deterioration in the forms of harmful pollution, resource depletion, thinning of the earth's ozone layer, global warming,ground water contamination and the decline or even extinction of species. We will look at the legislation, the common law, and the different remedies they provide in cases of environmental crisis. Prerequisite: a minimum of 60 chs.

BIOL 3675   Dolphin Field Ecology   3 ch
A course designed to examine the biology, behavioural and social ecology of tropical dolphins. Students will develop field research skills and techniques including boat-based surveys, photo-identification, focal animal behavioural sampling, acoustical recordings, and improve scientific writing skills. Prerequisite: Biology 2615, first year statistics course

BIOL 3715   Biology of Vertebrates   5 ch (3C 3L)
A comparative account, principally of the physiology and functional anatomy of the higher vertebrates. Prerequisite: BIOL 2615.

BIOL 3755   Fish Biology (A)   5 ch (3C 3L)
A study of the anatomy, physiology, and classification of Recent fishes. In classification and geographical distribution, emphasis is placed on the marine northwest Atlantic fishes and freshwater fishes of New Brunswick. Limited enrollment: preference will be given to Marine Biology Majors, then other students based on C.G.P.A. Prerequisite: BIOL 2615.

BIOL 3765   Fisheries Ecology (A)   3 ch (2C 3L*)
This course takes an ecological approach to fisheries management. Topics include: age and growth, life history analysis, bioenergetics, functional ecology, social behaviour, population estimates, recruitment dynamics and management. Limited enrollment: preference will be given to Marine Biology Majors, then other students based on C.G.P.A. Prerequisite: BIOL 2615.

BIOL 3903 - Diversity and Habitats of   5ch (3C 3L)
          Marine Organisms
This course introduces students to the diversity and systematics of marine organisms in the Bay of Fundy, including major taxonomic divisions of mammals, fish, algae, and invertebrates. The course emphasizes variation in assemblages of organisms inhabiting different types of habitats, such as estuaries, marine benthos and pelagos, as well as rocky and soft-sediment intertidal shores. Students will be exposed to this diversity by learning about a number of methods commonly used to sample and quantify the abundance of marine organisms, such as transects and quadrats, mark-recapture experiments, beach seine, minnow traps, dip nets, bottom trawls, gillnets as well as shipboard techniques. Note: This course is offered exclusively in the Marine Semester. Course pre-requisites are at least one university level introductory courses in each of ecology and zoology with a grade of "C" or better.

BIOL 3913 - Adaptations of Marine Organisms 5ch (3C 3L)
This course introduces students to a myriad of adaptations of marine organisms living in the Bay of Fundy. Topics covered will vary from year to year. Students will learn about major ecological factors affecting the distribution and abundance of marine organisms, and they will study select biochemical, physiological, morphological, behavioral and life-history adaptations displayed by these organisms in response to these selective agents. Students will also investigate variation of these adaptive traits in relation to temporal and spatial variability in the characteristics of marine habitats. This knowledge will largely be acquired through short-term lab and field observations and exercises, which will be supported by lectures, directed readings and group discussions. Many exercises will rely on the scientific approach to test competing hypotheses pertaining to the functional significance of selected features displayed by marine organisms. Note: This course is offered exclusively in the Marine Semester. Course prerequisites are at least one university level introductory courses in each of ecology and zoology with a grade of "C" or better.

BIOL 3922 - History and Development of Aquaculture 3ch (3C)
This course reviews the history and evolution of aquaculture practices. Topics covered will vary from year to year, but may include: seaweed, aquatic plant, invertebrate and fish species being cultivated in the world; site and practice selection and management; different types of aquaculture systems and their sustainability, monoculture; integrated multi-trophic aquaculture; offshore aquaculture; land-based aquaculture; aquaculture and environment impacts: what is acceptable; aquaculture and ecosystem services (nutrient biomitigation, oxygen provision, carbon sequestration, reduction of ocean acidification); assimilative capacity and resilience of ecosystems; aquaculture and climate change, aquaculture and harmful algal blooms; veterinarian approach to aquaculture; societal, economic and regulatory aspects of aquaculture; aquaculture in the broader integrated coastal zone management perspective; organism health and healthy products; differentiation and diversification of products; food production systems; world markets and consumer trends; business models and the integrated sequential biorefinery concept; development of responsible aquanomy. Some components of the course will be delivered by experts from Fisheries and Oceans Canada, the Canadian Food Inspection Agency, the New Brunswick Department of Agriculture, Aquaculture and Fisheries, other academic institutions, the aquaculture industry, aquaculture professional associations, feed companies, and consultants.

BIOL 3923 - History and Development of   2ch (3C)
Marine Aquaculture
This course reviews the history and evolution of marine aquaculture practices. Topics covered will vary from year to year, but may include: plant and animal species being cultivated in the world; different types of aquaculture systems and their sustainability; site and practice selection and management; aquaculture and environment impacts: what is acceptable; assimilative capacity and resilience of ecosystems; social, economic and regulatory aspects of aquaculture; aquaculture in broader integrated coastal zone management perspective; integrated multitrophic aquaculture and offshore aquaculture; differentiation and diversification of products, world markets and consumer trends. To connect the theory in the classroom to the experience in the field, visits of hatcheries, aquaculture sites, as well as processing and manufacturing facilities will be conducted. Different components of the course will be delivered by experts from the Department of Fisheries and Oceans, the Canadian Food Inspection Agency, the New Brunswick Department of Agriculture and Aquaculture, aquaculture professional associations, the aquaculture industry, feed companies and consultants. Note: This course is offered exclusively in the Marine Semester, and has no pre-requisites.

BIOL 3933 - Directed Studies in Marine Sciences 5ch (3C 3L)
This course teaches students the fundamentals of the scientific method, and gives them the opportunity to conduct a small research project in marine sciences under the supervision and guidance from practicing scientists. Topics covered include: hypotheses and predictions; experimental and comparative approaches; variation, replication, pseudo-replication and sampling; calibration, accuracy and precision; experimental designs and their relation to statistics; scientific writing. Students will first work through a small question with instructors to put into practice concepts discussed in class, and they will then work on their own project throughout the better part of the semester to further hone their research skills. Students will choose the topic of their project and establish its design in consultation with instructors and via group discussions with classmates. Projects will be designed to take advantage of local marine organisms and habitats. Students will collect, analyze, interpret and write-up their results following the format of a scientific paper, and they will present them to the class at the end of the semester. Note: This course is offered exclusively in the Marine Semester. Course pre-requisites are at least one university level introductory courses in each of statistics, ecology and zoology, all with a grade of "C" or better.

BIOL 3943 - Current Topics in Marine Sciences 2ch (3C)
This is a seminar course to acquaint students with some topical issues and recent developments in marine sciences, and provide them with an opportunity to critically evaluate and discuss scientific work. The course will consist of research seminars given by university and government scientists, as well as assigned readings and group discussions that will be associated with each presentation. Topics and guest speakers will vary from year to year, but all seminars will be based on marine organisms, habitats, and/or topical issues, both theoretical and practical. Note: This course is offered exclusively in the Marine Semester. Course pre-requisites are at least one university level introductory courses in each of statistics, ecology and zoology, all with a grade of "C" or better.

BIOL 3953 Ecology of Estuarine Fishes 3ch (1C 3L)
Community structure, function and distribution of northern coastal fishes in estuarine environments. Emphasis is on sampling, field techniques, taxonomy, quantitative characterization, adaptations and habitat relationships. A comparative approach will contrast fish assemblages from deepwater, estuarine, nearshore marine and freshwater habitats. Note: This course is offered exclusively in the Marine Semester. Course prerequisites are at least one university level introductory courses in each of ecology and zoology with a grade of "C" or better.

BIOL 3955   Biological Oceanography (A)   4 ch (3C 3L*)
A synopsis of descriptive physical and biological oceanography of the world's oceans with special emphasis on Canadian coastal waters. Laboratories emphasize techniques for measurement of oceanogrphic parameters and include some field studies. Limited enrollment; preference will be given to Marine Biology Majors, then other students based on C.G.P.A. Prerequisites: BIOL 2585.

BIOL 4022   Evolution   4ch (3C 3L)
Traces the development of a body of theory explaining biological unity and diversity, from pre-Darwinian ideas to current issues in evolutionary biology. The course integrates theoretical, descriptive, and empirical studies to elucidate the patterns and processes of evolution (what evolution is, and how it occurs), and to explore the experimental and analytical methods biologists use to study evolution. Prerequisite: Completion of second year core-curriculum, including either BIOL 2015 or BIOL 2245, or permission of instructor.

BIOL 4090 Honours Project   9 ch (WS) [W]
A Biology Honours student must undertake a thesis project with permission of the Department. Students who intend to apply for this elective are advised to consult with their intended faculty supervisor at the beginning of their third year. Prerequisite: students should have a cumulative grade point average of 3.3 or better. Under special circumstances, students can register in BIOL 4090 as a regular course with permission of the Department Chairperson.

BIOL 4115 Landscape Ecology   4 ch (3C 3L)
Landscape Ecology is the study of ecology in heterogeneous environments. It is an interdisciplinary science that draws on elements of traditional ecology, biogeography, landscape architecture, ecosystem ecology, modeling, Geostatics, and remote sensing. It is characterized by the explicit considersation of space and time; where organisms live, how their environments vary, and how the relative locations of different components of the environment affect biological processes. This course covers these topics through lectures, labs, discussions, and a major group project. Prerequisites: BIOL 2585.

BIOL 4155   (4159). Current Topics in Biology   3 ch (2C)
A lecture/seminar course to acquaint students with some of the outstanding recent developments in various fields. Restricted to students majoring in Biology or Marine Biology. Prerequisite: Permission of Instructor.

BIOL 4245 Molecular Ecology and   4 ch (3C 3L)
Environment Science
Molecular Biology plays an important role in ecology and environmental science. This course will introduce concepts and applications in molecular evolution, population genetics, quantitative genetics and adaptation. Topics will include gene expression analysis and genomics, proteomics and bioinformatics. Students will become familiar with the various molecular methodologies that can be used to study ecology and environmental science. This course will appeal to those students interested in the natural sciences, as well as the medical sciences.Pre-requisites: BIOL 2015 or BIOL 2245.

BIOL 4325   Biology of Marine Birds 4 ch (3C 3L)
The biology seaducks, seabirds, and shorebirds. This course will cover aspects of life history, anatomy, physiology, behaviour, and conservation of marine birds with an emphasis placed on North Atlantic species. Prerequisites: BIOL 2585, BIOL 2615.

BIOL 4373   Tropical Marine Biology Field Course   3 ch
An examination of tropical coastal ecosystems. The course will focus on the ecology of coral reefs, tropical fish ecology and physiology, tropical seaweed biology and mangrove ecology. The course consists of lectures, fieldwork and laboratory work. Prerequisite: BIOL 3173 or equivalent; or permission of instructor

BIOL 4385   Pharmacognosy and Natural   3 ch (3C 3L)
Products Research
Pharmacognosy is the study of medicines derived from natural sources and Biol 4385 will expose students to the strategies and techniques employed in the natural product drug discovery process. This course follows BIOL 3385 Advanced Microbiology, where students continue to experience isolation of microbes from plant and animal host tissues and determine the potential existence of bioactive natural products. Techniques include: aseptic technique, microbial culture maintenance and storage, fermentation, liquid-liquid partition, biassay-directed fractionation, NMR and PCR determination of chemical structures and mircrobial identity respectively. Prerequisites: BIOL 3385 or instructor's permission.

BIOL 4435   Biologically Active Natural Products   . 3 ch (3C).
and Secondary Metabolism
(*Cross Listed: CHEM 4435*)
This course will examine the biosynthesis, biological activity and ecological significance of secondary metabolites. The following topics will include: t he links between primary and secondary metabolic pathways; an overview of the mechanisms, chemistry and coenzymes involved in the biosynthesis of natural products; the acetate pathway; the Shikimate pathway; the mevalonate and methyl erythritol phosphate pathways; the alkaloids and chemical ecology. Note: This course may be listed as either BIOL 4435 or CHEM 4435. Credit cannot be obtained for both BIOL 4435 and CHEM 4435. Pre-requisites: CHEM 2422 and BIOL 2065.

BIOL 4445   Marine Behavioural Ecology   3 ch (3C)
Explores the relationship between animal behaviour, ecology and evolution. Theoretical concepts covered include the economics of animal decision making, predator-prey relationships, competition, fighting and assessment, sexual conflict and sexual selection, parental care and mating systems, alternative breeding strategies, altruism and co-operation, Whenever possible marine organisms, and particularly invertebrates will be used to illustrate theoretical concepts. Prerequisite: BIOL 2585 Introductory Ecology.

BIOL 4645   Biology and Conservation of Marine   3 ch (3C) [W]
                                Mammals (A)
The biology of seals, whales, and sea-cows. Life histories, behaviour, reproduction, and population estimation techniques will receive special emphasis. The biological, economic, and moral aspects of man's direct and indirect influence on, and utilization of marine mammals will be discussed. Prerequisite: BIOL 2615.

BIOL 4693 Diversity and Systematics of Marine   4 ch
                       Invertebrates
Introduces basic techniques for invertebrate identification, monitoring and biodiversity assessment in rich and diverse invertebrate fauna of the Quoddy Region. Practical work includes shipboard sampling, field trips to coastal sites and laboratory exercises that present a broad overview of invertebrates of intertidal, plankton and subtidal benthic communities. The course is held at the Huntsman Marine Science Centre, St. Andrews, and is twelve days in length. A charge of
tuition, full board and lodging is required. Prerequisites: BIOL 2615 or equivalent.

BIOL 4775   Physiology of Marine Vertebrates (A)   3 ch (3C)
A course on selected aspects of the comparative physiology of marine fishes, reptiles, birds and mammals. Prerequisite: BIOL 3055.

BIOL 4825   Introduction to Ecotoxicology (A)   4 ch (2C 3L)
A theoretical and applied approach to the science of exotoxicology, including application of the tools and procedures used to understand toxicant fate and effects in ecosystems. Both field (ed. Community level environmental "effects" monitoring) and laboratory (eg. LC50 tests) methods for understanding contaminant fates and effects will be examined. Prerequisite: at least 20ch of Biology courses completed.

BIOL 4855   Biometrics   4 ch (3C 2T)
Students are introduced to methods of statistical analysis relevant to biological questions. Topics of study will include: experimental design, how to deal with noisy data (transformations); parametric and non-parametric tests; how to deal with missing data; regression (linear & non linear); statistical packages; and introduction to multivariate statistics (PCA and DFA). Prerequisite:STAT 2263 or equivalent.

BIOL 4861   Advanced Environmental Biology (A)   4 ch (5C/L/S)
Continuation of BIOL 1302. The course will use case studies to explore environmental issues, focussing on the role of biologists in environmental studies and decision-making. Emphasis will be on the types of interactions required of biologists, economists, community members, activists, industrialists, lawyers, regulators, etc. in areas of environmental law, policy, and economics for integrated environmental and coastal zone management. Prerequisites: BIOL 1302, ECON 2775.

BIOL 4875   Environmental Techniques (A)   4 ch (3C 3L*)
A techniques course, in which students will have practical experience in sampling and analytical techniques, including: water, air and soil sampling; plant and animal sampling in field and lab; and chemical analyses of tissues and water, air and soil. Appropriate study design and statistical analyses of collected data will be emphasized.

BIOL 4935   Comparative Animal Behaviour   3 ch (3C)
Physiological bases of behaviour, the animal in relation to its environment, the animal in its social context, and the evolution of behavioural displays and activities. Emphasizes the adaptive significance of behavioural activities (ethology) rather than experimental psychology. Prerequisite: BIOL 2615.

BIOLOGY-PSYCHOLOGY

Note: See beginning of Section F for abbreviations, course numbers and coding.

BIPS 4000 Pre-professional Seminar 0ch (1S)

Students will attend a series of monthly seminars and workshops related to professional practices. Topics will include information on (1) business management, human resources, and legal aspects of running a practice, (2) interpreting research studies, statistics and literature reviews and (3) developing presentation and interview skills, preparing for MCAT type examinations and guidance on careers in health sciences. Students will enroll in this course for each term that they are in the pre-professional program. Admission is restricted to students accepted into the pre-professional program of the Biology-Psychology major.

BIPS 4001   Designing Research Proposals   3 ch

Under the direction of co-supervisors from the departments of Psychology and Biology a student develops a thesis proposal which is assessed and approved by both departments. Prerequisite: Eligibility for the Honours Bio-Psych program.

BIPS 4002   Honours Thesis   3 ch

Under the direction of co-supervisors from the departments of Psychology and Biology a student conducts, completes, and defends the research. Prerequisite: A grade of B+ or higher in BIPS 4001.

BUSINESS ADMINISTRATION

Course Numbering System

The Faculty of Business uses the following numbering system for courses offered by the School
A first digit of:

1	designates an introductory level course.
2	designates an intermediate level course which normally has a prerequisite specified in the course designation.
3	designates an advanced level course which has one or more prerequisites specified in the course description.
4	designates an advanced level course which normally has prerequisites. These courses are intended for senior students who have successfully passed a minimum of 75 chs of BBA or BAM course work.

The second digit identifies the nature of the course, as follows:

1	general,
2	accounting,
3	marketing,
4	finance,
5	organizational behaviour and management,
6	operations and information management
7	law,
8	industrial relations and human resource management.

The third and fourth digits distinguish different courses in the same field.

COURSE OFFERINGS

Not all courses listed in this section will be offered each year. The official timetable must be consulted for courses offered each year.

Notes:

1. In order to take a Business Administration (BA) course that has a prerequisite, a student must earn a C or better in the prerequisite course(s), regardless of the program in which the student is registered.

2. Students who feel they have the equivalent prerequisite background through a combination of coursework and work experience, may apply to the Faculty of Business on a Permission and Request Form for permission to enter a course. These forms are available from the Faculty of Business office in Oland Hall.

See the beginning of Section F for abbreviations, course numbers and coding.

BA 1216   Accounting for Managers I   3 ch (3C)

Examines the uses of accounting information within and outside organizations. Focuses on the impact of business events on the financial statements. Introduces case studies, oral and written presentations, group problem solving, and unstructured problems. Prerequisite: Math 1853.

BA 1218   Accounting Lab - 0 ch / No Fee   0 ch

A self-paced course that introduces the procedural aspects of accounting. Students will receive a grade of either pass or fail. Prerequisite: BA 1216

BA 1501   Introduction to Business   3 ch (3C)

Introduces the fundamentals of business management theories and practices. Topics include accounting, financial management, human resources management, marketing, operations and information management, and special topics. These areas will be examined in both a profit and non-profit context. Students must enrol in this course prior to completing 30 credit hours of Business (BA) courses. BAMHT 3+1 students who wish to enrol in this course must do so prior to their college year.

BA 1605   Business Decision Analysis I   3 ch

Basic probability concepts, random variables, descriptive measures, properties of distributions, statistical decision theory and Bayesian approaches are introduced. Discrete and continuous probability models and their applications to business problems are also covered. Prerequisite: Math 1853 or equivalent

BA 2001   Business Communications   3 ch (3C) (LE)

Introduces students to topics related to business communications, including preparing research papers and business documents; delivering presentations, interviewing, basic speaking and listening skills, running business meetings; and a number of topical issues related to business communications in the 21st century. Prerequisite: Open only to BBA students with at least 30chs completed.

BA 2123   Introduction to Electronic Commerce   3 ch (3C)

This is an introductory course that examines all facets of internet commerce. Topics covered include, creating and marketing products on the Internet, electronic money and third party payments, virtual organizations, security on the Internet, and the use of the Internet for creating management information systems. Prerequisite: successful completion of 24 ch of BBA, CS, or BISc program or admission to the Certificate in Electronic Commerce.

BA 2217   Accounting for Managers II   3 ch (3C)

Continues the study of accounting by examining the uses of accounting information within the organization. Case studies will be used extensively. Emphasis placed on solving unstructured problems through the use of cases and other materials. Oral and written presentation skills are also emphasized. Credit will not be granted for both BA2217 and HTM 2217. Prerequisite: BA 1216

BA 2303   Principles of Marketing   3 ch (3C) [W]

A basic foundation of marketing theory and analysis, providing the basic analytical framework from which to approach the decision-making process and issues related to the marketing function. Prerequisites: BA 1216, BA 2504.

BA 2501   Introduction to International Business   3 ch (3C)

The course examines issues and problems which arise when business operations transcend national boundaries. Topics include the dimensions of the contemporary international economy, politics and management. Course examines theories and activities leading toward international trade, investment and management of international firms. Prerequisite: BA 2504, ECON 1013, ECON 1023.

BA 2504   Introduction to Organizational   3 ch (3C)
            Behaviour

An introduction to the contributions of the applied behavioural sciences to the study of people at work in organizations. The fundamentals of individual and group behaviour are covered as well as selected topics in motivation, leadership, communication, conflict and organizational change. Prerequisite: Successful completion of 24 credit hours or admission to a certificate program in the Faculty of Business.

BA 2606   Business Decision Analysis II   3 ch

Introduction to statistics, statistical techniques used in business situations, sampling theory, estimation, hypothesis testing, Chi-square, t and F distributions, Bayesian inference, association and trend analysis, and their applications. Prerequisite: BA 1605.

BA 2663   Technology Fundamentals of   3 ch (3C)
            E-commerce

This course examines the technological basis of electronic commerce. The computer-based network enabling electronic commerce is the focus. Data and voice networks, Internet and telephony, bandwidth, architecture, software strategies, and the Internet and WWW supplier industries will be discussed with relevance to e-commerce implementation planning.

BA 2738   Administrative Law (O)   3 ch (3C)

Begins with a brief introduction to our Constitutional system. Then the distinctions between judicial, quasi-judicial, and purely discretionary power are developed through cases followed by a study of law relating to notice, the right to a hearing, and the nature of hearings before tribunals. Concludes with an examination of the interposition of judicial review of administrative action and the legal remedies available to protect individual rights adversely affected by the administrative process.

BA 2758   Employment Law   3 ch (3C)

This course examines Canadian employment legislation and its application. Includes a study of laws governing union-management relations, work standards, employment equity, and relevant laws governing recruitment, selection, and employment of personnel, Differences in federal and provincial employment laws will be discussed. Prerequisite: Successful completion of a minimum of 30 credit hours, or admission to a certificate program within the Faculty of Business.

BA 2858   Introduction to Human Resource   3 ch (3C)
            Management

A study of the personnel function within an organization and its relationship to the employees and to the labour market. Includes human resource planning, recruitment and selection, training, performance measurement, wage and salary administration, and job satisfaction. Concludes with a discussion of current issues that affect personnel administration. Prerequisite: BA 2504.

BA 2903   Work Term Report I   1 ch

Identifies an opportunity or problem in the workplace, analyzes its source and development, addresses key issues to be considered, offers alternatives and makes recommendations including clear provisions for implementation.

BA 3101   Special Topics in Business (O)   3 ch

This course examines various issues and events that influence the area of Business Administration. Topics will vary from year to year reflecting contemporary issues and events.

BA 3123   Issues in Business and Society (O)   3 ch (3C)

Uses the applied social sciences as a theoretical framework for analyzing the contemporary business organization in its environment. Such topics as business ethics, the social responsibility of business, cultural relativism, and the multinational organization are examined. Examines the many new demands made on business by various groups (e.g. consumers, environmentalists, employees, minorities, anti-technology groups, etc.) and how they affect business decision making. Prerequisite: BA 2504 and successful completion of 60 ch.

BA 3125   Industry Impact of Electronic   3 ch (3C)
**   Commerce**

This courses addresses the implications of electronic commerce with a broad industry level perspective. Students will develop the profile of electronic commerce in a particular industry and will identify electronic commerce opportunities for the industry and its member organizations. Prerequisites: BA2123 and BA2663.

BA 3126   Frontiers of E-Commerce I   3 ch (3C)

Introduction to current issues in electronic commerce, with emphasis on the management of these issues. Prerequisites: BA2123 and BA2663.

BA 3129   Business Research Methods   3 ch (3C)

Students will learn how to design, conduct and analyze research for making informed business decisions. The course will focus on basic methodologies, qualitative and quantitative methods, data sources, reliability, validity, and other measurement issues, data collection and research design, ethics in research, and report writing and presentation. Prerequisite BA1605 and one of BA2303, 2858 or HTM1103 and co-requisite BA2606. NOTE: Credit will be given for only one of BA 3129, BA 4319, BA 4829, and HTM 4129.

BA 3134   Government and Business (A)   3 ch (3C)

Examines the technological structure of major industries in order to understand the basis for government intervention. Consideration is given to anti-trust policy, subsidization, utility regulation and government ownership in Canada. The strengths and weaknesses of these techniques are considered. Open to third and fourth year students who have appropriate background in the social sciences.

BA 3201   Special Topics in Accounting (O)   3 ch

This course examines various issues and events that influence the area of Accounting. Topics will vary from year to year reflecting contemporary issues and events.

BA 3224   Accounting for Managers III   3 ch (3C)

Continues the study of accounting for managerial planning and control. Topics include measuring divisional performance, transfer pricing, short-term decision models and revenue variance analysis. Prerequisite: BA 2217 and BA 1218

BA 3235   Intermediate Accounting I   3 ch (3C)

Gives a more detailed understanding of accounting principles and practices than is available in an introductory course. Topics to be discussed include the definition and measurement of assets and of income. This course combined with BA 3236 generally constitutes a credit in the programs of the professional accounting organizations. Prerequisite: BA 1218 and 2217

BA 3236   Intermediate Accounting II   3 ch (3C)

Includes an examination of the problems involved in the definition and measurement of liabilities and stockholders equity, income taxes and funds flow. Co-requisite: BA 3235.

BA 3301   Special Topics in Marketing (O)   3 ch

This course examines various issues and events that influence the area of Marketing. Topics will vary from year to year reflecting contemporary issues and events.

BA 3304   Marketing Management   3 ch (3C) [W]

Covers the application of theory and analytical tools from the marketing management viewpoint. This integrated study will focus upon the analysis and solution of complex marketing problems for a contemporary environment. Topics include industrial, international, not-for-profit marketing; marketing of services, images and causes; and ethical issues. Prerequisite: BA 2217, 2303

BA 3305   Marketing on the Internet   3 ch (3C)

This course examines the integration of Internet in an organizations marketing strategy. Topics include, goals for online marketing, customer communications, interactive Internet pages, and customer service issues. Prerequisites: BA 2123 and BA 2303 and BA 2663

BA 3328   Consumer Behaviour   3 ch (3C) [W]

Designed to expose a variety of concepts, explain their interrelationships, and develop an understanding of consumer decision making processes. Includes basic individual determinants of consumer behaviour, environmental influences on consumers, purchase processes, post-purchase processes, market segmentation, brand loyalty and message appeals. Prerequisite: BA 2303.

BA 3339   Marketing Communications (A)   3 ch (3C) [W]

Examines forms of marketing communications, emphasizing their role in the Canadian environment. Includes basic communications theory related to basic consumer behaviour theory, media availability and selection, promotion channels, personal selling, industry self-regulation, role of government regulation. Prerequisite: BA 2303.

BA 3371   Marketing of Services   3 ch (3C) [W]

This course builds on the basic marketing elements to enable the student to contend with marketing problems and opportunities that present themselves in the service industries. The marketing plan and research techniques are applied to actual situations and marketing issues. Cases, industry events and guest lecturers will supplement class lectures and seminars. Prerequisite: BA 2303 or admission to the BAM-HT degree.

BA 3401   Special Topics in Finance (O)   3 ch

This course examines various issues and events that influence the area of Finance. Topics will vary from year to year reflecting contemporary issues and events.

BA 3421   Personal Financial Planning   3 ch (3C)

The objective of this course is to introduce the students to issues and concepts of personal financial planning, with an emphasis on application to real life situations. Topics include concepts of personal finances, credit, financial resources and controlling your financial future. The focus is to provide tools for students to use in planning their financial futures. Proposed prerequisite: BA 1216.

BA 3425   Managerial Finance   3 ch

An introduction to the basic tools and techniques for making various financial decisions. Topics include analysis of financial statements, time value of money, bond and stock valuation, basics of risk and return, various capital budgeting techniques, short-term financial planning and working capital management (such as cash, credit and inventory management). Prerequisite: BA 2217.

BA 3426   Corporate Finance   3 ch

Advanced topics in risk and return, cost of capital, advanced concepts in valuation, raising capital, financial leverage, and capital structure, dividend policy, leasing, mergers and acquisitions and the basics of financial risk management. Prerequisite: BA 3425.

BA 3501   Special Topics in Organizational   3 ch
**   Behaviour and Management (O)**

This course examines various issues and events that influence the area of Organizational Behaviour and Management. Topics will vary from year to year reflecting contemporary issues and events.

BA 3547   Organizational Communication (A)   3 ch (3C) [W]

The communication process is explored from the individual, small group, and organizational levels. Topic areas include perception and communication, patterns of miscommunication, the motivational base of communications, and organizational climate and communications. The student is exposed to a variety of communication exercises and cases in order to experience some of the issues and problems in organizational communications. Prerequisite: BA 2504.

BA 3557   The Management of Planned Change (A)   3 ch (3C)

Complex organizations in todays society find themselves immersed in a world of social, political and economic change in which their survival depends on innovation and adaptation. The course familiarizes the student with techniques for diagnosing the need for organization change, ways of designing adaptive organization systems, and the methods and problems of persons functioning as change agents within organizations. Prerequisite: BA 2504.

BA 3601   Special Topics in Operations and 3 ch
**   Information Management (O)**

This course examines various issues and events that influence the area of Operations and Information Management. Topics will vary from year to year reflecting contemporary issues and events.

BA 3623 Management Science: Deterministic Models 3 ch (3C)

This course introduces students to deterministic models and solution methods applicable to business problems. Topics such as linear programming, integer programming, network models, project scheduling, inventory models, multi-criteria optimization and application of software packages in solving management science problems will be covered.

BA 3624 Management Science: Probabilistic Models (O) 3 ch (3C)

This course introduces students to probabilistic models of management science. Topics such as stochastic models, probabilistic dynamic programming, quething theory, simulation, stochastic inventory models, game theory and Markov processes will be covered.

BA 3653 Production and Operations Management I 3 ch (3C)

This course introduces students to concepts, problems, and analysis related to the design, planning, control, and improvement of manufacturing and service operations. Topics such as information flow, operations strategy, product and process design, capacity planning, managing quality, managing inventory, forecasting methods, facilities planning and location decisions will be covered.

BA 3654 Operations Management II (O) 3 ch (3C)

This course is a continuation of BA 3653 with an emphasis on contemporary developments in the field. Topics such as just-in-time , lean systems, supply chain management, resource planning, waiting lines and operations scheduling will be covered. Prerequisite: BA 3653.

BA 3661 Supply Chain Management (O) 3 ch (3C)

The course objectives are to understand the key elements of a supply chain and the effect of business decisions on supply chain performance. Activities within the supply chain include communication, inventory management, transportation, and the cooperation between buyers and suppliers. Prerequisites: BA 1605 and BA 2606 or permission of the Faculty of Business.

BA 3672 Introduction to Management Information Systems 3 ch (3C)

This course provides an introduction to the essential concepts of management information systems. The course emphasizes the role of information systems in managing and improving contemporary business processes. How information technology and information systems can contribute to decision-making processes will also be considered. Topics will include: business decision making, e-business, resource planning (RP), software and hardware, database and data warehouses, networks, enterprise architecture, supply chain management (SCM), capacity requirement planning (CRP), system security, and types of control. Prerequisite: Successful completion of 60 credit hours.

BA 3701 Special Topics in Law 3 ch

This course examines various issues and events that influence the area of Law directly related to business. Topics will vary from year to year reflecting contemporary issues and events.

BA 3705 Business Law 3 ch (3C)

Introduction to Law of Torts, contracts, particularly those relevant to businesses such as debtor/creditor, sale of goods, mortgages, leases, forms of business organizations. Credit will not be granted for BA 2703/BA 2704 or BA 2705 and BA 3705. Prerequisites: Successful completion of 60 credit hours.

BA 3715 Labour Law (O) 3 ch (3C)

Examines Canadian labour legislation and its application. Includes a study if the law governing: union-management, relations, collective bargaining, certification, Labour Relations Boards, the legal application of economic pressure, injunctions, strikes, picketing, appeals, and all related remedies. Includes an examination of constitutional differences between Federal and Provincial legislation. Prerequisite: BA 3813.

BA 3718 Legal, Privacy, and Security Issues in Electronic Commerce 3 ch (3C)

This course deals with the various systems that provide privacy and security on the Internet, as well as the legal issues that arise in electronic commerce. Includes and examination of encryption, fire walls, user authentication, as well as copyright of intellectual property and contracts. Prerequisite: BA 2123 and BA 2663; or BA 2123 and CS 2813, CS 3403, and CS 2513.

BA 3801 Special Topics in Industrial Relations and Human 3 ch
Resource Management (O)

This course examines various issues and events that influence the area of Industrial Relations and Human Resource Management. Topics will vary from year to year reflecting contemporary issues and events.

BA 3813 Introduction to Industrial Relations 3 ch (3C)

Provides a general introduction to the field of industrial relations. The objectives and values of the various parties involved in the collective bargaining in the private and the public sectors are identified. Consideration is given to how these are modified in the bargaining process. The role of industrial conflict and dispute settlement procedures and examined. Prerequisites: BA 2858, and successful completion of 60 ch or admission to the Certificate in Human Resource Management.

BA 3900 Community Leadership 6 ch (LE)

As part of the Certificate in Community Leadership, students will take part in volunteer work an approved placement for up to 160 hours over the course of the program. In addition to this, student will participate in training and leadership workshops consisting of up to 35 hours over the course of the program. Students must complete all the experiential segments of the Certificate in Community Leadership programme to be awarded the 6 chs. Prerequisite: Admissions to the Certificate in Community Leadership.

BA 3903 Co-op Work Term Report II 1 ch

Identifies an opportunity or problem in the workplace, analyzes its source and development, addresses key issues to be considered, offers alternative and makes recommendations including clear provisions for implementation.

BA 4003 Independent Study - Electronic Commerce 3 ch

This course will provide the student with a deepening knowledge in Electronic Commerce area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of second and third years.

BA 4101 Competitive Strategy I 3 ch (3c) [W]

Integrates material from other courses from a top management perspective, including factors that influence decision makers and the decision making process. Define strategy. Concentrates on development of strategies for organizations competing in a single industry. Analyzes industry structure and dynamics and recourses and processes that enable an organization to develop and sustain competitive advantages. **NOTE:** credit will not be granted for both BA 4101 and HTM 4101. Prerequisites: Credit in all courses required for BBA except BA 3705.

BA 4103 Independent Study - Management 3 ch

This course will provide the student with a deepening knowledge in the Management area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignment, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval of at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

BA 4107 Studies in Small Business (A) 3 ch (3C) [W] (LE)

A seminar course designed to acquaint students with the problems of starting and operating a small business. Class discussions focus on actual small business successes and failures. Frequently, local business owners join in discussions. Emphasis is on written and video-tapes cases and on a high degree of student participation.

BA 4108 Management of New Enterprise (A) 3 ch (3C) [W] (LE)

A project course designed to allow students to prepare a proposal for starting a new business or to write a case study of an existing enterprise. In the latter case, the business people involved frequently participate in the classroom discussion. Students cannot receive credit for both BA4108, BA 4109. Prerequisites: BA 1216, 2303 and 4107.

BA 4126 Frontiers of E-Commerce II 3 ch (3C)

In-depth examination of current issues in electronic commerce, with emphasis on the management of these issues. Prerequisites: BA 2123, BA 2663, and one of the BA 3718, BA 3125 or BA 3305. Students should be in their final 30 credit hours of BBA program.

BA 4147 Research Report (O) 3 ch (3C) [W]

This course involves planning and carrying out a research project or a theoretical investigation under the supervision of a faculty member. Wide latitude is given in the selection of topics and in the methods for investigation but all projects must be approved by the Undergraduate Studies Committee before the last day for adding courses in the term. Students must present written reports and defend them before acommittee from the Faculty. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years. Prerequisite: BA 3129 or the equivalent.

BA 4148   Research Report (O)   3 ch (3C) [W]

This course involves planning and carrying out a research project or a theoretical investigation under the supervision of a faculty member. Wide latitude is given in the selection of topics and in the methods for investigation but all projects must be approved by the Undergraduate Studies Committee before the last day for adding courses in the term. Students must present written reports and defend them before a committee from the Faculty. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years. Prerequisite: BA 3129 or the equivalent.

BA 4193   International and Comparative   3 ch (3C)
Management (O)

Introduces and surveys international business and management. Examines the environment in which international business occurs; the role of culture, political systems and level of economic development in differentiation of management patterns; and formation and implementation of global business strategies in the international environment, focusing on political, social and cultural issues.

BA 4203   Independent Study - Accounting   3 ch

This course will provide the student with a deepening knowledge in the Accounting area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

BA 4207   Current Accounting Issues   3 ch (3C)

Concentrates on the application of accounting theory to contemporary areas in financial reporting. Topics covered vary according to the changing importance of current accounting issues. Prerequisite: BA 3236.

BA 4221   Advanced Management Accounting   3 ch (3C)

Cost accounting information and its use in managerial control. Deals in detail with cost accumulation, job and process costing, standard costing, and variance analysis. Supplements the material contained in BA 3224. Examines uses of costing techniques in other than manufacturing situations. Uses case material extensively. Prerequisite: BA 3224

BA 4223   Accounting Information Systems   3 ch (3C)

Introduces the important role that accounting information systems play in todays business world. Emphasizes the accounting information systems function of collecting, recording, and storing business data in order to produce the information for sound business decisions. Prerequisite: BA 2217.

BA 4227   Contemporary Issues in Management Accounting (O)   3 ch 3C
Students' knowledge of the role of accountants in managerial planning and Control is expanded. The interface between accounting and management science Is emphasized.,

BA 4229   Advanced Financial Accounting I   3 ch (3C)
This course includes detailed coverage of Accounting for Debt investments and Equity investments including Business combinations, Equity Accounting, Consolidations, and Joint Ventures.

BA 4231   Advanced Financial Accounting II   3 ch (3C)
This course includes detailed coverage of Segmented reporting. Interim reporting, and Foreign Transactions and Hedges, Supplemental reporting through MD&A. Also includes Financial Reporting for Foreign Operations, Non-Profit Entities, Public Sector, and Partnerships, Additional relevant topics may be addressed as needed. Prerequisite: BA 3236

BA 4237   Income Taxation   3 ch (3C)
This taxation course covers the current Canadian legislation governing both personal and corporate income taxation. Students will be expected to apply their knowledge of the legislation by computing corporate income, income from business, income from property, capital gains and losses and income taxes payable. This course also introduces more complex topics as relevant. Such topics may include corporate reorganizations, distributions and tax planning, etc. Prerequisite: BA3235 or equivalent.

BA 4238   Auditing   3 ch (3C)

Examines the roles, responsibilities and legal liabilities of internal and external auditors in Canada and their professional organizations. Topics developed include internal control systems and their evaluation; audit evidence and problems related to the audit of particular assets, liabilities, capital and income accounts. A brief study is also made of audit procedures and priorities. Prerequisite: BA 3236 and one of BA 4223 or BA 3672.

BA 4242   Accounting Theory (A)   3 ch (3C)

Focuses on accounting literature, especially with respect to financial reporting and accounting standard setting. Prerequisite: BA 3235

BA 4303   Independent Study - Marketing   3 ch

This course will provide the student with a deepening knowledge in the Marketing area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

BA 4334   Public and Non-Profit Marketing (O)   3 ch (3C) [W]

Focuses on the application of traditional marketing concepts to the non business sector. Types of organizations studied include government, universities, performing arts groups, charities, political groups and health care facilities. Students are encouraged to specialize in one or two areas of interest through a major project. Class time will be divided among lecture, case discussion and student presentations. Prerequisite: Credit in BA 3304.

BA 4398   International Marketing   3 ch (3C) [W]

Examines planning marketing strategies for international markets including operations of multinational firms. The main purpose is to show how companies entering the global market should analyze international marketing environment, identify different kinds of international opportunities, decide which particular markets to enter, decide how to enter the chosen market, develop marketing mix strategies for the chosen market and develop an effective organization for pursuing international marketing. Prerequisite: BA 3304.

BA 4437   Investment Analysis and Portfolio   3 ch (3C)
Management (O)

Introduces students to a basic knowledge of investment media, security markets, security analysis and the role of financial intermediaries in the investment process. Emphasis on the interpretation of economic indicators and analysis of published financial information in order to select superior investment opportunities. Technical analysis, random walk theory and optimal portfolio selection are covered. Application of quantitative techniques is an essential component of the course. Prerequisite: BA 3425.

BA 4455   Derivatives: Options and Futures   3 ch

This course will examine the evolution of the derivative markets, market micro-structure, trading strategies, pricing models, and risk management using derivative instruments such as futures, options and swaps. Prerequisite: BA 3425.

BA 4506   Organizations and Electronic   3 ch (3C)
Commerce

This course focuses on the internal changes that happen in an organization when it implements electronic commerce. Redesign of organizational structures, jobs, processes and workflow will be considered. Intranets, extranets, and enterprise integration will also be explored. Prerequisites: BA2123, BA2663, BA3672 (or BA2672), and one of BA3718, BA3125, or BA3305.

BA 4603   Independent Study - Quantitative   3 ch
Methods

This course will provide the student with a deepening knowledge in the Quantitative Methods area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

BA 4644   Project Management (O)   3 ch (3C)

Presents and explores a project management framework. Also illustrates general principles and concepts in the context of information systems development projects.

BA 4803   Independent Study - Human Resource   3 ch
Management & Industrial Relations

This course will provide the student with a deepening knowledge in the Human Resource Management & Industrial Relations area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

BA 4813   Negotiations and Dispute Resolutions   3 ch (3C)

The aim of this course is to provide an in-depth examination of conflict, negotiation and dispute resolution principles. The course has four specific objectives: to increase students understanding of the causes and consequences of conflict, to explore various methods of reducing or resolving conflict, to develop an understanding of the different levels and sources of conflict and to apply negotiation and dispute resolution principles to various aspects of industrial relations. Prerequisite: BA 3813.

BA 4853   Recruitment and Selection   3 ch (3C)

This course is designed to acquaint students with important issues in the recruitment and selection of employees. The roles of job analysis in the development of selection programs will be stressed. Strategies for effective recruitment will be discussed as will the various selection devices available to organizations. In all cases, the legal context of recruitment and selection will be considered. Prerequisite: BA 2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management, and successful completion of BA 1605, BA 2858, and BA 3813.

BA 4854   Training and Development   3 ch (3C)

This course is designed to familiarize students with issues and techniques of training in organizations. Emphasis will be placed on an assessment of training needs, instructional methods, and evaluation of training outcomes. Prerequisites: BA2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management and successful completion of BA 1605, BA 2858 and BA 3813.

BA 4855   Compensation Structure Development 3 ch (3C) [W]

Explores the theory and practice of compensation structure development based on concepts of internal and external equity. Internal equity focuses on assessing the relative worth of different jobs in an organization through job evaluation. External equity involves assigning pay levels to different jobs in an organization based on data collected from wage and salary surveys of competitors. Students are required to apply concepts and techniques discussed in class within a group project that entails developing a compensation structure for a hypothetical company.Prerequisites: BA 2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management and successful completion of BA 1605, BA 2858 and BA 3813.

BA 4856   Evaluating and Rewarding Employee 3 ch (3C) [W]
Performance

Explores the theory and practice of performance appraisal and performance-based pay. Performance appraisal topics include appraisal instruments, sources of appraisal, increasing appraisal accuracy, and conducting appraisal interviews. Performance-based pay topics include traditional merit pay as well as incentive plans, gain sharing, and profit sharing. Students are required to apply concepts and techniques discussed in class within several assignments and/or exercises. Prerequisites: BA 2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management and successful completion of BA 1605, BA 2858 and BA 3813.

BA 4857   Management of Occupational Health 3 ch (3C)
and Employee Wellness

A growing number of organizations are realizing that not only is properly managing the occupational health, safety and well-being of employees at all organizational levels right and ethical, it can also be an important competitive advantage. Topics will include, but are not limited to, employee rights and workers compensation, the chemical, biological and psychosocial hazards faced by employees and how to recognize, assess and control these hazards. Furthermore, students will be provided with the tools and knowledge to develop workplace wellness and health promotion programs. Prerequisites: BA 2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management and successful completion of BA 1605, BA 2858 and BA 3813.

BA 4866   Management of Technology (O)   3 ch (3C)

A study of the critical role that technology, particularly information technology, plays in competition. The emphasis will be on aligning human resources practices and technological and organizational strategies. Prerequisites: BA 2858 and successful completion of 75 chs, or admission to the Certificate in Human Resource Management and successful completion of BA 1605, BA 2858 and BA 3813.

BA 4898   Strategic HRM Policy   3ch (3C) [W]

Explores the formulation and implementation of HRM strategies designed to facilitate the effective and efficient operations of organizations. Students are expected to integrate the material learned in other HRM courses and apply their accumulated knowledge to HRM issues posed in numerous case studies. The course will be taught primarily via case analyses and extensive class discussion. Prerequisites: All other courses required for the HRM major, including the five compulsory courses BA 2504, BA 2758, BA 2858, BA 3129 and BA 3813 as well as six chs of HRM electives selected from the following courses: BA 4813, BA 4853, BA 4854, BA 4855, BA 4856, BA 4857, BA 4866 or other HRM electives as approved by the Faculty of Business.

BA 4903   Work Term Report III   1 ch

Identifies an opportunity or problem in the workplace, analyzes its source and development, addresses key issues to be considered, offers alternatives and makes recommendations including clear provisions for implementation.

CHEMICAL ENGINEERING

A grade of C or higher is required in all Chemical Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

CHE 2014   Accelerated Introduction to Chemical   4 ch (3C 1T)
Engineering

Introduces the discipline of chemical engineering and develops fundamental skills of unit conversion and material balancing. Systems of units for parameters such as concentration, flow, pressure and temperature are explained. Skills for solving steady-state material balance problems on reactive and non-reactive systems. Fundamentals such as vapor-liquid equilibrium, partial saturation and real gas relationships are introduced and integrated into material balance problems. The concepts of enthalpy and energy balances on open systems. Unsteady-state and simultaneous mass and energy balance systems are modeled and solved using computer packages. When combined with 2 ch of approved technical electives, this course is considered equivalent to CHE 1004 + CHE 2004. Prerequisite: Math 1503 or Math 2213, or equivalent.

CHE 2412   Chemical Engineering Laboratory I   3 ch (1C 3L)

Covers bomb and flow calorimetry, material and energy balance study of the University heating plant, fluid mechanics experiments including flowmeter calibrations and pressure drop measurements in pipes and fittings will be conducted. Interpretation of experimental data, group dynamics, safety issues, report writing and oral presentations. Student will work under close supervision Co-requisite: CE 2703, ME 3413.

CHE 2501   General Materials Science   3 ch (3C)

The principles relating the properties and behaviour of engineering materials to their structure; atomic bonding forces and strength of interatomic and intermolecular bonding forces, atomic arrangements in solids, structural imperfections and atom movements in solids; principles of phase diagrams and their application to multiphase materials, with particular reference to the iron-carbon system; mechanical and electrical properties of engineering materials; semiconductors, polymers and ceramics; and their relation to internal structure. Prerequisites: (CHEM 1872/1877 or CHEM 1072/1077 or equivalent), MATH 1013.

CHE 2506   Materials Science Laboratory   1 ch (3L*)

Laboratory experiments are conducted to illustrate behaviour of materials and other concepts covered in CHE 2501.

CHEMISTRY

Note: See beginning of Section F for abbreviations, course numbers and coding.

CHEM 1041   General Chemistry I   3 ch (3C 1T)

Introductory course designed primarily for B.Sc. students. Topics covered include atoms, molecules & ions; stoichiometry; thermochemistry; atomic structure & quantum theory; periodic trends - atomic size, ionization, electron affinity; chemical bonding - Lewis structure, VSEPR, polarity, electronegativity, hybridization, hydrocarbons - alkanes, alkenes, alkynes, nomenclature, isomerism, functional groups. Prerequisite: Grade 12 Chemistry or equivalent. Corequisite: MATH 1001 or MATH 1003.

CHEM 1046   Introductory Chemistry Laboratory I   2 ch (3L)

A selection of experiments to accompany CHEM 1041. Corequisite: CHEM 1041 or equivalent.

CHEM 1072   General Chemistry II   3 ch (3C 1T)

A continuation of CHEM 1041. Topics covered include gas laws & kinetic theory; oxidation & reduction - oxidation numbers, balancing redox equations; equilibria - equilibrium constant K, Le Chateliers Principle, homo- and heterogeneous equilibria; acid-base equilibria - weak acids & bases, pH, common ion effect, buffers, solubility, selective precipitation; thermodynamics - entropy & free energy; electrochemistry - electrode potentials, galvanic & electrolytic cells, quantitative aspects. Prerequisite: CHEM 1041. Corequisite: MATH 1001 or MATH 1003.

CHEM 1077   Introductory Chemistry Laboratory II   2 ch (3L)

A selection of experiments to accompany CHEM 1072. Prerequisite: CHEM 1046 or equivalent. Corequisite: CHEM 1072.

CHEM 1831   What On Earth Isn't Chemistry?   3 ch (3C)
(*Cross-listed: SCI 1831*)

Intended for students (with limited chemistry background) who wish to gain a better understanding of the chemistry in the world around them. The course will cover aspects of ; atomic and molecular structure, the periodic table, what chemical names mean, balancing equations (and the relationships involved), acids and bases, nuclear chemistry, radiation and organic compounds. The concepts will be examined in the context of understanding "everyday" chemistry. This course cannot be used as a substitute for any other first level Chemistry course.

CHEM 1872   General Physical and Inorganic Chemistry   3ch (3C)

Intended primarily for Engineering students who require an introduction to physical and inorganic chemistry. This course may cover thermochemistry, chemical bonding & molecular structure, gases, intermolecular forces & modern materials, chemical equilibria (acid & base, buffer & solubility), chemical kinetics, chemical thermodynamics, electrochemistry, and nuclear chemistry. Pre-requisite: Grade 12 Chemistry (70%), or CHEM 1041 or CHEM 1831 minimum grade of B.

CHEM 1877   General Physical and Inorganic   2ch (3L)
Chemistry Laboratory

Intended primarily for Engineering students who require an introduction to physical and inorganic chemistry. Laboratory topics may include: colligative properties, recycling, enthalpy, gas laws, WHMIS, titration, kinetics, solubility and corrosion. Pre-or Co-requisite: CHEM 1872

CHEM 2009   Experience in Chemistry Research 1   3ch (3L) [W]

CHEM 2009 is a project based course where students conduct research under the supervision of a chosen faculty member. Students must have declared a Science Major and must have CGPA of 3.7 or better to enter after first year or a CGPA of 3.0 or higher to enter after second year. Students will be provided with a list of projects and applicant's names will be forwarded to project supervisors. Applications must be made, by May 15th, to the Saint John Chemistry coordinator who will be in charge of project assignments. Since enrolment may be limited, students are encouraged to plan for alternative courses in the case that no suitable project is available. A minimum of at least 3 scheduled hours per week is required and one seminar presentation will be required at the end of the academic term, as well as a written report. Prerequisite: CHEM 1041, 1046, 1072 and 1077.

CHEM 2065   Introductory Biochemistry 4 ch (3C 3L*) [W]
(*Cross Listed: BIOL 2065*)

Protein structure and function, techniques for protein analysis, examples of important proteins, mechanisms and regulations of enzymatic activity, metabolism (basic concepts and design, followed by the study of a few pathways). Prerequisites: BIOL 1205 and BIOL 1105 and BIOL 1017, additionally CHEM 2421.

CHEM 2416 Organic Chemistry Laboratory I 2 ch (3L) [W]

Introduction to experimental (organic) chemistry. Part I. Prerequisite: CHEM 1077. Corequisite: CHEM 2421.

CHEM 2421   Organic Chemistry I   3 ch (3C)

An introductory course. Topics include bonding, elementary stereochemistry, optical isomerism, functional groups, structure determination, reactions of alkenes and alkynes. Prerequisite:CHEM 1072 or for chemical engineering students with Chem 1872.

CHEM 2422   Organic Chemistry II   3 ch (3C)

A continuation of CHEM 2421. Topics include stereochemistry, structure determination, alkyl halides, nucleophilic substitution and elimination reactions and their synthetic utility. Prerequisite: CHEM 2421.

CHEM 2457 Organic Chemistry Laboratory   2 ch (3L) [W]

A laboratory course involving synthesis and purification of organic compounds, stereochemistry, isolation and structure elucidation of natural compounds (by both qualitative and spectroscopic methods). Prerequisite: CHEM 2416. Corequisite CHEM 2422.

CHEM 3245   Environmental Chemistry (A)   4 ch (3C 3L)
(Cross Listed: BIOL 3245)

Course will provide students with a chemical basis for understanding the natural environment and current environmental issues. Topics will include: the composition of the natural environment, the chemistry supporting environmental processes, and the main reactions of natural & anthropogenic chemicals in the atmosphere, water, and soils. Note: This course may be listed as either BIOL 3245 or CHEM 3245. Credit can not be obtained for both BIOL 3245 and CHEM 3245. Prerequisite: One term of organic chemistry at the 2nd year level.

CHEM 3335   Chemical Management 1ch (3*L)
                Practices

Overviews some Information systems for Hazardous materials (builds on WHMIS, introduces TDG and GHS). Introduces aspects of chemical inventory management. Emphasis on laboratory ethics (including environmental responsibilities, safe lab practices, reporting). Further work on chemical handling , storage and waste management. Prerequisites: CHEM 1077 or equivalent and CHEM 2421 or equivalent (6 x 3 hour lab sessions)

CHEM 3435   Biomolecules and Primary   3 ch (3C)
                Metabolism
             (*Cross Listed: BIOL 3435*)

This course will examine the chemistry, function, biosynthesis and metabolism of primary metabolites. Classes of compounds covered will include carbohydrates, fatty acids, amino acids, peptides, proteins and nucleic acids. Note: This course maybe listed as either CHEM 3435 or BIOL 3435. Credit can not be obtained for both CHEM 3435 or BIOL 3435. Prerequisites: CHEM 2422 and BIOL 2065

CHEM 4435   Biologically Active Natural 3 ch (3C)
                Products and Secondary Metabolism
             (*Cross Listed: BIOL4435*)

This course will examine the biosynthesis, biological activity and ecological significance of secondary metabolites. Topics include: the links between primary and secondary metabolic pathways; an overview of the mechanisms, chemistry and coenzymes involved in the biosynthesis of natural products; the acetate pathway; the Shikimate pathway; the mevalonate and methyl erythritol phosphate pathways; the alkaloids; and chemical ecology. This course maybe listed as either CHEM 4435 or BIOL 4435. Credit can not be obtained for both CHEM 4435 or BIOL 4435. Prerequisites: CHEM 2422 and BIOL 2065.

CHINESE

CHNS 1203 Introduction to Chinese (3ch)
This introductory course acquaints students with some of the fundamentals of Modern Standard Chinese (Mandarin) and provides basic oral communication skills. Pre-requisite: None. NOTE: Closed to students with any knowledge of Chinese.

CIVIL ENGINEERING

A grade of C or higher is required in all Civil Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers

and coding.

CE 2023   Mechanics of Materials   5 ch (3C 3L)
Elastic and plastic stress, strain; behaviour of beams and columns, torsion; material strength. Pre-requisite: APSC 1023. Co-requisite: MATH 1013.

CE 2033   Structural Analysis   5 ch (3C 3L)
Inlfuence lines, calculations of deflections, flexibility of analysis, stiffness analysis. Pre-requisite: CE 2073.

CE 2113   Soil Mechanics I   4 ch (3C 3L*)

Consolidation, shear strength, stresses under loaded areas, effects of

water on soil behaviour. Prerequisites: GEOL 1044, CE 2023. Corequisite: CE 2703.

CE 2603   Construction Engineering I   3 ch (2C 1T)

Responsibilities and relationships of participants in the construction industry. Standard contract documents, contractor resources and project control. Prerequisite: restricted to students with at least 60ch successfully completed.

CE 2703   Introduction to Fluid Mechanics   4 ch (3C 1T)

Physical properties of liquids and gases, fluid statics, kinematics of fluid flow, energy considerations in steady flow, momentum and dynamic forces in fluid flow, fluid measurements, introduction to forces on immersed bodies. Prerequisite: APSC 1013, MATH 1013.

CLASSICS AND ANCIENT HISTORY

Note: See beginning of Section F for abbreviations, course numbers and coding.
See also Greek and Latin

CLAS 1005 Ancient History: Greek and Roman   3 ch
People

An introduction to the history of ancient Greece and Rome through famous and lesser known individuals. This course is designed to introduce students to historical inquiry and techniques through the study of antiquity.

CLAS 1501 Greek Myth and Religion   3 ch

An introduction to the divine and heroic myths and to the religion of the Greek world. There will also be consideration of the various approaches to the interpretation of myths.

CLAS 1502 Roman Myth and Religion   3 ch

An introduction to the divine and heroic myths and to the religion of the Roman world. There will also be consideration of the various approaches to the interpretation of myths.

CLAS 2501 Ancient History: The Greeks (A)   3 ch (3C)

A survey of the social, cultural, intellectual, and political history of the ancient Greek world from the Bronze age to the death of Alexander the Great. Prerequisite: One term-course in CLAS or HIST.

CLAS 2601 Ancient History: The Romans (A)   3 ch (3C)

A survey of the social, cultural, intellectual, and political history of the ancient Roman world from the founding of Rome to the fall of the western empire. Prerequisite: One term-course in CLAS or HIST.

CLAS 3201   Ancient History: The Athenian Empire   3 ch

The social, cultural, intellectual, and political history of the "Golden Age" of Athens. Prerequisite: CLAS 2501

CLAS 3202   Ancient History: Alexander and the   3 ch
Hellenistic World

The social, cultural, intellectual, and political history of the age of Alexander the Great and his successors down to the death of Cleopatra VII. Prerequisite: CLAS 2501 or 2601

CLAS 3203   Ancient History: Cicero and the Late   3 ch
Republic

An examination of the social, cultural, intellectual, and political history of the late Roman republic through the life of one of its most famous citizens. Prerequisite: CLAS 2601

CLAS 3204 Ancient History: The Julio-Claudian   3 ch
Dynasty

The social, cultural, intellectual, and political history of the Roman empire under Tiberius, Caligula, Claudius, and Nero. Prerequisite: CLAS 2601

CLAS 3205 Ancient History: Josephus and   3 ch (3C)
the Jewish Wars (O)

A study of Josephus account of the history of the Jewish people from the Maccabean revolt to the fall of Masada. Special attention will be paid to Josephus historiographical methods and to the social, cultural, intellectual, and political context of the period. Prerequisite: CLAS 2501 or 2601.

CLAS 3206 Ancient History: Women in the Roman   3 ch
World

The status and role of women in the Roman world as reflected in literary, historical, legal, and archaeological sources. Prerequisite: CLAS 2601

CLAS 3207 Ancient History: Augustus and the Roman   3 ch
Revolution

An examination of the career of Caesar Augustus from his unexpected rise to power to his establishment of the imperial system ofgovernment at Rome. Prerequisite: CLAS 2601. Credit may be obtained for only one of CLAS 3207 and CLAS 3063.

COMPUTER ENGINEERING

Note: See beginning of Section F for abbreviations, course numbers and coding

CMPE 2213   Digital Systems   4 ch (3C 3L)
Introduces the design of digital systems, including basic design concepts and implementation technology, number representations, synthesis of combinational and sequential logic, and the use of HDL and computer-based design tools. Prerequisite: CS 1003 or CS 1073 or equivalent. Recommended: EE 1813.

CMPE 2412   Simulation and Engineering 4 ch (3C 3*L)
Analysis

An introduction to modeling and numerical methods as applied in the solution of engineering problems. The solution of nonlinear equations, polynomials, curve fitting, numerical integration and difference equations. Simulation tools such as MATLAB will be used. Prerequisites: CS 1003 or CS 1073 or equivalent, EE 1813 or equivalent, MATH 1013, (MATH 1503 or Math 2213, or equivalent).

COMPUTER SCIENCE

Note: See beginning of Section F for abbreviations, course numbers and coding.

CS 1003   Introduction to Computer   4 ch (3C 1T 2L)
Programming

Intended for Science, Applied Science and Engineering students. Introduces the use of digital computers. Includes: problem analysis; algorithm design, and program structure. Use of procedures, loops, and arrays. Debugging and verification of programs. Note: Credit will be granted for only one of the following courses: CS 1003, CS 1073, CS 1616, or IT 2773. Co- requisite: (MATH1003 or MATH1001) and MATH1503.

CS 1023   Data Structures and Algorithms   4 ch (3C 2L)
Intended for Science, Applied Science, and Engineering Students. Introductions to the ideas of abstraction of procedures and data. Handling of the fundament al data types: lists, stacks, queues, and graphs. Basic concepts of discrete mathematics, elements of combinatorics, aspects of complexity and recursion and algorithm development, including estimation of program resource utilization. **Note:** This course may not be taken for credit by CS students. Prerequisite: CS 1003 .

CS 1073   Introduction to Computer   4 ch (3C 1.5L 1T)
Programming I (in Java)

Covers fundamental concepts such as decisions, loops, arrays, classes, methods and inheritance; focusing on problem analysis, algorithm design, program structure and readiblity. Introduction to Java API libraries. Note: Credit will be granted for only one of the following courses: CS 1003, CS 1073, CS 1616, or IT 2773. Prerequisites: High School Mathematics.

CS 1083   Introduction to Computer 4 ch (3C 1.5L 1T)
Continues CS 1073 focusing on problem analysis, algorithm design program structure and readability. Covers recursion, sorting and searching, data abstraction, encapsulation, inheritance, polymorphism, simple data structures and files, testing and debugging. Prerequisites: (CS 1073 with a "C" or better) or (IT 2773 with a "C" or better, and High School Mathematics or MATH 1863 or permission of instructor).

CS 1303   Discrete Structures   4 ch (3C 1T)
Introduces topics in discrete mathematics important in computer science, including: propositional logic, predicate logic using quantifiers, direct and indirect proofs, summation and product notation, mathematical induction, elementary set theory and counting. Students are expected to write mathematical proofs throughout the course. Note: Credit will not be given for both CS 1303 and MATH 2203. Students majoring in Mathematics or Statistics must choose MATH 2203. Prerequisite: High School Mathematics.

CS 1616   Java Programming Overview   1 ch

An overview of basic Java programming concepts including arrays. Intended for students with credit for High School CS120. Course will run 1 hour per week in the fall term. Prerequisite: High School CS 120.

CS 2043   Software Engineering I   4 ch (3C 2L)
Introduction to fundamentals of the discipline of software engineering with focus on the software development life cycle. Topics include software development methodologies and processes, requirements, analysis, modelling, architecture, design, implementation, testing and maintenance. Basics of Software management are also introduced. Note: Credit is not given for both CS 2013 and CS 2043. Prerequisite: CS 1083.

CS 2113   Scientific Computing   4 ch (3C)

An introduction to numerical techniques for solving scientific problems. Topics to include sequences, series, structured linear systems, polynomial models, quadrature, differential/difference equations and root finding. Use of existing numerical software packages and a basic introduction to scientific programming using a high-level language. Prerequisites: MATH 1013 and one of CS 1073, IT 2773 or CS 1003.

CS 2253 Machine Level Programming 4ch (3C 2L)
Introduces students to lower-level computer operations and the association with higher-level procedural programming constructs. Topics include binary representation of data, instruction formats and execution, assembler programming, scope, functions, user-defined, data types using both low- and high-level programming languages. Note: Credit is not given for both CS 2253 and CS 2813. Prerequisites: CS 1083 and (CS 1003 or permission of the instructor).

CS 2333 Computability and Formal Languages 4 ch (3C 1T)

This course introduces students to some of the fundamental ideas in theoretical computer science: functions and relations, formal languages, finite automata, regular languages, context-free grammars, context-free languages, push-down automata, pumping lemmas, Turing machines, the Church-Turing thesis, recursive and recursively enumerable languages, the Chomsky hierarchy, the halting problem and other unsolvable decision problems, problem reducibility, and fundamental computational complexity classes. Note: Credit is not given for both CS 2333 and CS 2303. Prerequisites: CS 1303 , 30 ch, and (CS 1073 or CS 1003).

CS 2383 Data Structures and Algorithms 4ch (3C 1T)

Presents formal specifications of abstract data types and their data structure representations, operations, and algorithms. Includes priority queues, dictionaries, graphs, heaps, hash tables, binary search trees, balanced trees, and graph adjacency representations. Covers sorting, searching, dynamic storage handling, and fundamental graph algorithms. Asymptotic analysis of time and sp.ace complexity are taught and used throughout the course. Students are expected to implement a variety of data structures and graph algorithms. Note: Credit is not given for both CS 2383 and CS 3323. Prerequisites: CS 1083 and CS 1303

CS 2616   Java for Programmers   1 ch (2C)

Basic language constructs (input/output, variables and types, control structures.) Object oriented concepts, such as classes, objects, attributes and methods. Programming with multiple classes. This course is given over an 8 week period as follows: 2 hours/week for 3 weeks followed by midterm test plus 2 hours/week for 3 weeks followed by final examination. Course drop date is one week after the midterm test. Note: Credit will not be given for both CS 1083 and CS 2616. Prerequisite: Two term courses (at least 6 ch) in programming, excluding CS 1083.

CS 2617 C++ for Java Programmers 1ch (2C)

Basic language constructs (input/output, variables and types, control structures), classes, pointers, and preprocessor. This course is given over an 8 week period as follows: 2 hours/week for 3 weeks followed by midterm test plus 2 hours/week for 3 weeks followed by final examination. Course drop date is one week after the midterm test. Prerequisite: CS 1083 or CS 2616, or equivalent.

CS 2803 Logic Design 4ch (3C 2L*)

Switching algebra and its application in analysis and synthesis of combinational and clocked sequential circuits; minimization and realization methods. Universal logic gates, error detection and correction, register and counter operations, and memory systems. Note: Credit will not be given for both CMPE 2213 and CS 2803. Prerequisites: CS1003 or CS1073.

CS 2998 Programming Project 4ch

This individual study course provides an opportunity for students to learn programming languages that are not otherwise part of their degree program. The students first teach themselves a programming language, approved by the department, and then develop a program using this language. This is done under the supervision of a faculty member. A presentation of the program developed is required. Note: this course may not be taken for credit by BScCS or BCS students. Prerequisite: Approval of the Department.

CS 3033   Software Design and Development   4 ch (3C)

Presents advanced modeling techniques (mostly UML) for object oriented and real-time design. Includes related topics such as design patterns, quality, reusability, and CASE tools. Prerequisite: CS 2043.

CS 3113   Introduction to Numerical Methods   4 ch (3C)

Error analysis, convergence and stability. Approximation of functions by polynomials. Numerical quadrature and differentiation. The solution of linear and non-linear equations and the solution of ordinary differential equations. Emphasizes the development of computer algorithms and stresses the influence of finite precision and arithmetic on computational results.Prerequisites: (CS 1003 or CS 1073, MATH 1013) or CS 2113, and MATH 1503 or MATH 2213.

CS 3123   High Speed Computing   4 ch (3C 2L*)

This course will discuss the building blocks required for undertaking parallel computation on shared memory architectures. Differences between programming on shared memory multiprocessors and distributed memory processors will be discussed. Software will include performance analysis tools and message passing libraries such as OpenMP and MPI. Prerequisite: CS 1083. Co-requisite: CS 3403.

CS 3403   Operating Systems   4 ch (3C 2L*)

This course examines the fundamental role of an Operating system.Topics covered are: process/threads, process management, process synchronization, CPU scheduling, storage management, I/O management, security and user interfaces. Examples are drawn from contemporary operating systems. Prerequisite: CS 2253 and 70ch completed.

CS 3423   Data Management (A)   4 ch (3C)

Discussion of selected topics at an advanced level concerning the storage and manipulation of data. The use of an advanced operating system (e.g. UNIX) for shell programming. Regular expressions and their use in data manipulation utilities. A very high-level language (e.g. Perl) suited for data manipulation. Handling data over the Internet (e.g. CGI). Prerequisite: CS 1083 and 70 ch completed.

CS 3553   Introduction to Bioinformatics   4 ch (3C)
             (Cross-Listed: BIOL 3553)

Even before the completion of the Human Genome Sequencing Project biomedical databases have stored massive amounts of DNA and protein sequence information that have been analysed and resued in biomedical studies. Today the underlying technologies and analytical tools supporting genomic data analysis make up the field known as Bioinformatics. This course will introduce core topics and tools in genomics and bioinformatics explained from a practical perspective. Students taking this course will receive hands on training in many of the following areas of study: Genome Sequencing techniques, Gene Prediction, Sequence Alignment, Sequence Databases, Genome and Protien Structure Annotation, Bioinformatic Visualization Techniques, Gene Ontology, Analysis of Scientific Literature, Biomedical Text Mining, Workflow Management Systems, Bioinformatics Web Services. Prerequisites: 60 credit hours completed in a BSc (Biology, Marine Biology, or Biology-Psychology) or in a BScCS or permission of the instructor.

CS 3693   Advanced Program Development   4 ch (3C)   This course explores advanced features of Java such as inner/nested classes, finalizers, cloning, reflection, reference objects, object serialization, Java Beans, Java Native Interface, internationalization, security, assertions and enterprise features. Emphasis will be on reading technical documentation, searching libraries and effective use of Java development tools for debugging, obfuscation, decompilation and documentation. The course also covers Unix features for program development and a team project forms an important part of this course. Prerequisite: CS 1083 and 70 ch completed.

CS 3773   Topics in Web Science   4 ch (3C)

Web Science is concerned socio-technical aspects of the World Wide Web. Understanding it requires analysis of its architecture and applications, the people, organizations, policies, and economics that are affected by and affect it. Web Science integrates computer and information sciences with sociology, economics, political science, law, management, language and communication, geography and psychology. This course explores Web: History and Methodology, Semantics, Analysis, Society, Network Studies, Governance & Trust, Health education and Health care. Prerequisites: 70ch completed or permission of instructor.

CS 3813   Computer Architecture and Organization   4 ch (3C 2L*)

Advanced concepts in assembly language programming, functional organization of a computer system, organization of CPU, organization of I/O, interrupts, memory organization, cache and virtual memories, performance enhancements, pipelining, superscalar processors, and embedded systems. Prerequisite: CMPE 2213 or CS 2803, and CS 2253.

CS 3893   Computer Networking   4 ch (3C)

This course provides an in-depth look at the hardware and software behind the Internet and other computer networks. Topics include OSI network architecture, communication protocols, UDP and TCP, socket programming, common application-level protocols, congestion control, routing protocols, Internet Protocol, link later services, network security. Prerequisites: CS2253. Co-requisite: CMPE 2213 or CS 2803.

CS 3913   Algorithms   4 ch (3C)   Continues the study of algorithms begun in CS2383. Covers advanced techniques for analyzing recursive algorithms, examines major algorithm-design approaches including greedy, divide and conquer, dynamic programming, and graph-based approaches. Considers randomized algorithms and introduces complexity theory, including NP-completeness. One or more advanced topics will be chosen from the following areas: algorithmic problems arising in artificial intelligence, state spaces and search strategies, parallel and distributed algorithms. Prerequisites: CS2383 and CS2333 .

CS 3983   Professional Practice   2 ch (2C)

Instructs students in the preparation of technical reports in Computer Science. Involves an independent study component resulting in a technical report, typically a survey paper. Covers basic writing, oral presentation and library skills. Prerequisites: 70 ch completed.

**CS 4033   Software Project Management and   4 ch (3C 1T)
Quality Assurance (A)**
Introduces the general software life-cycle models and software processes. Discusses the "umbrella" activities in software development: project planning and monitoring, risk management, quality assurance through reviews and testing (including reliability and safety), configuration management. Prerequisite: CS 3033.

CS 4073   Software Process Improvement (A)   4 ch (3C)
Discusses the identification of improvement opportunities, and verification of changes made to the process, through the use of process measurement and software metrics. Includes the analysis of past data for improving resource estimation. Prerequisites: CS 3033 and STAT 3793

**CS 4083   Leading-Edge Technology in   4 ch (3C)
             Software Development (A)**
Selected topics at an advanced level. Content will vary. Potential topics: software evolution, formal methods, system engineering, program visualization. Prerequisites: CS3033.

CS 4093   Team Software Development Project (A)   4 ch (3C)

The application of sound software engineering techniques to a problem in a practical setting. This course involves a relatively large software project, done in a team (with proper team management). A real "client" shall be involved, from whom the requirements have to be gathered, and to whom quality product and documentation have to be delivered. This course is normally completed during the student's final year of study. Prerequisite: CS 3033 and permission of instructor.

CS 4103   Parallel Programming with MPI   4 ch (3C)

Explores the design and analysis of parallel algorithms on distributed and hybrid computing clusters. Development work on local and remote computing platforms with a high level computing language and message passing libraries such as OpenMP and MPI will provide the core of the course. Prerequisite: CS 3123.

CS 4113   Advanced Scientific Computing   4 ch (3C)

Topics to be discussed include: systems with banded, sparse, diagonally dominant, Toeplitz, positive definite or symmetric coefficient matrices. Methods of solution include both direct and iterative, factorization, perturbation, relaxation and projection. Additional topics may include eigenvalue problems and nonlinear systems with applications taken from differential and integro-differential equations. Prerequisites: CS 2113, CS 3113.

**CS 4123   Topics in High-Performance   4 ch (3C)
             Scientific Computing and Visualization**
Advanced level discussions chosen from current research topics in computation techniques, high-performance computing or visualization. The course will involve presentations and written reports. Prerequisites: Instructor permission and 90 ch completed

CS 4403   Data Mining (O)   (Cross-listed: DA 4403)
Major issues in data mining. Data warehouse architecture and its implementation. Data processing, cleaning, integration, and transformation. Methods for data reduction and compression. Data mining primitives, languages, and association rules in large databases. Data classification and prediction. Prerequisites: STAT 2793 and INFO 1103 .

CS 4525   Database Management Systems II   4 ch (3C 2L*)
File systems and structures, advanced query languages, query optimization, concurrency control and recovery, security and integrity. Overview of non-relational database models. Prerequisites: INFO1103, CS3403, and 70 ch copleted.

CS 4613   Programming Languages   4 ch (3C 1T)
Structure and major characteristics of programming languages; formal definition, syntax, semantics. Comparative study of principal languageconcepts and their treatment in imperative, functional, logic, and object-oriented languages. Prerequisites: CS 2333, CS 2043, and 90 ch completed.

CS 4713   Fundamentals of Simulation (A)   4 ch (3C 1T)
Systems and model. The simulation process. Random number generation. Introduction to queues, computer modelling of discrete systems using appropriate languages, computer modelling of continuous systems, model validation and experiment planning. Case studies from a variety of disciplines. Prerequisites: CS 1083, CS 3113, STAT 3083.

CS 4783   Web: Semantics, Services and Solutions (O)   4 ch (3C)
This course outlines the World Wide Web and focuses on the technologies and innovations that are driving its evolution. It introduces the W3C endorsed Semantic Web technologies and looks at the migration of the syntactic web to the semantic web and subsequent generations. Key topics explored are knowledge engineering; OWL ontology reasoning; text mining and natural language processing tools; web services and workflow technology, as well as end-user interaction in web search. Prerequisite: CS1083 and CS2383. Highly recommended courses: INFO1103, CS3913 and MATH 3343.

CS 4793   Fundamentals of Neural Netowrks (O)   4 ch (3C)
Introduction to the design and training of artificial neural networks, natural and artificial neurons, neural net architecture, single and multi- layered networks, supervised and unsupervised learning and their applications in time series analysis, optimization methods, solution of linear systems. Prerequisites: STAT 2793 or STAT 2593; MATH 2213; CS 3913; CS 2113 or permission of instructor.

CS 4843   Wireless and Mobile Computing (A)   4 ch (3C)
Wireless communication technology, fading and line-of-sight propagation, antennas, signal encoding, spread spectrum and wireless networking. Cellular system, cell coverage, mobile data communication, mobile IP and WAP. The course will also cover IEEE wireless standards, Bluetooth and other related topics for networking. Prerequisite: CS 3893.

CS 4893   Networking Programming   4 ch (3C 2L*)
Threads, socket programming (client & server), secure sockets,multicast sockets, protocol handlers, content handlers, RMI, Mail API. And social networks. Uses Java programming language. Prerequisites: CS1083, CS 3893.

CS 4913   Theory of Computation   4 ch (3C)
Models of sequential and parallel computation, automata theory, formal languages, the Chomsky hierarchy, decidability and computability, sequential and parallel complexity theory. Prerequisites: CS 3913, CS 2333.

CS 4973   Independent Study in Computer Science   4 ch
This course will provide the student with practical experience in their area of study. Under the supervision of a faculty member, the student will explore topics not available in the regular course offerings. The course may contain written assignments, written tests, or relevant work experience. A written report and oral presentation are required. Students must identify a faculty member who is willing to supervise the course and apply to the co-ordinator of the course for approval prior to the term in which they wish to undertake the work. Applications are normally approved only for students who are in their final year of the programme, and who have obtained a grade point average of at least 3.0 in work of the second and third years. Prerequisite: Approval of the Department.

CS 4983   Technical Report   2 ch (2S)
Builds on the skills developed in CS 3983, through the preparation and presentation of a technical report. A supervisor approved by the Department must normally be chosen before the beginning of the term. Prerequisite: CS 3983.

CS 4993   Honours Project   4 ch (2S)
The student submits a detailed proposal, schedule, progress reports and written report to the thesis coordinator with the supervisor's approval. A seminar is required. Planning of the thesis is done in the term prior to completion. Detailed guidelines are available from the Department. Prerequisite: CS 3983.

CS 4998   Directed Studies in Applied Computer Science 4 ch (3S)
This course permits students and faculty to explore inter-disciplinary areas of research in relation with computers in Arts, Science, and Business programs. In some cases, the faculty members will offer directed studies to groups of students. In other instances, individualstudents will seek this course on a one-on-one basis. Prerequisites: Approval of the CSAS department and at least 90 ch completed. Recommended that students have taken courses in CS or IT at 1xxxx/ 2xxxx level.

CS 4999   Directed Studies in Computer Science 4 ch (3S)
This course permits Computers Science students and faculty to explore various areas of Computer Science. In some cases, the faculty members will offer directed studies to groups of students. In other instances, individual students will seek this course on a one-on-one basis. Prerequisites: Department approval and at least 90 ch completed.

DATA ANALYSIS

Note: See beginning of Section F for abbreviations, course numbers and coding.

DA 2503   Packaged Software Decision Aids   4 ch (3C 1T)

Examines typical software packages present in information centres and other business environments. Includes selected topics from the following areas: operating systems; network administration; communication software; wordprocessing; spreadsheets; database management systems and graphics. Prerequisites: 30 ch of university courses including one of IT 1803, CS 1003, or CS 1073.

DA 3053   Mathematical Software   4 ch (3C 1T)

Advanced software packages and programming languages developed for mathematical computations: symbolic, graphical, numerical and combinatorial. Students will be involved in implementing and testing various algorithms. Prerequisites: Math 2003, Math 1703, or CS 1073.

DA 3123   Numerical Treatment of Geometric   4 ch (3C 1T)
                                Modeling

Presents the nature, development and application of the basic concepts of geometric modeling. The parametric geometry is considered primarily for curves including analytical properties, intersections and transformation. Emphasizes numerical methods and analysis with applications being drawn from such areas as image processing, graphics and computer-aided design. Prerequisite: CS 3113.

DA 3203   Data Analysis Using Statistical   4 ch (3C)
                        Software Packages

This is a case-studies based course in which students learn to analyse data in a modern statistical computing environment. The course promotes the use of graphical and other exploratory techniques as a crucial first step in data analysis. Students will be exposed to practical problems often encountered during the data analysis process. The importance of summarizing and communicating results effectively will be emphasized through the strong project-oriented component of the course. Prerequisite: 3 ch in each of three subjects: Mathematics, Statistics, and Computer Science.

DA 4123   Numerical Solution of Systems   4 ch (3C 1T)

Emphasis on linear systems with discussion on topics such as large, small; sparse, full; square, nonsquare systems. Methods of solution involve a survey of direct and interactive techniques. As time permits, the discussions will be extended to include nonlinear systems. Applications drawn from statistics and operations research. Both writing computer programs and working with stored computer programs form an integral part of the course. Prerequisites: CS 3113.

DA 4403   Data Mining (O)   4 ch (3C 1L)

        (Cross-listed: CS 4403)

Major issues in data mining. Data warehouse architecture and its implementation. Data processing, cleaning, integration, and transformation. Methods for data reduction and compression. Data mining primitives, languages, and association rules in large databases. Data classification and prediction. Prerequisites: STAT 2793 and INFO 1103.

DA 4803   Independent Studies in Data Analysis   4 ch (3C 1T)

Discussion of Data Analysis topics at an advanced level chosen jointly by student, advisor and Department Chair. Topic of course to be entered on the students transcript.

DA 4813   Independent Studies in Data Analysis   4 ch (3C 1T)

Discussion of Data Analysis topics at an advanced level chosen jointly by student, advisor and Department Chair. Topic of course to be entered on the students transcript.

DA 4993   Project in Data Analysis   4 ch (3C 1T)

Application of correct and appropriate methods of data analysis in one or more areas. A project proposal is required with a final report in which the student describes clearly and concisely the work done, the results obtained, and a careful interpretation of the results in form and language meaningful to workers in the subject area. Prerequisite: Permission of Program Director.

ECONOMICS

Note: See beginning of Section F for abbreviations, course numbers and coding.

ECON 1004   Economics and Society (O)   3 ch (3C)

Designed for students who do not intend to major in economics. Examines the working of the market system, competition policy, price supports and regulation, labour markets and unions, and social issues. Note: BBA students cannot take this course for credit. Students with credit for ECON 1013 or ECON 1073, or taking those courses, cannot take this course for credit.

ECON 1013   Introduction to Microeconomics   3 ch (3C)

Concerned with how modern mixed economies operate. Behaviour of consumers and business firms. Theory of the firm, production, costs and market structures, and distribution.

ECON 1023   Introduction to Macroeconomics   3 ch (3C)

Concerned with the causes of unemployment and inflation, the determination of total output, investment, and interest rates. Stabilization policies, exchange rates and balance of payments.

ECON 1073   Economics for Engineers   3 ch (3C)

An introductory course for students in Engineering and Computer Science. Topics include theory of markets, production, costs, externalities, and the macroeconomics of aggregate output determination and growth. Note: Credit will not be given for both ECON 1073 and ECON 1013/1023

ECON 2013   Intermediate Microeconomics   3 ch (3C)

This course develops material from ECON 1013. Applications of microeconomic theory are emphasized. Prerequisite: ECON 1013.

ECON 2023   Intermediate Macroeconomics   3 ch (3C)

This course develops material from ECON 1023. Applications of macroeconomic theory are emphasized. Prerequisite: ECON 1023.

ECON 2091   Contemporary Issues in the   3 ch (3C)
                Canadian Economy I (O)

Concerned with the study of the Canadian economy. Specifically, public policy towards unemployment and inflation, regional development, the labour market, economic growth, foreign investment and income distribution. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 2092 Contemporary Issues in the 3 ch (3C)
Canadian Economy II (O)

Analysis of specific economic phenomena in Canada. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 2103 Financial Institutions and Markets 3 ch (3C)

An introduction to the microeconomic aspects of monetary theory and policy. Topics include how money is defined and measured, portfolio theory, theories of the interest rate, the determination of the money supply, and bank regulation. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 2213 Poverty, Inequality and Income 3 ch (3C)
Redistribution (O)

Definition, extent and causes of poverty. Distribution of income and wealth in Canada and abroad. Rationales for and effectiveness of income redistribution policies. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 2503 Regional Econoimc Development 2 ch (3C)
Why do some regions prosper while others flounder? The course introduces how key theories use economic principles to explain differentiated regional performance, as well as core tools used to undertake regional economic analysis. Prerequisites: ECON 1013 and ECON 1023.

ECON 3013 Microeconomics I 3 ch (3C)

The theory of consumer demand and of production costs. The elementary theory of the firm: pure competition and pure monopoly; an introduction to monopolistic competition and oligopoly. Prerequisite: ECON 2013 and one of: MATH 1853 (with MATH 2853 strongly recommended), MATH 1003, or permission of the instructor.

ECON 3023 Macroeconomics I 3 ch (3C)

A study of the standard macroeconomic models of closed and open economies. Macroeconomic problems, such as unemployment, inflation, and balance of payment disequilibria are examined. Alternative stabilization policies are evaluated with reference to the Canadian economy. Prerequisite: ECON 2023 and one of: MATH 1853 (with MATH 2853 strongly recommended), MATH 1003, or permission of the instructor.

ECON 3091 Urban Economics (O) 3 ch (3S)

An introduction to the economic analysis of the development of urban areas. Topics include the evolutionary development of cities, the location of cities and of activities within them, and theories of urban growth. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 3099 History of Economic Thought (O) 3 ch (3C)

A study of the major contributions to economic analysis from Adam Smith to Alfred Marshall. Prerequisites: ECON 1013 and ECON 1023 or ECON 1073.

ECON 3114 International Financial Institutions 3 ch (3C)
and Markets

An introduction to the Macroeconomic aspects of monetary theory and policy. Topics include how the Central Bank influences the interest rate and inflation rate, the demand and supply for money, international financial markets, and international banking. Prerequisite: ECON 2103 or permission of the instructor.

ECON 3213 Public Sector Economics (O) 3 ch (3C)

The nature and role of the public sector in a market economy. Topics include taxation and government expenditure and their effects on the allocation of resources and the distribution of income, and the growth of the public sector. Prerequisites: ECON 1013 and ECON 1023; or ECON 1073. NOTE: Credit will be granted for either ECON 3213 or for ECON 3203/ECON 3233.

ECON 3375 Labour Economics (O) 3 ch (3C)

Determinants of labour supply and demand. Includes structure of wages, male-female earnings of differentials, employment insurance, unions, strikes, and labour relations. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 3401 International Trade 3 ch (3C)
& Tade Policy (O)

The principles of international trade, and issues in trade policy; NAFTA and other trade agreements. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 3412 International Macroeconomics 3 ch (3C)
and Finance

The economics of exchange rate determindation, the balance of payments, international borrowing and lending. Role of international financial institutions. Prerequisite: ECON 2023.

ECON 3531 International Development (O) 3 ch (3C)
Development theory at both sectoral and aggregate level; analysis of growth, employment, distribution of income, intersectoral investment allocation, and investment in human capital. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 3542 Topics in International 3 ch (3C)
Developments (O)
An analysis of the international dimesion of economic problems faced and policies adopted by developing countires of Asia, Latin America, and Africa. Topics include: international trade, direct foreign investment, technology transfer, regional economic blocks, structural liberalization, debt and development financing, high rate of population growth and exhausting of natural resources. Prerequisites: ECON 1013 and ECON 1023, or ECON 1073.

ECON 3613 Game Theory 3 ch (3C)
An introduction to game theory – a type off applied mathematics that describes strategic behaviour. Examples will be drawn from economics, political science, sociology, and biology. This interdisciplinary course is open to students who have successfully interdisciplinary course is open to students who have successfully completed 15 term courses (45 cr) or permission of the instructor.

ECON 3665 Mathematical Economics 3 ch (3C)
A course in economic theory concerned with topics in micro-and macroeconomics. Emphasis is on the use of mathematics ain the development of economic theory, particularly calculus and matrix algebra. Prerequisites: ECON 2013, 2023. Also, Mathematics requirement for Major must be completed before a student is admitted.

ECON 3702 Cost Benefit Analysis (O) 3 ch (3S)
Comparative study of costs and benefits and the impact of public projects and policy initiatives. Prerequisites: ECON 1013 or ECON 1073, and ECON 1023.

ECON 3755 Environmental Economics (A) 3 ch (3C)
Examines interaction of ecological and economic systems, considering population growth, food supply, non-renewable resources. Prerequisites: ECON 1013 or ECON 1023, or ECON 1073.

ECON 3835 Market Strategies and 3 ch (3C)
Organization (O)
The analysis of market structure, firm strategy and performance, and public policy issues. Prerequisites: ECON 2013.

ECON 4035 Macroeconomics II 3 ch (3C)

Advanced course in macroeconomics theory and analysis, with emphasis on theory of investment, consumption, money and employment. Neo-classical monetary equilibrium, and the Keynesian and post-Keynesian models. Prerequisite: ECON 3023.

ECON 4045 Microeconomics II 3 ch (3C)

Topics may include theories of imperfect competition, search and information, market failures, property rights, simple general equilibrium models. Prerequisites: ECON 3013.

**ECON 4645   Introduction to Applied   3 ch (3S)
               Econometrics (O)**

The objective of the course is to explain the problems and issues associated with empirical measurement of economic relationships, and an assessment of the techniques by which those problems may be solved. Prerequisites: STAT 1793 and STAT 2793 (or equivalent), and 4 term-courses in Economics. Note: Credit will not be given for both ECON 4645 and STAT 4703.

ECON 4998   Topics in Economics I (O)   3 ch (3WS/S)

Directed study/reading programs. Workshops in seminars will be held as required. Students should apply to the Department in September or January for permission to take this course. Prerequisites: ECON 2013 and ECON 2023.

ECON 4999   Topics in Economics II (O)   3 ch (3WS/S)

Directed study/reading programs. Workshops or seminars will be held as required. Students should apply to the Department in September or January for permission to take this course. Prerequisites: ECON 2013 and ECON 2023.

EDUCATION

**ED 3021   Human Development and   3 ch
               Learning: An Overview**

A study of theory, methods and research findings in infancy and childhood. Examines social, cognitive, emotional and physical development. Credit will not be granted for both PSYC 2201 and ED 3021. **NOTE:** Open to Education Students only. Prerequisites: PSYC 1003 and PSYC 1004.

ED 3024   Understanding the Adult Learner (O)   3 ch (3C)

Explores the characteristics of learners in formal and nonformal education settings and identities learning processes and conditions as they influence adult learning.

ED 3031   The Education of Exceptional Learners   3 ch (3C)

Provides the student with an introduction to the field of knowledge associated with exceptional learners.

ED 3041   The Theory and Practice of Education 3 ch (3C)

A study of dominant theories which influence and shape educational thinking and practice today. Key ideas, their origins, their current representatives, and the transposition of ideas into educational applications will be discussed.

ED 3051   School Law and Organization   3 ch (3C)

An overview of the legal, organizational, financial and professional aspects of schools and school systems.

**ED 3061   Students, Schools, Equity and 3 ch (3C)
               Social Justice (O)**

Explores the social, economic, cultural and political contexts of learners' lives, discourses of social differences, equity and social justice. Topics include: sexism, gender bias, racism, class oppression, homophobia, and heterosexism, harassment and violence, and the questions these issues raise for schools, curricula and classroom practice. .

ED 3211   Introduction to Visual Education   3 ch

Addresses the history, rationals, developmental theories, curriculum, planning and basic art-making skills essential for teaching art at the elementary, middle, and high school levels. Visual understanding and how it can be increased through school art programs is a key consideration.

ED 3241   Music for the Classroom Teacher   3 ch (3C)

Outlines the materials in the music curriculum that the classroom teacher might be expected to teach, plus a study of various ways to integrate music into the general classroom curriculum.

ED 3361   Internet Literacy (O)   3 ch (3C) (LE)

Theoretical issues arising from Internet, along with practical skills needed to gain familiarity with this network. How Internet challanges the way we create, dissemeniate, acquire and own knowledge.

ED 3362   Access to Literacy (O)   3 ch (3C)

Although the teaching of reading is regarded as one of the fundamental tasks of the school system, there is relatively little attention paid to what is being read. In this course students will learn; how to find out about books; how to recognize a genuine work of imaginative literature when they ecounter one; and how to talk about books amoung themselves and with children.

ED 3415   Developing Numeracy   3 ch

The study of number relationships and approaches to developing number sense in children and adults.

ED 3424   Teaching Elementary School Mathematics   3 ch (3C)

Focus on appropriate methodology for teaching mathematics at the elementary school level. Students must demonstrate competency in the mathematics content underlying the curriculum prior to completion of this course. Prerequisites: MATH 2633 or a MATH course approved by the Education coordinator.

**ED 3474   Health & Movement Education in the   3 ch (3C)
               Elementary School**
Examines curriculum and pedagogy in elementary health and physical education programs.

ED 3511   Introduction to Science Education   3 ch (3C)

An introduction to the teaching of science across and for particular learner levels.

ED 3561   Introduction to Second Language Education   3 ch
An overview of the theories of learning and teaching in the Second Language context with particular emphasis on a Communicative, multi-dimensional and multi-resource methodology. (ED 4565 can be taken in place of ED 3561 but students cannot count both towards the TESL certificate). Prerequisite: successful completion of 10 term-courses with a GPA of 2.7 or better, advanced written and spoken English language skills.

**ED3563   Initiation a la didactique du francaise langue   3 ch
               seconde (FLS) et francais intensif**

Etude des caracteristiques et dest objectifs de divers programmes de FLS (par ex., francais de base, immersion avec l'accent sur le francais). Examen des fondements de lapprentissage, de l'ensignment et de l'evaluation du FLS. Elaboration et application d'activites communicative. This course wil be only in French. Pre-requisite: A French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Training and Employment Development or permission of the instructor.

ED 3563 Introduciton to French Second Langue 3 ch
·   **Education and Intensive French (FI)**

In this course students will study the the characteristics and objectives of carious French Second Language Programs (core French, Immersion, with an emphasis on Intensive French). Students will also examine the basis of learning, teaching and assessment in French Second French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Training and Employment Development or permission of the instructor.

ED 3621 Introduction to Social Sciences 3 ch (3C)

Consideration of the history of social studies, debates about the content of social studies and the current state of social studies in Canada.

ED3641 Geography in Education (O) 3 ch (3C) (2L)

Scope and purpose of geography in education. Trends and source materials, including the use of maps, air photos and satellite images. Two laboratory sessions.

ED 3803 Service in Learning in Elementary 3 ch (3C)
                    Education

This course will enable participating students to gain some early practical and hands-on experience in a community school. By providing some direct service to a local area school, students will have an opportunity to confirm their chosen pursuit of career in teaching profession. The experience gained in this course will also allow students to see and experience first hand the diversity of learners that are present in the public school system. Prerequisite: ED 4164.

ED 4003 Field Experience I for BEd Concurrent Studies

Field experience for BEd concurrent students. Must be completed before ED 5000 Practicum. Prerequisite ED 4164 Technique or Teaching.

ED 4004 Field Experience II for BEd Concurrent Students

Field experience for BEd concurrent students. Must be completed before ED 5000 Practicum.

ED 4164 Techniques of Teaching 3 ch (3C)

Students will learn to design lessons to meet a variety of teaching situations. Classroom skills will be learned and practised in mini-teaching sessions on front of peers and a surpervising faculty member. Causes of student behaviour problems will be analyzed and strategies for dealing with disruptive students developed. This course is mandatory for first year BA/BEd students and prerequisite for ED 4003 Field Experience I for BEd Concurrent Students (SJ).

ED 4211 Integrated Learning Through Art (O) 3 ch (3C)

Art education theories and practices as they apply to learning across the curriculum.

ED 4353 Literacy for Struggling Readers K-5 (A) 3 ch (3C)

Classroom learning philosophies and arrangements for children who are struggling readers. Prerequisite: Must be a BEd student .

ED 4354 Literacy Learning in the Early Years (O) 3 ch (3C)

Current theories of the nature of literacy learning and their relationship to instructional practices in early years.

ED 4451 Health Education (O) 3 ch (3C)

Examines curriculum and pedagogy in a range of elementary, middle and secondary school programs that come under the rubric health education. Includes analyses of underlying assumptions, the organization of knowledge , and pedagogical approaches to this subject area.

ED 4562 Advanced Studies ESL Education 3 ch (3C)

Examines communicative language teaching in the context of classrooms. Emphasizes varied teaching methods, curriculum development , and evaluation of second language learning. Prerequisites: successful completion of 10 term-courses; as well as ED 3561 or ED 4565. Co- or Pre-requisite: LING 2101 or equivalent (3 ch).

ED 4565 ESL for the Classroom Teacher 3 ch (3C) (LE)
This course is designed for classroom teachers, and future classroom teachers who have English Language Learners (ELLS) in their classrooms. Topics to be examined include; Second Lanaguage Learning, Sheltered Instruction, Teaching Strategies, the S.I.O.P. (Sheltered Instruction Observational Protocol) Model and Assessment. ED 3561 can be taken in place of ED 4565 but students cannot count both towards the TESL certificate. Prerequisite: successful completion of 10 term-courses, advanced written and spoken English Language Skills.

ED 4791 Basic and Applied Nutrition (O) 3 ch (3C)

Basic concepts in nutrition across the lifeapn; nutritional assessment; nutrition information, education and other change strategies; and current nutrition issues.

ED 5013 Special Topics in Education 3 ch (3C)

In consultation with the Education Coordinator.

ED 5032 Inclusion from the Early Years 3 ch (3C)

An examination of personal, social, and school assumptions about the meaning and importance and inclusion in life and learning from childhood. Inclusive methods of education will be examined. Prerequisite: ED 3031.

ED 5040 Internship for Concurrent Education 15 ch

A 15 week practicum for students in local schools. CGPA of at least 2.7 and criminal record check are required. Along with the prerequisites, students normally should have completed the two Education electives before taking the Practicum. Prerequisites: All required Education courses and 30 term-courses in BA degree.

ED 5046 Educating At-Risk Students (O) 3 ch (3C)

Characteristics of the at-risk student. Psychologist, social, and economic effects of dropping out. Remedial strategies involving, learning, teaching, counseling, school climate, and school organization. Exemplary programs for at-risk students and for dropout prevention.

ED 5091 Learning Disabilities: Introduction 3 ch (3C)

Concepts, definitions and terminology. A preventive approach.

ED 5096 Behavioural/Emotional 3 ch (3C)
             Disorders: Introduction (O)

An overview of various emotional and behavioural disorders of children and young people and the ways in which coping and management strategies can be applied to develop self-discipline and control. Prerequisite: ED 3031.

ED 5102 Curriculum and Evaluation in the 3 ch (3C)
             Early Years (O)

Examines characteristics of early years learners and the role of the teacher as observer and curriculm developer in theory and practice. Prerequisite: ED 3041

ED 5161 Curriculum Theory (O) 3 ch (3C)

Theory, current trends, and the role of the teacher in curriculum development. Prerequisites: ED 3041

ED 5175   Classroom Assessment (O)   3 ch (3C)

Concepts and principles: teacher made tests, standardized tests, test construction, selection, administration and interpretation across the curriculum. Prerequisite: ED 3051.

ED 5191   Independent Studies (O)

Students will normally be limited to only 3 ch of independent study. Prerequisite: Permission of an instructor is required before registration.

ED 5566   Field Experience in TESL   3 ch

Supervised field experience for students in an environment in which they can both observe qualified instructors and participate in planning and teaching English as a second or additional language. (The course does not qualify for the 4 term-courses of ED courses which may be applied to the BA degree.) Prerequisites: successful completion of 10 term-courses; as well as ED 4565. Co-or Pre-requisite: LING 2101 or equivalent (3 ch).

ED 5976   Intstructional Technlogy Across   3 ch (3C) (1L)
the Curriculum (O)

A critical examination of the role of instructional technology across the curriculum. Technologies and strategies for integration to enhance classroom instruction will be developed and evaluated.

ELECTRICAL AND COMPUTER ENGINEERING

A grade of C or higher is required in all Electrical Engineering courses. **Note**: See beginning of Section F for abbreviations, course numbers and coding.

ECE 1813   Electricity and Magnetism   4 ch (3C 1T 3L)

Introduces the fundamentals of electricity, magnetism and applications. Covers concepts of charge, voltage, current, power, energy, electric and magnetic fields, and the electromagnetic spectrum. Includes resistors, resistance, Ohm=s law, Kirchoff=s voltage and current laws, branch current analysis, some electrical properties of materials, electric sources, simple series, parallel and series-parallel dc circuits. The basic concepts of digital switching logic are introduced, including gates and truth tables. Energy conversion and simple electric machines are examined, as are the behaviour and use of common sensors and transducers. Corequisite: MATH 1003.

ECE 2711   Electric Circuits   4 ch (3C 1T 3L*)

Basic DC circuits: network analysis and theorems:. AC circuits: introduction of phasors, network analysis and theorems applied to AC circuits. Prerequisites: MATH 1013; ECE 1813 or EE 1813 or equivalent.

ECE 2722   Circuits and Systems   3 ch (3C 1T 3L*)

Network analysis; transient and steady state responses; transfer Functions; complex frequencies; poles and zeros; Laplace Transforms; frequency response and Bode Plots; filters (passive and active). Prerequisites: ECE 2711 or EE 2711 or equivalent; MATH 1503 or MATH 2213 or equivalent. Co-requisite: MATH 3503 or equivalent.

ECE 2213   Digital Systems   4 ch (3C 1T 3L*)
Introduces the design of digital systems, including basic design concepts and implementation technology, number representations, synthesis of combinational and sequential logic, and the use of HDL and computer-based design tools. Prerequisite: CS 1003 or CS 1073 or equivalent. Recommended co-requisite: ECE 1813 or EE 1813.

ECE 2412   Simulation and Engineering Analysis   4 ch (3C 3L*)
An introduction to modeling and numerical methods as applied in the solution of Engineering problems. The solution of non-linear equations, polynomials, curve fitting, numerical integration and difference equations. Simulations tools such as MATLAB will be used. Prerequisites: CS 1003 or CS 1073 or equivalent; ECE 1813 or EE 1813 or equivalent; MATH 1013; MATH 1503 or Math 2213 or equivalent.

ENGINEERING

ENGG 1001 Engineering Practice Lecture Series 0 ch (1C)
A guest lecture series intended to introduce students to the engineering profession. Speakers from various engineering disciplines and job functions share their career experiences and discuss engineering projects underway in the region.

ENGG 1003 Engineering Technical Communication 4 ch (2C 3L) [W]
Oral, written and visual communication skills are developed as important tools used by engineers. Technical writing style is taught through the preparation of reports and summaries, and oral communication skills are improved through public speaking and the preparation of formal presentations. Computer-aided design is introduced and used to enhance visualization skills. The importance of information literacy is stressed. Various types of engineering drawings are presented and engineering unit conversions are practice.

ENGG 1015   Introduction to   4 ch (3C 1T 3L)
This course introduces engineering design methodology and develops basic problem solving techniques. Students work both individually and in teams on real engineering design projects for the local community in a simulated engineering consulting environment. Project planning, team-building, leadership and responsible care are discussed. Laboratories are used to demonstrate problem solving techniques for analytical and open-ended problems, and life-long learning is emphasized by having students integrate co-requisite and researched material into a structured design process. Co-requisites: ENGG 1003, PHYS 1081, MATH 1003, MATH 1503.

ENGLISH

The prerequisite for upper-level courses in English is 3 term-courses of English at the lower level, or unless special permission is obtained from the instructor.

Note: See the beginning of the Saint John Courses Section of this calendar for abbreviations, course numbers and coding.

ENGL 1001   Introduction to the Study of Literature 3 ch (3C)

An introduction to the principles of literary analysis.

ENGL 2001   Introduction to Poetry   3 ch (3C)

An introduction to poetic forms, language and theme within an historical context. Students will be encouraged to participate in the critical analysis of the poems in the course. There will be a special emphasis on written assignments.

ENGL 2002   Introduction to Drama   3 ch (3C)

Introduces dramatic genres, language, theoretical approaches and staging within an historical context. Note: this is a course in reading drama and not in acting. There will be a special emphasis on written assignments.

ENGL 2003   Introduction to Prose   3 ch (3C)

An introduction to the critical analysis of prose - short stories, novellas, novels within an historical context. There will be a special emphasis on written assignments.

ENGL 2101   Literature in English I   3 ch (3C)

A survey of literature to the end of the 18th Century. Exclusion ENGL 1200.

ENGL 2102   Literature in English II   3 ch (3C)

A survey of literature in English from 1800 to the present. Exclusion ENGL 1200.

ENGL 3004   Malory's Morte D'Arthur   3 ch (3C) [W]

A study of the Arthuriad of Sir Thomas Malory and some of Malorys source material.

ENGL 3007   Chaucer and his Contemporaries   3 ch (3C) [W]

A study of the major themes and literary forms of the English Middle Ages, with particular emphasis on the lyric, the Breton Lay, the Romance, and the dream vision.

ENGL 3008   Chaucer: The Canterbury Tales   3 ch (3C)

A study of Chaucers major literary achievement and its relevance to the concerns of the 21st century.

ENGL 3105   Shakespeare's Earlier Plays   3 ch [W]

This course is a study of a selection of Shakespeare's earlier plays (pre-1600) in context. This course will also examine early theatres, genre, and possible dramatizations.

ENGL 3106   Shakespeare's Later Plays   3 ch [W]

This course is a study of a selection of Shakespeare's later plays (post-1600) in context. This course will also examine early theatres, genre, and possible dramatizations. .

ENGL 3107   Renaissance Drama   3 ch [W]
**   (Non-Shakespearian)**

This course is an introduction of Elizabethan and Jacobean plays in context. This course will also examine early theatres, genre, and possible dramatizations.

ENGL 3108   Studies in Early Renaissance   3 ch [W]
**   Literature**

This course is an introduction to prose and poetry of the early Renaissance (1510-1640), studied in the context of the periods wide-ranging literary, political, religious and social changes.

ENGL 3109   Studies in Later Renaissance   3 ch [W]
**   Literature**

This course is an introduction to prose and poetry of the later Renaissance (1590-1670), studied in the context of the periods wide-ranging literary, political, religious and social changes.

ENGL 3203   Restoration and 18th Century Drama 3 ch (3C) [W]

Traces British Drama from its bawdy rebirth in 1660, through the sentimental domesticity of the early eighteenth century, to the laughing comedy at the centurys end. Also considers the history of the London theatre.

ENGL 3204   18th Century Prose and Poetry   3 ch [W]

Examines the literature of the 18th century, excluding the drama.

ENGL 3205   Prose Narrative Before 1800   3 ch (3S/C)[W]

Examines genres of prose narrative through to 1800 with emphasis on the novel.

ENGL 3301   Romantic Poetry   3 ch (3C) [W]

Studies the major poets of the British Romantic period.

ENGL 3302   Romantic Novel   3 ch (3C) [W]

A study of the development of the novel in Romantic Britain. Topics studied may include the novel of sensibility, the Gothic novel, the English Jacobin novel, the historical novel, and the national tale.

ENGL 3303   Romantic and Victorian Drama   3 ch [W]

Explores both the literary and theatrical dimensions of the nineteenth century. Studies closet drama, melodrama, comedy, farce, pantomime, burlesque, extravaganza, and spectacular entertainment.

ENGL 3304   Studies in the Romantic Age   3ch (3C) [W]

This course will study a selection of texts from the period 1789 to 1832.

ENGL 3311   Victorian Poetry   3 ch (3C) [W]

Studies the major poets of Victorian Britain.

ENGL 3312   Victorian Novel   3 ch (3C)

A study of a selection of Victorian novels from the period 1832 to the end of the nineteenth century.

ENGL 3313   The Earlier Victorian Age   3 ch (3C) [W]

This course will study a selection of texts from the period 1832 to 1870.

ENGL 3314   The Later Victorian Age   3 ch (3C) [W]

This course will study a selection of texts from the period 1870 to 1901.

ENGL 3401   Modern British Poetry   3 ch [W]

A study of selected modern poetry.

ENGL 3402   Modern British Novel   3 ch [W]

A study of selected novels.

ENGL 3403   Modern English and Irish Drama   3 ch [W]

Deals with the major dramatic developments of this century, beginning with the pioneering efforts of such figures as Galsworthy, Shaw and Yeats, and concluding with the trends of the present day.

ENGL 3404   Irish Literature   3 ch [W]

A study of the literature of Ireland, excluding drama.

ENGL 3405   Studies in Modern British Literature   3 ch [W]

A study of selected British short fiction, poetry, essays, and novels of the 20th century.

ENGL 3501   Canadian Poetry   3 ch [W]

A study of Canadian poetry.

ENGL 3502   Canadian Novel   3 ch [W]

A study of selected novels.

ENGL 3504   Canadian Short Fiction   3 ch [W]

A study of selected short fiction.

ENGL 3505 Maritime Poetry   3 ch [W]
A study of Maritime poetry from its beginning, with an emphasis on 20th century developments.

ENGL 3506   Maritime Fiction   3 ch (3C) [W]
An overview of the variety of genres in Maritime fiction.

ENGL 3508   Canadian Literature WWII   3 ch[W]
A study of Canadian poetry, short fiction, criticism, and novels written before the Second World War.

ENGL 3509   Canadian Literature after WWII   3 ch[W]
A study of Canadian short fiction, poetry, novels and criticism written after World War II.

ENGL 3511   American Poetry   3 ch (3C) [W]
An overview of modern American poetry.

ENGL 3512   American Short Fiction   3 ch (3S) [W]
A study of 19th and 20th Century American short fiction.

ENGL 3513   American Drama   3 ch (3S) [W]
A study of the work of major American playwrights of the 20th century.

ENGL 3514   The 19th Century American Novel   3 ch (3C) [W]
A study of the 19th Century American novel.

ENGL 3515   20th Century American Novel   3 ch (3C) [W]
A study of 20th Century American novels.

ENGL 3601   Introduction to Literary Theory   3 ch (3C) [W]
A historical survey of literary theory.

ENGL 3621   Writing by Women I   3 ch (3C) [W]
A study of texts by women in a variety of genres to the mid-eighteenth century.

ENGL 3622   Writing by Women II   3 ch (3C) [W]
A study of texts by women in a variety of genres since the mid-eighteenth century.

ENGL 3631   Studies in Gender and Genre   3 ch [W]
Examines the development of masculinities and/or feminities in the context of a particular or several literary genre(s).

ENGL 3705   Literature of the West Indies, Africa and India   3 ch (3C) [W]
A study of selected literature written in English in the West Indies, Africa and India.

ENGL 3706   Experimental Modern Theory   3 ch (3C) [W]
A study of then development of modern and postmodern drama as a series of reactions against realism.

ENGL 3709   Children's Literature   3 ch (3C) [W]
An overview of children's literature.

ENGL 3713   Special Topics   3 ch [W]
This course focuses on specialized areas of interest.
Pre-requisite: Three term-courses of lower level English.

ENGL 3721   Literature of the Fantastic Before the 20th   3 ch (3S/C) [W]
                        Century
This course examines the development of fantastic literature from the early modern period to the beginning of the 20th Century.

ENGL 3722   Topics in Speculative Fiction   3 ch (3S) [W]
This course examines specific themes, movements, and/or authors of science fiction nd/or fantasy from the early 20th century.

ENGL 3801   From Script to Performance   3 ch (3C) [W]
This course integrates the study of drama as literature with the practical elements of theatrical production.

ENGL 3802   Reading Film   3 ch [W]
This course integrates the study of drama as literature with the practical elements of theatrical production.

ENGL 3803   Reading Film   3 ch [W]
A study of major trends in American film.

ENGL 3812   Postmodern Literature   3 ch [W]
Postmodern Literature is a study of the theory behind, and the practise of , postmodern literature. Works from several genres including poetry, prose, drama, and film will be studied.

ENGL 3902   Drama Production   3 ch
This course runs in cooperation with a local professional theatre company. It will offer students practical experience in a number of "backstage" elements of theatre production, such as set design and construction, costumes, publicity, and program design. Enrollment is limited.
Prerequisite: Three lower level term-courses in English and permission of the instructor.

ENGL 3903   The Development of Western Drama   3 ch [W]
Studies a range of plays to illustrate the development of dramatic tradtion in the western world.

ENGL 3922   Special Topics in Creative Writing   3 ch
A workshop seminar in which a variety of genres, styles, and forms are studied and practiced through weekly assignments. Students have completed ENGL 3913 - Writing Poetry I or ENGL 3914 - Writing Poetry I are eligible to register for this course.

ENGL 4801   Honours Essay: Reading and Research   3 ch [W]
This course is devoted to the research portion of the honours project.

ENGL 4802   Honours Essay   3 ch [W]
An honours essay to be attempted upon completion of ENGL 4801.
Prerequisite: ENGL 4801

ENGL 4803   Advanced Seminar I   3 ch
A senior seminar in selected topics.

ENGL 4804   Advanced Seminar II   3 ch
A senior seminar in selected topics.

HENG 4000   Joint Honours Thesis   6 ch [W]
Honours thesis for Joint Honours Program in English and History.

FRENCH

Note: See beginning of Section F for abbreviations, course numbers and coding.

FR 1203   Communication en francais I   3 ch
Francais de base pour etudiants ayant au plus le Grade 10.

FR 1203   Communication in French I   3 ch
Introductory French course for students with no more than Grade 10 core French.

FR 1204 Communication en francais II   3 ch
Suite de FR 1203. Developpment et exploration de la communication linguistique et des differences culturelles. Prerequis: FR 1203.

FR 1204   Communicating in French II   3 ch
Continuation of FR 1203. Develops and explores language communication and culture differences. Prerequisite: FR 1203.

FR 1304　Français pour étudiants de 3 ch limmersion I

Première partie dun cours destiné à satisfaire les besoins particuliers des étudiants issus des écoles dimmersion. Revue systématique de la grammaire française. Ouvert aux étudiants issus d'écoles dont la langue première d'enseignement est le français. Note: Les etudiants qui ont reussi FR 1203, 1204, 2203, ou 2204 obtiendront pas de credits academiques pour ce cours.

FR 1304　French for Immersion Students I　3 ch

The first half of a course designed to meet the particular needs of students coming from immersion schools. The course offers a systematic review of French grammar. Graduates of high schools where French is the first language of instruction must register for this course. NOTE: Students with credit for any of FR 1203, 1204, 2203, or 2204 cannot take this course for credit.

FR 2200　Communicating in French III and IV　6 ch

This course is the equivalent of FR 2203 and 2204. It will be offered on an intensive basis in one term. Students may not receive credit for both FR 2203 and FR 2204 and FR 2200.

FR 2203　Communication en français III　3 ch

Exploration du langage médiatique; présentation déléments de grammaire avancés, révision des noms et des verbes. Destiné à améliorer les connaissances du français et à renforcer la compréhension orale et écrite. Prérequis: FR 1204 ou equivalent. Note: Les etudiants qui ont reussi FR 1304, 2304, 3203, ou 3204 obtiendront pas de credits academiques pour ce cours.

FR 2203　Communicating in French III　3 ch

Students are exposed to the language of the media; more advanced grammar is presented and nouns and verb forms are reviewed. Designed to improve French communication skills by strengthening oral and written comprehension. Prerequisites: FR 1204 or equivalent. NOTE: Students with credit for any of FR 1304, 2304, 3203, or 3204 cannot take this course for credit.

FR 2204　Communication en français IV　3 ch (3C)

Destiné à améliorer les outils de communication par le renforcement de lexpression orale et écrite. Conversation sur différents sujets et exercices pratiques de diverses formes de styles, appuyés par la révision des principales structures de la phrase. Prérequis : FR 2203, ou équivalent. Note: Les etudiants qui ont reussi FR 1304, 2304, 3203, ou 3204 n'obtiendront pas de credits academiques pour ce cours.

FR 2204　Communicating in French IV　3 ch (3C)

Designed to improve French communication skills by strengthening oral and written expression. Conversation on a varied of topics and practice of different writing styles is supported by grammatical background and a review of sentence building rules. Prerequisites: FR 2203 or equivalent. NOTE: Students with credit for any of FR 1304, 2304, 3203, or 3204 cannot take this course for credit.

FR 2206　Développement de lexpression orale 3 ch (3C)

Destiné au développement du vocabulaire et de la communication orale. Composante orale de loption de Soutien du français.

FR 2206　Developing Oral Skills　3 ch

Designed to develop vocabulary and strategies for oral communication. Oral component of the French Maintenance option.

FR 2208　Le Français professionnel　3 ch
Ce cours offre une formation en FLS (Français langue seconde) et prépare les futurs enseignants à l'évaluation des compétences linguistiques du ministère de l'Éducation postsecondaire, Formation et Travail du Nouveau-Brunswick, ainsi qu'aux examens d'évaluation des compétences linguistiques en français des employés des secteurs publics, provincial et fédéral. Prérequis : FR 2203 ou FR 1304.

FR 2208　Professional French　3 ch
Provides FSL (French Second Language) training and prepares students for the New Brunswick Department of Post-Secondary Education, Training and labour Linguistic Services oral Proficiency Test, as well as for Provincial and Federal bilingualism examinations aimed at assessing competence in French of public sector employees. Prerequisite: FR 2203 or FR 1304.

FR 2304　Francais pour etudiants limmersion II　3 ch

Deuxième partie dun cours destiné à satisfaire les besoins particuliers des étudiants issus des écoles dimmersion. Suite de FR 1304, ce cours offre une revue systématique de la grammaire française. Ouvert aux étudiants issus d'écoles dont la langue première d'enseignement est le français. Note: Les etudiants qui ont reussi FR 1203, 1204, 2203 ou 2204 n'obtiendront pas de credits academiques pour ce cours.

FR 2304　French for Immersion Students II　3 ch

Second half of a course designed to meet the particular needs of students coming from immersion schools. As a continuation of FR 1304, this course provides a systematic review of French grammar. Graduates of high schools where French is the first language of instruction must register for this course. NOTE: Students with credit for any of FR 1203, 1204, 2203, 2204 cannot take this course for credit.

FR 3084　Le monde des affaires en français　3 ch (3C)

Par le biais de textes divers et détudes de cas, ce cours améliore les connaissances de létudiant en français des affaires. La rédaction de lettres, de mémos, de procès-verbaux et de rapports sont étudiés. Ce cours prépare aussi les étudiants qui désirent faire lexamen de la Chambre de Commerce et de lIndustrie de Paris. Prérequis : FR 2204 ou équivalent.

FR 3084　Conducting Business French　3 ch (3C)

Through various texts and case studies, students will be shown the different approaches used in a francophone environment and learn to communicate more effectively. Formats for letters, memos, minutes and reports will be studied. This course also prepares students who wish to write the examination set by the Chambre de Commerce et dIndustrie de Paris. Prerequisite: FR 2204 or equivalent.

FR 3203　Communication avancée　3 ch (3C)

Destiné à familiariser létudiant aux structures complexes du langage et à lapplication efficace de ces concepts dans leur expression orale et écrite. Prérequis : FR 2204 ou 2304 (avec la permission du professeur), ou équivalent.

FR 3203　Advanced Communication　3 ch (3C)

Designed to familiarize students with complex language structures and to prepare them to apply these concepts effectively in their oral and written expression. Prerequisite: FR 2204 or 2304 (with permission of the instructor), or equivalent.

FR 3204　Français écrit avancé　3 ch (3C)

Destiné au développement plus particulier des connaissances de structures complexes et de leur usage dans lexpression orale et écrite - en particulier la dissertation, le rapport, la lettre. Prérequis : FR 2204, ou 2304, 3203 ou équivalent.

FR 3204　Effective Writing in French　3 ch (3C)

Designed to further develop the knowledge of complex structures and their use in oral and written expression - particularly essays, reports and letters. Prerequisite: FR 2204, or 2304, 3203 or equivalent.

FR 3324　Traduction I　3 ch (3C)

Destiné à familiariser létudiant aux principes fondamentaux de la traduction. Pratique de traduction de textes en français avec accent sur les diverses formes de traduction de concepts similaires en anglais et en français. Prérequis : FR 2204 ou 2304, 3203 ou équivalent.

FR 3324　Cross-Linguistic Communication I　3 ch (3C)

Designed to familiarize the students with the fundamentals of translation theory. Students will practise translating text into French with emphasis on the different ways of expressing the same concept in English and French - micro level. Prerequisite: FR 2204 or 2304, 3203 or equivalent.

FR 3412　L'acquisition de la langue　3 ch (3C)

Ce cours présente le processus d'acquisition de la langue avec application au français. Les sujets de discussion incluent l'acquisition de la langue maternelle (l'hypothèse de l'IP) et l'acquisition du français comme langue seconde en situations d'immersion et de bilinguisme. Pré-requis: aucun sauf pour les étudiant(e)s du programme de français, qui doivent avoir fini Fr 2204, ou Fr 2304, ou un cours équivalent.

FR 3412   Language Acquisition   3 ch (3C)

This is a course in language acquisition with application to French. Topics cover first language acquisition (the IP hypothesis) and second language acquisition of French in immersion and bilingual environments. Prerequisite: No prerequisites except for the students enrolled in a French program, who must have FR 2204 or FR 2304.

FR 3422   Lhistoire de la langue française   3 ch (3C)

Ce cours présente les concepts de la linguistique diachronique dans la perspective de la grammaire générative en se basant sur lhistoire du français. Parmi les sujets abordés seront les changements du système phonologique, la transition au système sans cas, les changements paramètriques en syntaxe. Pré-requis: aucun sauf pour les étudiant(e)s du programme de français, qui doivent avoir fini Fr 2204, ou Fr 2304, ou un cours équivalent.

FR 3422   The History of the French Language 3 ch (3C)

A generative grammar approach to diachronic linguistics with application to French. Topics: changes in consonant and vowel systems, transition to a non-case system, parametric changes in syntax. Prerequisite: No prerequisites except for the students enrolled in a French program, who must have FR 2204 or FR 2304.

FR 3432   Variation langagière I : Concepts de 3 ch (3C)
               base

Étude des variations entre les langues selon leurs paramètres morphologiques. Illustrations et applications inspirées des dialectiques du français et de langlais, des pidgins et des créoles. Prérequis : FR 2204, 2304, ou équivalent.

FR 3432   Dialect Variation I: Basic Concepts   3 ch (3C)

Study of variations among languages as rooted in the setting of morphological parameters. Illustrations and applications from French and English dialects, pidgins and creoles. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3434   Les mots et leurs sens   3 ch (3C)

Quest-ce quun lexique, quest-ce quun dictionnaire? Le mot (son sens, son évolution, ses variations et sa formation) sont au coeur de cette étude sur limpact quotidien de loral et de lécrit dans la communication. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3434   Words and Meaning   3 ch (3C)

What is a lexicon and what is a dictionary? Words (meaning, evolution, variants and formation) are the central topic of this study which looks at the impact of spoken and written words on daily communication. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3442   Variation langagière II: le français   3 ch (3C)
               acadien

Étude des différences entre le français standard et le français acadien dans la perspective de leur variation paramétrique en morphologie. Une vue densemble de la grammaire française acadienne sert de fondement à létude. Prérequis : FR 2204 ou 2304, ou 3432, ou équivalent.

FR 3442   Dialect Variation II: Acadian French 3 ch (3C)

Differences between Standard French and Acadian French are approached from the perspective of parametric variation in morphology. An overview of Acadian French grammar provides the basis for this study. Prerequisite: FR 2204 or 2304, 3422, 3432 or equivalent.

FR 3464   La pensée et la phrase   3 ch (3C)

Pourquoi les usagers dune langue construisent-ils leurs phrases de la même manière? Explication du don inné de lapprentissage dune langue et description de modèles mentaux de création de phrases. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3464   Mind and Sentence   3 ch (3C)

Why do speakers of a language construct their sentences in the same way? An investigation of the innate ability to learn a language is proposed. Mental models for creating sentences are considered. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3514   Communication et expression   3 ch (3C)
               littéraire

Exploration de la littérature comme mode de communication et comme effets de sens particuliers selon les usages de la prose fictive, de la non-fiction, de la poésie ou du théâtre. Étude de textes dauteurs français du dix-neuvième et du vingtième siècle. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3514   Communication and Literary Form 3 ch (3C)

An exploration of literature as communication, and of the significance inherent in the choice of literary form whether prose fiction, non-fiction, poetry or drama. A variety of texts by French authors of the 19th and 20th centuries will serve as illustration. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3524   Littératures francophones dAfrique et 3 ch
               des Caraïbes

Ce cours compare certains courants esthétiques et idéologiques propres aux littératures francophone, dAfrique et des Caraïbes, dans une perspective post-coloniale.Prérequis : FR 2204, FR 2304 ou équivalent.

FR 3524   Contemporary Francophone African and 3 ch
               Caribbean Literatures

Examines in a comparative perspective some ideological and aesthetic trends in Francophone, African and Caribbean literatures from a post-colonial point of view. Prerequisite(s): FR 2204 or FR 2304, or equivalent.

FR 3525   Le conte francophone   3 ch
Ce cours examine le conte en tant que genre littéraire ainsi que ses implications socioculturelles dans le monde francophone, surtout en Afrique subsaharienne, au Maghreb et dans les Antilles françaises. Il souligne le prestige et le rôle social du Conteur, mais aussi l'influence de la tradition orale sur la littérature francophone. Prérequis: FR 2204, FR 2304, ou equivalent

FR 3525 Francophone Storytelling   3 ch
Examines storytelling as a literary genre and its sociocultural implications in the Francophone world, especially in the Sub-Saharan and northern parts of Africa as well as the French Caribbean. Emphasis will be on the prestige and the social role of the storyteller, but also on the influence of the oral tradition on Francophone Literature. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3614   Auteurs du dix-huitième siècle   3 ch (3C)

Étude de textes représentatifs de quelques auteurs français importants du dix-huitième siècle. Prérequis: FR 2204 ou 2304, ou équivalent.

FR 3614   Selected 18th Century Authors   3 ch (3C)

A study of selected important works representative of one or two major French authors from the 18th century. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3615   Auteurs du dix-neuvième siècle   3 ch (3C)

Étude de textes représentatifs de quelques auteurs français importants du dix-neuvième siècle. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3615   Selected 19th Century Authors   3 ch (3C)

A study of selected important works representative of one or two major French authors from the 19th century. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3616   Auteurs du vingtième siècle   3 ch (3C)

Étude de textes représentatifs de quelques auteurs français importants

du vingtième siècle. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3616   Selected 20th Century Authors   3 ch (3C)

A study of selected important works representative of one or two major French authors from the 20th century. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3704   Aspects des cultures francophones 3 ch (3C)
               internationales

Ce cours décrit les changements récents dans les cultures francophones d'Afrique et des Caraïbes dans contexte post-colonial et leurs rapports avec la France. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3704   Aspects of World Francophone   3 ch (3C)
Cultures

This course will expose recent changes in Francophone countries, mainly African and Caribbean, and their cultural relationships with France in the post-colonial context. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3714   Aspects des cultures acadienne et   3 ch (3C)
franco-ontarienne

À titre de cultures minoritaires au Canada, acadiens et franco-ontariens ont développé des identités distinctes. Des origines à nos jours, ce cours porte une attention particulière sur les réalités historiques, sociales et artistiques de ces cultures. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3714   Aspects of Acadian and Franco-Ontarian   3 ch (3C)
Cultures

As French cultural minorities in Canada, Acadians and Franco-Ontarians have developed distinctive identifies. From their origins to the present, attention will be given to the historical, social and artistic expressions of these cultures. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3724   Aspects de la culture québécoise   3 ch (3C)

Ce cours porte sur de multiples aspects de la culture québécoise, en particulier l'histoire, la géographie, la langue, la religion, le folklore, la musique, la chanson, l'éducation, le mouvement des idées et la littérature. Attention spéciale portée sur les grandes questions dans le Québec contemporain. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3724   Aspects of Quebec Culture   3 ch (3C)

This course examines the multiple aspects of Quebec culture focusing on the history, geography, language, religion, folklore, music, songs, education, intellectual movements and literary works. Special attention will be given to contemporary issues in the Quebec society. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3734   Littérature francophone et Cinéma   3 ch (3C)

Ce cours porte sur les interactions entre l'oeuvre littéraire francophone et son adaptation cinématographique. Il consiste particulierement en une analyse comparative des séquences narratives, de la représentation et de l'interprétation. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3734   Language of Francophone Cinema and   3 ch (3C)
Literature

This course examines the correlation between francophone literary works and their cinematic adaptions. Particular attention is given to the comparative analysis of narrative sequences, representation and interpretation. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3744   Media Texts and the Francophone World   3 ch

Based on a corpus of study combining journal articles gleaned from the French press and samplings taken from French television and radio broadcasting, the course proposes an examination of Francophone cultures through analysis of media language, communication strategies and socio-ideological/aesthetic tendencies.

FR 3744   La Francophonie et les medias   3 ch

Ce cours examine la diversité culturelle d'expression française à partir d'un corpus d'articles tirés de journaux, de revues et de sites internet, et d'enregistrements sonores et visuelles authentiques dans la perspective d'une analyse de ses principales tendances idéologiques, esthétiques et sociales. Prérequis: FR 2204 ou 2304, ou équivalent.

FR 3814   L'expression littéraire au Canada français   3 ch (3C)

Étude d'auteurs canadiens-français, principalement de romanciers. Analyse de l'évolution historique, sociale et idéologique des procédés narratifs et du contenu des oeuvres, de 1950 à nos jours. Initiation à la narratologie. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3814   Language of French Canadian Fiction   3 ch (3C)

A study of selected French Canadian authors, particularly novelists. The course proposes to analyze the historical, sociological and ideological evolution of literary content and narrative process, language strategies, from 1950 to the present. Basic concepts in narratology will be introduced. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3824   Le théâtre au Canada français   3 ch (3C)

De Gratien Gélinas a Robert Lepage, le théâtre canadien-français a évolué d'une expression de l'identité collective vers une recherche plus orientée sur le langage dramatique. Dans ce contexte, les oeuvres des principaux dramaturges seront analysées. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3824   Language of French Canadian Drama   3 ch (3C)

From Gratien Gélinas to Robert Lepage, French Canadian drama has evolved from the expression of cultural identity to research into the language of drama, gradually emphasizing the relationship of dramatic language and content. In this context, the works of major dramatists will be reviewed. Prerequisite: FR 2204 or 2304, or equivalent.

FR 3844   Michel Tremblay et son temps   3 ch (3C)

Auteur reconnu internationalement, Michel Tremblay a consacré l'importance de la culture populaire dans la littérature québécoise dans les années 60. Du Cycle des Belles-Soeurs aux Chroniques du Plateau Mont-Royal, ce cours analyse la consécration de ce jeune classique et son influence dans la société. Prérequis : FR 2204 ou 2304, ou équivalent.

FR 3844   Michel Tremblay and His Time   3 ch (3C)

Internationally acclaimed for Les Belles-Soeurs, Michel Tremblay consecrated the cultural importance of « joual» (popular language) in the «quebecois» literature of the late 1960's. Through a selection of his works in drama, autobiography, short stories, movies and novels, this course will review the making of this young «classic» and the influence of this author on society. Prerequisite: FR 2204 or 2304, or equivalent.

FR 4203   Le Francaid en context   3 ch
Destiné à reproduire des situations de la vie quotidienne et d'enjeux contemporains afin de motiver l'étudiant à élargir ses connaissances de niveau avancè et à en faire usage dans diverses conditions. Prérequis: FR 3203 ou 3204 ou équivalent.

FR 4203   French in Context   3 ch
Designed around everyday life and contemporary topics that will motivate students to expand their advanced language skills and make use of them in complex ideas and diverse situtations. Prerequisite: FR 3203, 3204 or equivalent.

FR 4204   Parfaire l'oral et l'écrit   3 ch (3C)

Destiné à développer une connaissance plus authentique du français par ses expressions idiomatiques et ses vocabulaires spécifiques. Ce cours s'adresse particulièrement aux étudiants désireux de faciliter leur intégration dans un environnement bilingue. Prérequis : FR 3203 ou 3204, ou équivalent.

FR 4204   Perfecting Oral and Written Skills   3 ch (3C)

Designed to develop a more idiomatic and authentic knowledge of French through active learning and application of more specific vocabulary. This course will prepare students to function effectively in a bilingual work place. Prerequisite: FR 3203 , 3204 or equivalent.

FR 4324   Traduction II   3 ch (3C)

Exploration avancée des différences linguistiques par la traduction de documents authentiques de l'anglais vers le français. Prérequis : FR 3324 ou équivalent

FR 4324   Cross-Linguistic Communication II   3 ch (3C)

Intended to explore cross-communication differences by translation of authentic texts into French - macro level. Prerequisite: FR 3324 or equivalent.

FR 4514   Special Topics in French Literature   3 ch (3S)

A study of emerging themes in literary works of the French speaking world. Prerequisites: FR 2204 or FR 2304 , or equivalent.

FR 4514   Thèmes en littérature d'expression française   3 ch (3S)

Étude de problématiques particulières dans les oeuvres littéraires de la Francophonie. Prérequis: FR 2204 ou 2304 , ou équivalent.

FR 4524   Literary Criticism in French   3 ch (3S)

Literary theory applied to the works of Francophone authors. Prerequisites: FR2204 or FR 3204 , or equivalent.

FR 4524   Critique littéraire   3 ch (3S)

Étude de théories littéraires appliquées aux oeuvres d'auteurs d'expression française. Prérequis: FR 2204 ou 2304 , ou équivalent

FR 4534   Films francophones et perspectives postcoloniales   3 ch (A) (3C)

Le cours porte sur les nouvelles tendances dans les films francophones de la période postcoloniale (Maghreb, Afrique subsaharienne et Antilles françaises). Tout en analysant de façon critique les polarisations traditionnelles héritées de l'époque coloniale, les fims choisis illustrent les nouveaux genres, themes et styles qui incarnent les complexités et les défies nouveaux dans un monde francophone soumis aux exigences de la mondialisation. Prerequisites: FR 2204 or FR 2304 , or permission of the instructor.

FR 4534   Francophone Films & Postcolonial Perspectives   3 ch (A) (3C)

This course examines the new trends in postcolonial francophone films (north North and sub-Saharan Africa, French Caribbean). While critiquing traditional binaries and polarities inherited from the colonial era, the chosen films expose new genres, themes and styles which embody the complexities and the challenges of the Francophone World in a global context. Prerequisites: FR 2204 or FR 2304 , or permission of the instructor.

FR 4544   Aspects du cinéma dans la France contemporaine   3 ch
Par une sélection de films représentatifs, ce cours examine les thèmes majeurs, les styles et les auditoires visés par les cinéastes aujourd'hui. Il décrit la société française du XXIè siècle, dans ses préoccupations quotidiennes, ses idéaux culturels et ses rapports au monde extérieur. Prérequis: FR 2204, FR 2304 ou équivalent.\

FR 5455 Aspects of Cinema in Contemporary France   3 ch
Through a selection of representative films, this course examines major themes, styles and audiences targeted by filmmakers as well as the representations of current preoccupations, cultural ideals and global connections of French society in the 21st century. Prerequisite: FR 2204, 2304 or equivalent.

GENDER STUDIES

Note: See beginning of Section F for abbreviations, course numbers and coding.

GEND 2001   Introduction to Gender Studies   3 ch

An introduction to Gender Studies with an emphasis on interdisciplinary perspectives. Examines basic concepts, approaches, and methods pertinent to understanding gender relations and divisions in a global and historical context. **NOTE:** Normally students take this course after successful completion of 10 term-courses (30 ch). Students who take GEND 2001 may not receive credit for , SOCI 2501 .

GEND 4001   Directed Studies   3 ch

Supervised study in some area of Gender Studies to be determined by the student and instructor in consultation with the Gender Studies Coordinator. Prerequisites: GEND 2001 and 9 additional ch of Gender Studies eligible courses.

GEOGRAPHY

GEOG 1001   Introduction to Human Geography   3ch (C O)

Introduces sub-fields of human geography including cultural, historical, economic, environmental, and regional geography.

**GEOG 2001   Introduction to the Regional   3 ch (3C)
                  Geography of Canada**

This course offers a general introduction to the regional geography of Canada. Emphasis will be placed upon regional variations in population distribution, elements of the natural environment and resource use. To understand Canadas present landscape, some aspects of the historical evolution of each region will be explored. Prerequisite: none

GEOLOGY

Note: See beginning of Section F for abbreviations, course numbers and coding.

GEOL 1044   The Earth: Its Origin and Evolution   5 ch (3C 3L)

Basic geological concepts, geological time, material of the earth's crust, igneous, sedimentary and metamorphic rocks, earthquakes, evolution of continents and ocean basins, sea-floor spreading and plate tectonics, coastlines.

GEOL 1074   Earth Processes, Resources and the   5 ch (3C 3L)
                        Environment

Structural geology, origin and evolution of life from fossils, geomorphology of landforms, mineral resources and fossil fuels, environmental geology, hydrology, engineering geology. Prerequisite: GEOL 1044.

GEOL 2131   Crystallography and Mineralogy   5 ch (2C 4L)

Fundamentals of crystallography and the classification, identification, occurrence and origin of the major rock and ore-forming minerals. Concludes by defining sedimentary, igneous and metamorphic rocks in terms of mineral assemblages. Prerequisites: GEOL 1044/1074.

GEOL 2142   Optical Mineralogy and Petrography 5 ch (2C 4L)

Fundamental polarizing microscope techniques as applied to the identification of crystalline materials. Systematic study of the composition, phase relations and occurrence of rock-forming minerals with an emphasis on their identification in thin section as individuals and as members of mineral assemblages. Prerequisite: GEOL 2131.

GEOL 2201   Biogeology I (Systematic Paleontology)   5 ch (3C 2L)

Morphology, paleoecology and biostratigraphy of selected groups of marine invertebrates represented in the fossil record; comparisons with modern invertebrates in present-day oceans stressed.

GEOL 2212   Sedimentology I   5 ch (3C 2L)

Sedimentary structures, principles of sedimentation, selected sedimentary environments, with emphasis on marine environments, comparison of present-day models with occurrences in the geological record.

GEOL 2321   Structural Geology I   5 ch (3C 3L)

Emphasis on the description and classification of folds, cleavages, lineations, joints and faults. Presentation of structural data. Use of primary structures. Salt tectonics. Structure of igneous rocks. Laboratories include stereographic projection, interpretation of geological maps and preparation of geological cross sections.

GEOL 2703   Field School   6 ch
Principles of stratigraphic mapping. Prerequisites: GEOL 10-44/1074.

GEOL 3201   Introduction to Geoarcheology   5 ch (3C 3L)
Provides an overview of and practical experience with geological techniques used in archaeology, examining the influence of geology on human societies, on the preservation of archaeological sites, and on the potential for re-discovery of those sites. Lectures and laboratory will examine dating methods, alluvial sediments, coastal erosion or buildup, soils, stone tool and other raw materials, the postdepositional evolution of archaeological sites, and palaeoenvironments. Prerequisite: At least one course in Geology (GEOL), or SCI 1862.

GEOL 3222   Biota-Substrate Relationships   3 ch (3C)
Relationships between various substrate types, mainly in subtidal marine environments, and benthic biotas they support, with examples drawn mainly from Atlantic (temperate and sub-tropical) and Mediterranean areas. Comparisons between present-day relationships and those from fossil record are made.

GEOL 3442   Environmental Geology   3 ch (3C)

The role of Geology in the management of our environment. Issues examined may include natural hazards; soil, water, mineral and energy resources; contamination; global systems and change. Prerequisite: GEOL 1044 or approved equivalent.

GERMAN

Note: See beginning of Section F for abbreviations, course numbers and coding.

GER 1003   Basic German   3 ch

How Germans pronounce and order their words in questions, answers, commands and various sentence structures. Original German videos and Canadian content improve understanding and motivation.

GER 1004   Improving Basic German   3 ch

Continues the study of the basic elements of German with a Canadian emphasis. Creative oral and written work on subjects chosen by the students is strongly encouraged. Extensive use of audio-visual materials. Prerequisite: GER 1003 or equivalent.

GER 1063   Spoken German   3 ch

Concentrates on the development of conversational skills appropriate to students stated needs. Extensive use of audio-visual materials. **Note:** Similar to UNBF course GER 1013 Spoken German I.

GER 2003   Creative German   3 ch

Continues to develop the students ability to read, write, speak and understand German. Emphasises oral and written production on subjects chosen by students. Uses shorter German original texts and audio-visual materials. Taught in German and English. Prerequisite: GER 1003 and one of GER 1004, 1063, 1133 or equivalent.

GER 2004   Reading German Literature in   3 ch
                        German

Selected short stories in German, e.g., Ebner-Eschenbach, Kafka, Brecht, Böll, Dürrenmatt and students choices. Taught mainly in German. Prerequisite: GER 2003 or equivalent.

GER 2133   The Contributions of German-   3 ch
                        Speaking People

Examines the contributions to arts, culture, literature science and ideas of selected German-speaking individuals from past and present times. Taught in English.

GER 3003   Literature in German in Translation I   3 ch
                        (18th/19th Century)

Examines selected works of the enlightenment and the storm and stress, classical, romantic and realistic periods, and their contribution to world literature. Taught in English.

GER 3004   Lit. in German in Translation II   3 ch
                        (20th Century)

Examines important Swiss, Austrian, and German authors and their contribution to world literature. This includes Hesse, Kafka, Brecht, Böll Grass, Hochhuth, Dürrenmatt and Frisch and film versions of the works whenever possible. Taught in English.

GREEK

Note: See beginning of Section F for abbreviations, course numbers and coding.

GRK 1001   Introductory to Ancient Greek I   3 ch

A beginners course in Ancient Greek. No previous knowledge of Greek is required.

GRK 1002   Introductory to Ancient Greek II   3 ch

A continuation of GRK 1001.

HEALTH SCIENCES

Note: See beginning of Section F for abbreviations, course numbers and coding.

HSCI 2001   Introduction to Health   3 ch

Introduces the concept of health and its multidimensional nature. Examines health and its determinants, including those policy decisions that shape it. Draws from the contributions of the behavioural, physical and social sciences and the economic and political processes that influence health. Introduces the Canadian Health Care system and compares it to those utilized in other developed countries. Considers interdisciplinary aspects of health

HSCI 3032   Interprofessional Communication   3 ch (3C)
   (Cross Listed: NURS 3032)

Facets of knowledge, values/attitudes and skills are applied to core interprofessional education and practice competencies: role clarification and affirmation; effective communication and conflict management; participatory planning, decision making and problem solving; and, self-awareness and reflective practices. Prerequisite: BN/RN - NURS 2011. BHS students - successful completion of year 1 BSc courses or CMA certification in Radiography, Radiation Therapy, Nuclear Medicine, or Respiratory Therapy.

HSCI 3061 Issues in the Canadian 3 ch (3C)
   Health Care System
   (Cross: Listed: NURS 3061)

This course focuses on the history and organization of the Health Care System and discusses current health care issues. Pre-co-requisite: HSCI 3092. **Note:** Credit will be given only to one of HSCI 3061 and NURS 3061. This course is open to non-BHS student with Instructor's permission.

HSCI 3092   Health Science Research   3 ch (3C)
   (Cross-Listed: NURS 3092)

Introduces the purpose, process and utilization of health science research. The interrelationships among theory, practice and research are explored. Students critique research studies. (For Health Science (BHS) students only.) Co-requisite: STAT 2263 or approved substitute. Note: Credit will be given only to one of HSCI 3092 and NURS 3092.

HISTORY

Note: See beginning of Section F for abbreviations, course numbers and coding.

HIST 1201   British Experience   3 ch
Introduces British history of the period 1480 to the present using a biographical approach. From the high and mighty to the low and powerless, the lives of several individuals of various social ranks will be examined. The successes and limitations of biography as a means of historical understanding will be explored.

HIST 1301   Canadian Historical Issues   3 ch
This course is designed to introduce students to the methodology and techniques of historical study. It will focus on the historical background to current issues in Canadian society, culture and politics.

HIST 1401   The American Experience   3 ch
HIST 1401 is an introductory course focusing on American Social History. Through lecture, discussion and written assignments, students will examine questions about how men and women make history, as well as questions about how history is shaped by those writing it. This course will offer students an opportunity to do historical research, improve communication skills, and develop a critical scholarly approach.

HIST 1601   Global History   3 ch
Examines the global history of empire and capitalism from roughly 1492 to the present. Prerequisite: None.

HIST 2101   Europe & the world before 1800   3 ch (3C) [W]
A survey of important historical events prior to the modern age. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005.

HIST 2102   Europe & the World after 1800   3 ch (3C) [W]
A survey of important historical events in the modern era. Prerequisites: Two of HIST 1201, HIST 1301, HIST 1401,HIST 1601, or CLAS 1005; plus HIST 2101.

HIST 3201   England and Scotland: 1483 – 1708   3 ch (3C) [W]
A political history of these two countries in the early modern era. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102.

HIST 3203   Great Britain: 1701 to Present   3 ch [W]
The political, social and economic history of Great Britain in the modern era. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102 and HIST 3201.

HIST 3301   Canadian History Before Confederation   3 ch (3C) [W]
A survey of Canadian history from the age of exploration through the Colonial era to the British North America Act of 1867. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102.

HIST 3302   Canadian History Science Confderation   3 ch (3C)
A survey from 1867 of western expansion, the growth of an industrial society, the wars of the 20th century to the reexamination of Confederation of the late 20th century. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102 and HIST 3301.

HIST 3404   U.S History: Colony to Nation   3 ch (3C) [W]
A general survey examining topics such as Puritan New England, native peoples and colonists, slavery, the American Revolution, and nationalism. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102.

HIST 3405   U.S. History: Since Independence 3 ch (3C) [W]
A general survey from the Revolution to the present examining topics such as territorial expansion, the Civil War, the Rise of corporate America, protest and reform movements, and the US in international affairs. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102 and HIST 3404.

HIST 3555   History of the Atlantic World (A)   3 ch (3C)
History of the Atlantic slave trade, plantation societies in the Caribbean region, Atlantic trade networks, the abolition of Atlantic slavery, and emancipation. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102.

HIST 3577   The History of the Caribbean   3 ch (3C)
Since 1492 (O)
A broad social, political, and economic overview of the Caribbean since 1492.
Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102.

HIST 4009   Women in European History (O)   3 ch (3C) [W]

A survey of the changing roles of women from the Middle Ages through modern industrialization. Studies major texts defining woman's place in European society. Specific topics include attitudes to women, family and work patterns, education, and emerging public roles. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4011   Early Modern Queens   3 ch

Explores the roles of queen consorts, queen mothers, and queen regnants who wielded power directly and indirectly in early modern Europe Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4031   Global Issues in the 20th Century (O)   3 ch (3C)

An examination of contemporary global issues in historical perspective. A thematic approach covering topics such as women's rights, anti-Semitism, the origins of the environmental movement, economic integration and globalization, indigenous land rights, urbanization, trends in popular culture, technological innovations, and militarization. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405. HIST 3555. HIST 3577.

HIST 4102   Racism in Europe: Science, Myth and Politics (O)   3 ch (3C)

Traces the rise and fall of Fascist racism in 20th century Europe. Topics include the background and genesis of Fascist racial doctrines, and the political rationale legitimizing genocide in the period between 1922 and 1945. Special attention will be given to Fascist eugenics, racial propaganda, antisemitism and the Holocaust, the impact of survivor testimony in oral history, and the political significance of war crimes tribunals. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4106   The Rise of Fascism and and Nazism in Europe   3 ch (3C) [W]
1890's to 1945

Examines nationalism, imperialism, anti-Semitism and biological racism. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4109   War and Genocide: The Holocaust   3 ch
Explores the development, implementation and impact of the Nazi's "Final Solution" of the Jewish question during World War II. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4202   England Under the Tudors (O)   3 ch (3C)
Examines the events and conditions in England during the Tudor dynasty, 1485-1603, focusing on political, religious, intellectual, economic and social issues. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4203   England Under the Stuarts   3 ch
Examines the changing political, intellectual, religious and social conditions in England from the reign of James 1 in 1603 to the end of the Glorious revolution in 1688-89. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4205   Britain, 1688-1760: The Age of Oligarcy (A)   3 ch (3C) [W]
Analyzes the Glorious Revolution, the intellectual revolution of the late 17th century, the emergence of Britain as a military power, the union with Scotland, the Agricultural Revolution, the beginnings of the Industrial Revolution, the Whig oligarchy and the social development and the cultural transformation of the period. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4207   Britain in the Age of Revolution,   3 ch (3C) [W]
1760-1832 (A)
Studies Great Britain from the age of classicism and aristocracy to the age of romanticism and liberal reform with emphasis on political history, specifically the modernization of government in response to war, population growth and revolutions in agriculture and industry. Other topics include the treatment of convict and slaves in an increasingly humanitarian age, as well as the development of new economic, social and political ideologies. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601 or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4209   Victorian and Edwardian Britain,   3 ch (3C) [W]
1833-1910 (A)
Considers the political, economic and social structures of Victorian and Edwardian Britain. Topics include religion, the family, trade unionism, imperialism, Darwinism and urbanization. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4211   Medieval and Norman Ireland, 500-1500 (A)   3 ch (3C) [W]
A survey of early Irish history from the introduction of Christianity to the establishment of control by Tudor England. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4215   Ireland: Conquest and Subordination 1500-1800 (A)   3 ch (3C) [W]
A survey of Ireland from the rise of the Tudor Monarchy to the Act of Union with Britain. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) termcourse from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4217   Anglo-Irish Relations (A)   3 ch (3C) [W]
Examines the history of Ireland and the United Kingdom between 1780-1980 focusing on the sources of Anglo-Irish conflict and the various steps taken to resolve that conflict. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4303   Women in Canadian History (O)   3 ch (3C) [W]
Topics such as education, work and family, suffrage and women's rights, sexuality and social reform, as well as feminism will be studied. Primary sources and gender theory will be examined. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4311   Canada-U.S. Relations 1867-1945 (A)   3 ch (3C) [W]
Examines the major themes in Canada-United States relations from Confederation until the end of World War II, specifically trade, diplomacy, military relations, and cultural issues, including how Americans and Canadian viewed each other's societies. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3577.

HIST 4313   Canada-United States Relations Since   3 ch (3C) [W]
1945 (A)

This course examines Canadian-American Relations from 1945 to the Mulroney-Reagan era. It explores diplomatic, defence, economic, cultural and environmental issues. Prerequisites: One term-course from HIST 1201 , HIST 1301 , HIST 1401 , IS 1001 or CLAS 1005 ; plus HIST 2101 and HIST 2102 ; plus one term-course from HIST 3201 , HIST 3203 , HIST 3301 , HIST 3302 , HIST 3404 , HIST 3405 , HIST 3555 .

HIST 4316   Immigration and Identity in Canadian History (O)   3 ch (3C) [W]

Examines the changing pattern of immigration to Canada from the early seventeenth century to the present, and the contributions of various immigrant groups to the creation of a sense of Canadian identity Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) termcourse from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577..

HIST 4335   Canadian Military History (O)   3 ch (3C)

Provides an historical overview of the military in Canada, and of the evolving relationship between the military and society from colonial times through to the present. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577..

HIST 4337   Alcohol, Drugs, and Tobacco   3 ch in North America

Examines the social history of alcohol, illegal drugs and tobacco in Canada and the United States, as well as state regulation and expert, medical and criminal justice responses to these substances. Prerequisites: Two of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4361   Atlantic Provinces 1497 - 1784 (A)   3 ch (3C)

A history of the Atlantic region of Canada from the time of earliest European explorations to the formation of the second Empire in North America. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4362   Atlantic Provinces 1784 - 1867 (A)   3 ch (3C)

A history of the Atlantic region of Canada from the formation of the Second Empire to Confederation with Canada. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4363   History of the Atlantic Provinces After   3 ch (3C) Confederation (A)

A history of the region after Confederation to the present day with focus on movements for social, economic, and political reform. Equivalent to HIST 4342 UNBF. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4365   The Formation of Loyalist Canada (O)   3 ch (3C) [W]

Traces the settlement of the Loyalists in Nova Scotia, New Brunswick, Quebec, and Upper Canada after the American Revolution with particular attention to Loyalist ideology, the types of communities and institutions they established in British North America, and subsequent impact of the Loyalist myth on Canadian history. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4377   Social History of Crime in Canada (O)   3 ch (3C)

Examines how Canadian society has perceived and reacted to crime and criminals from early Colonial times to the mid twentieth century , Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4381   The Family and the State in North America (O)   3 ch (3C)

Examines the economic and social functions of the family in the transition from pre-industrial to industrial society. Topics include the religious underpinnings of the family, gender relations, the role of laws and state regulation, the impact of social policy and the emergence of a North American "politics of the family". Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4382   The City in North America (O)   3 ch (3C)

Examines the development of the commercial, industrial and post-industrial city in North America Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4383   Police and Society in North America (O)   3 ch (3C)

Examines the development of the "new Police" and its relationship to 19th and 20th century North American society. Themes include the European origins of policing, police reform, professionalization, labour relations, relations with minorities, political policing and private security. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4386   Canadian Criminal Justice   System(O)   3 ch (3C)

An examination of the Canadian criminal justice system with an emphasis on criminal law, courts, police and corrections from the Colonial era to the mid-twentieth century. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4403   Women in American History (O)   3 ch (3C) [W]

Topics such as education, work and family, suffrage and women's rights, sexuality and social reform, as well as feminism will be studied. Primary sources and gender theory will be examined. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4421   Science in America (O)   3 ch (3C) [W]

Examines the American fascination with science from colonial times to the 20th century, focusing on the social, political, and intellectual dimensions of science Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4463   Colonial America (O)   3 ch (3C) [W]

Examines the exploration, settlement and development of America from the beginning until the 18th century focusing on both the local and imperial context within the original thirteen colonies. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4464   The American Revolution (O)   3 ch (3C) [W]

Examines the causes, results and nature of the American Revolution. Themes include imperial relations the development of revolutionary ideas, and republican government at the local and federal level. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) termcourse from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4465   American Society, 1830-1900 (O)   3 ch (3C) [W]

Traces the changes that occurred when the United States embarked on nation-building and continental expansion in the post-Revolutionary period. The economic, social and political character of American society will be examined. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4466   American Society, 1900-1980 (O)   3 ch (3C) [W]

Examines the impact of the depression, World War I and World War II on the United States, along with its growing impact on the world. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4467   History of Reform in   3 ch (3C) [W]
        Modern America (O)
The political and social struggle of Populists, Progressives, New Dealers and Radicals are the focal points of this survey. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4471 Indigenous Peoples in America   3 ch (2C 1S) [W]
        before 1800 (A)
This course will focus on the history of Native People in the post-contact period. Relationships based on missions, the fur trade, and colonization will be examined. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4473 Native People in the United States   3 ch (2C 1S) [W]
        after 1800 (A)
This course will focus on government policies pertaining to Native People, beginning in the early National period. The history of Natives and Newcomers in the nineteenth century will be emphasized, although twentieth century issues will also be examined. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404,HIST 3405, HIST 3555, HIST 3577.

HIST 4475 The American South (A) 3 ch (2C 1S)
Beginning with the arrival of the first settlers and their relationship with aboriginal peoples, through the development of a distinctive culture and society based on slavery, HIST 3475 will focus on social, intellectual, economic and political themes in southern history. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4491 US Diplomatic History in the 20th Century (O) 3 ch (3C) [W]
Examines the basic premises of American policy as well as the United States' role in major events from World War I to the Cold War, as well as the American withdrawal from Vietnam and the reorientation of US policy. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4494 America in the 1960s 3 ch
An examination of American society and politics from the Cold War to Watergate, with emphasis on mass culture, militarism and protest movements. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4945 Women, Science and Medicine (A) 3 ch (3C) [W]
Focuses on the relationship between gender and science. Women's participation in science and medicine will be examined, as well as the philosophical and empirical underpinnings of science and medicine. Contemporary issues will be discussed, but the focus is historical, beginning with Aristotelian science and Hippocratic medicine. Prerequisites: Two (2) of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one (1) term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4985 The Revolutionary Experience I: 3 ch (3C)
        Anarchism & Socialism (O)
Examines the historical context surrounding the emergence and development of radical leftist movements since 1848. Prerequisites: Two of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plue one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 4986 The Revolutionary Experience II: 3 ch
        Student Movements from the French Revolution
            to the Present
A comparative approach to student movements in Europe, the Americas, Africa, and Asia. Prerequisites: Two of HIST 1201, HIST 1301, HIST 1401, HIST 1601, or CLAS 1005; plus HIST 2101 and HIST 2102; plus one term-course from HIST 3201, HIST 3203, HIST 3301, HIST 3302, HIST 3404, HIST 3405, HIST 3555, HIST 3577.

HIST 5000   Honours Thesis   6 ch [W]
Prerequisite: Honours admission.

HIST 5905   History: Theory and Practice   3 ch (3S)
Introduces historical methodology, the process of historical research, and the influences on selected major historical studies. Prerequisite: Honours admission.

HIST 5906   Honours Seminar   3 ch (3CS) [W]
Selected topics for Honours History students. Prerequisite: Honours admission.

HISTORY & ENGLISH - Joint Honours Program

Note: See beginning of Section F for abbreviations, course numbers and coding.

HENG 4000   Honours Thesis   6 ch [W]

Honours thesis for Joint Honours Programme in English and History. Prerequisites: Acceptance into the Joint Honours Programme in English and History.

HOSPITALITY AND TOURISM

Not all courses listed in this section will be offered each year. The official timetable must be consulted for courses offered each year.

Notes:

1. In order to take a Hospitality and Tourism (HTM) course that has a prerequisite, students must earn a C or better in the prerequisite course(s), regardless of the program in which the student is registered.
2. Students who feel they have the equivalent prerequisite background through a combination of coursework and work experience, may apply to the Faculty of Business on a Permission and Request Form for permission to enter a course. These forms are available from the Faculty of Business office in Oland Hall.
3. Students enrolled in HTM courses who do not have the stated prerequisites, and who have not been given the permission of the Faculty of Business to remain in the course, will be administratively withdrawn from the course AFTER the last day to add courses each term.

Note: See beginning of Section F for abbreviations, course numbers and coding.

HTM 1103   Introduction to Tourism   3 ch
This course is designed to acquaint students with the broad topic of tourism. Emphasis is placed on the socio-cultural, environmental and economic impacts of tourism. In addition, the course focuses on the interdisciplinary nature of tourism, with pertinent elements drawn from business, economics, sociology, psychology, recreation and geography.

HTM 2103   International Tourism   3 ch (3C)

This course studies the special characteristics of international tourism. Topics may include: the nature, importance and measurement of international travel, the impact of host/visitor interactions, factors affecting the motivation of travelers, and the constraints on travelers. Prerequisite: HTM 1103 or permission of the Faculty of Business.

HTM 2217   Management Accounting for the   3 ch (3C)
        Hospitality Industries

This course examines the use of accounting information for planning and control in hospitality and tourism operations. Topics to be covered include cost-volume-profit analysis, budget planning and control, ABC costing, and performance evaluation all geared to the industry. Also included will be an introduction to measuring the costs of quality and to yield management. **NOTE:** Credit will not be granted for both HTM 2217 and BA2217. Prerequisite: BA1216 or admission to year three of the BAMHT.

HTM 2903   Work Term Report I   1 ch
Identifies an opportunity or problem in the workplace, analyzes its sources and development, addresses key issues to be considered, offers alternatives and makes recommendations, including clear provisions for implementation.

HTM 3505   Resort and Recreation Management 3 ch (3C)
This course considers concepts and methods of resort planning, management and marketing, including recreational and event management for the resort environment. Case studies of real and proposed resorts from different environments will be used. Field visits to one or more resorts will be an essential part of the course. Prerequisite: HTM 1103 or permission of the Faculty of Business.

HTM 3506   Festivals and Events Management (A)   3 ch

The goal of this course will be to familiarize the student with this exciting and dynamic segment of the tourism and recreation industry. It will examine specific aspects of contemporary sport, community and cultural events; and the meeting, incentive, convention (MICE) industry. Topics to be studied include the main functions of Events Managers in the areas of development, planning, programming, marketing and promotions, facility management, human resources and finance. Students will be presented with case studies and applied projects Prerequisite: HTM 1103 or permission of the Faculty of Business.

HTM 3555   Adventure and Leisure Tourism   3 ch (3C)

This course will explore issues related to entrepreneurial small business development in the growing adventure and leisure sector of the Tourism Industry. Participants will have the opportunity to research emerging trends and issues related to the feasibility of creating service products to serve this market. Small business models which allow for the creation of stable enterprises in an often seasonal market will be examined. Prerequisite: HTM 1103 or permission of the Faculty of Business.

HTM 3903   Workterm Report II   1 ch

Identifies an opportunity or problem in the workplace, analyzes its sources and development, addresses key issues to be considered, offers alternatives and makes recommendations, including clear provisions for implementation.

HTM 4101   Competitive Strategy   3 ch (3C)

This is an integrative course dealing with the many interdepartmental and interdisciplinary problems confronting the management team in addressing organizations with opportunities and problems. Extensive use will be made of case studies and on-site assignments or projects. Emphasis will be placed on productivity and the delivery of a quality product within a competitive environment. Note: credit will not be granted for both HTM 4101 and BA 4101. Prerequisite: Credit in all courses required for the BAMHT except HTM 4161.

HTM 4111   Travel Writing and Photography   3 ch (3C)

Provides an introduction to the travel writing industry. Topics include the responsibilities and ethics of the travel writing profession and an examination of how visual imagery relates to tourism marketing, motivation, service quality and visitor satisfaction. Prerequisite: HTM 1103 or permission of the Faculty of Business.

**HTM 4161   Planning & Development of   3 ch (3C)
Sustainable Tourism**

This course examines the nature and scope of tourism planning and development from the perspective of markets, attractions, services, transportation suppliers, natural resources and government policy makers. Emphasis will be placed on community and regional tourism planning, with attention paid to economic, physical, environmental and social considerations of planning for tourism entities and destinations. Prerequisite: Open to fourth year students who have successfully completed BA 3129, or permission of the Faculty.

HTM 4503   Independent Study - Hospitality and Toursim   3 ch

This course will provide the student with a deepening knowledge in the Hospitality and Tourism area. Under the supervision of a Faculty member, the student will explore topics not available in the regular course offerings. The course may consist of written assignments, oral examinations and written examinations. Students must identify a faculty member who is willing to supervise the course and apply to the Director, Undergraduate Studies for approval at least 30 days prior to the term in which they wish to undertake the work. Applications are normally approved for students who are in their senior year and who have obtained a grade point average of at least 3.0 in the work of the second and third years.

HTM 4516   Natural Area Tourism   3 ch

This course will examine in detail the management of tourism in natural areas. Topics will include an introduction to ecology, and how ecological and related sustainable management principles are used to manage visitors to natural parks and equivalent reserves. Students interested in outdoor recreation, adventure tourism, park and heritage management and related topics would find this course an advantage. Prerequisite: Students should have successfully completed HTM 1103 or permission of the Faculty. This is a Web-based course and a good understanding of MS Word and Excel as well as the Internet would be an advantage.

HTM 4531   Historical Perspectives in Tourism   3ch (3C)

An overview of the history of tourism in Canada with particular emphasis on the Province of New Brunswick. The course is designed to trace the evolution and role of tourism in Canada from the late nineteenth century to the present. The course will include explorations of selected leisure/tourism sites in the Saint John area. Prerequisite: HTM1103 or permission of the Faculty of Business.

**HTM 4545   Special Topics In Hospitality   3 ch (3C)
              Management/Tourism And Travel**

This course surveys various issues and events that influence the hospitality and tourism industries. Topics will vary from year to year reflecting contemporary issues and events.

HTM 4555   Sacred Sites Tourism (A)   3 ch

This course examines the characteristics and management of one of the largest tourism sectors, spiritual tourism, pilgrimages and sacred sites. Topics include the power of myth and belief in the identification of natural sacred spaces, and the creation of man-made religious and secular sacred spaces world wide. The importance and measurement of international travel related to religious holidays, pilgrimages, and historic/heritage travel to places with significance to various cultural and religious groups will be discussed. The impact of host/visitor interactions and factors affecting motivation of travelers as well as constraints on travelers will be studied. The course will also include on-site visits to local sacred sites. Prerequisite(s): HTM1103 or permission of the Faculty of Business.

HTM 4565   Heritage Tourism   3 ch (3C)

This course explores the nature of heritage tourism. It surveys the issues that influence the development of heritage for tourism. Perspectives on heritage provisions for tourism will be examined in the context of social, cultural, tourism policies at the provincial, national, and international levels. Prerequisite: HTM 1103 or permission of the Faculty of Business.

HTM 4903   Workterm Report III   1 ch

Identifies an opportunity or problem in the workplace, analyzes its sources and development, addresses key issues to be considered, offers alternatives and makes recommendations, including clear provisions for implementation.

HUMANITIES

Note: See beginning of Section F for abbreviations, course numbers and coding.

HUM 1021   Effective Writing I   3 ch (3C) [W]

Examines various aspects of effective writing in English including vocabulary, sentence structure, organization of material, and essays of a descriptive, comparative, expository, critical and argumentative nature. Includes numerous written exercises. **NOTE:** Students may not receive credit for HUM 1021 and HUM 2121.

HUM 1401   Introduction to Music   3 ch [W]

An introduction to the development of music from the origins of musical performance and compositions to the relationships of music with present computer technology, and to the appreciation of music.

HUM 1905   Introduction to Art (3ch)

An introduction to visual art based on thematic, historical or regional approaches. NOTE: Students who have taken HUM 1903 or HUM 1904 will not be given credit for this course. Pre-requisites: None

**HUM 2003   Theory and Practice of Technical and   3 ch (3C)
              Professional Communication I (O)**

A broad-based introduction to theories of workplace communication. Introduces the practice of workplace and other professional communication including technical writing, editing, proof-reading, document design, on-line publishing. Prerequisite: HUM 1021

HUM 2021   Effective Writing II (A)   3 ch (3C) [W]

This course develops academic skills in writing and research, and focuses on how critical analysis is used across the disciplines. Students will be introduces to methods of appraising and critiquing academic materials, developing skills in supporting a scholarly argument, and understanding ethical issues in research and writing. Prerequisite: HUM 1021. NOTE: Students may not receive credit for

Both HUM 2021 and HUM 3121

HUM 2501   Music in the Romantic Era   3 ch

A survey of musical development in nineteenth century Europe focusing on the

major composers of the era as Beethoven, Chopin, Brahms, Tchaikovsky and

Wagner. Prerequisite: None.

**HUM 3003   Theory and Practice of Technical and   3 ch (3C)
              Professional Communication II (O)**

Develops students understanding of current theory and research in workplace communication, and gives them the opportunity to pursue workplace and other professional communication (including technical writing, editing, proof-reading, document design, on-line publishing) in more depth. Prerequisite: HUM 2003.
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HUM 3205   Baroque and Rococo Art   3 ch [W]

A study of the history of Art and Architecture in Europe during the 17th and 18th centuries. Prerequisites: HUM 1903, HUM 1904.

HUM 3208   Renaissance Art   3 ch [W]

Examines developments in painting, sculpture and architecture during the fifteenth and sixteenth centuries in Italy and in the rest of Europe. Prerequisites: HUM 1903, HUM 1904.

HUM 3924   History of Modern Art   3 ch (3C) [W]

A study of major movements in the art of the 19th and early 20th centuries from Neo-classicism to Surrealism.

HUM 3953   American Painting   3 ch (3C) [W]

A history of painting in the United States from the time of the Revolution to the 1960s, including Abstract Expressionism and Pop Art.

HUM 3964   Canadian Painting   3 ch (3C) [W]

A history of Canadian Painting, emphasizing developments in the twentieth century.

HUM 3966   Art of Photography (O)   3 ch (3C)

The course explores how photography developed in various historical, economic, political, and cultural settings worldwide and discusses the many uses to which photography has been put from art to vernacular, documentary to photojournalism, and science to advertising. It examines todays use of digital photography and how digital process and its capacity for manipulation has changed current notions of what photography is as well as what photography represents.

INFORMATION AND COMMUNICATION STUDIES

Note: See beginning of Section F for abbreviations, course numbers and coding.

ICS 1001   History of Communication   3 ch (3C)

A survey of the great revolutions in human communication of speech, literacy, printing and electronic communication. Examines how new media of communication come into being, their impact on earlier forms of communication, their impact on society, and the influence society and culture have on communication technologies.

ICS 1002   Foundations of Information and Communication Studies   3ch (3C)

This course is a basic introduction to the social, cultural, political, economic and technological aspects of the information and communication revolution.

ICS 2001   Transformations in Media   3 ch (3C)

This course is a basic introduction to the social, cultural, political, economic and technological aspects of the information and communication revolution.

**ICS 2101   Popular Music, Culture and   3 ch (3C)
              Communication (O)**

A general introduction to the study of Western popular music as both a cultural industry and as a form of communication which presents students with an overview of post-war popular music genres from rock n roll to contemporary dance music.

**ICS 2102   Media Living: Audio-visual and New   3 ch (3C)
              Media in Everyday Life**

Explores the political, economic, ideological and organizational settings within which contemporary media operate and examines their importance in many aspects of contemporary life. Topics include: the rise of broadcast television; the role of television in everyday life; the rise of new media (such as the world wide web) and their growing significance in everyday life.

ICS 2103   Understanding Comics and Manga   3 ch (3C)

This course will focus on the study of comics and manga (Japanese comic books and graphic novels). Students will analyze the history of comics and the industry in both North America and Japan. Particular emphasis will be placed on issues pertaining to: gender, culture, readership, characterizations, artwork, fan communities, and creative works. No prerequisites.

**ICS 3001   Theories of Information and   3 ch
              Communication**

This focuses on theoretical issues regarding the political and social implications of the information and communication revolution. Specific themes to be covered include society and technological change, communication technologies, globalization and the digital revolution. Prerequisites: Successful completion of fifteen term-courses, including ICS 2001, or permission of the instructor.

ICS 3003   Electronic Research   3 ch

This course provides students with an advanced introduction to conducting web-based research and the use of electronic research tools. Prerequisites: Successful completion of fifteen term-courses, including ICS 2001, or permission of the instructor.

ICS 3004   Media Production: Audio   3 ch (3C)

Introduction to production techniques related to radio and web podcasting. Students will explore aspects of production through individual and group projects as well as in class presentations. Includes a strong writing component. Prerequisites: Successful completion of fifteen term-courses, including ICS 2001, or permission of the instructor.

ICS 3005   Intellectual Property and the 3 ch (3C)

Information Commons

This course will explore the emerging importance of copyright as a pertinent regulatory issue facing both the communication industries and western society. We will examine the development of copyright and its transformation as a result of technological, economic and cultural changes in the global cultural industries. Prerequisites: Successful completion of fourteen term-courses in any discipline, plus ICS 2001, or permission of the instructor.

ICS 3006   Media Production : Video   3 ch (3C)

Introduction to video production techniques. Students will explore aspects of production through individual and group projects as well as in class presentations. Includes a strong writing component. Prerequisites: Successful completion of fifteen term-courses, including ICS 2001, or permission of the instructor.

ICS 3007   Digital Democracy   3 ch

This course examines technologically mediated political practices in liberal democracies. Prerequisites: Successful completion of fifteen term-courses, including ICS 2001, or permission of the instructor.

ICS 3101   Special Topics in ICS (O)   3 ch (3C)

Exploration of specialized topics in media studies, technology and society, or communication policy issues. Prerequisite: ICS 3001 and 3003, or permission of the instructor.

ICS 3102   Gender,Media and Communication   3ch (3C)

This course will focus on the saliance of gender in understanding media and communication. Course topics may include a focus on gender and the following: production, media texts, (TV shows, movies, anime,blogs,forums,comic books, video games, etc.) reception of media, content, communication technologies, and communication practices. Prerequisite: ICS 3001 and 3003 , or permission of the instructor.

ICS 4001   Research Seminar in ICS   3 ch (3S)

This seminar provides majors with the opportunity to do basic research in an area of special interest. Prerequisites: ICS 2001 , ICS 3001 , ICS 3003 .

ICS 4101   Advanced Topics in ICS (O)   3 ch (3S)

An advanced seminar in media studies, technology and society, or communication policy issues. Prerequisite: ICS 3001 and 3003 , or permission of the instructor.

ICS 4103   Independent Study in ICS   3 ch (3S)

This course provides an opportunity for students to engage in directed study of contemporary issues and debates in the fields of communication and media. Prerequisite: ICS 3001 and ICS 3003 , and permission of the instructor.

INFORMATION SYSTEMS

INFO 1103   Data and Information Management 4 ch (3C 2L)

Topics include: History and motivation of information systems, database system componenets; relational data model; relational algebra; SQL language; data integrity; security and privacy; data modeling and logical database design; indexing and physical database design, rapid data modeling and logical database design; indexing and physical database; rapid application development; user interface design; data validation and exception handling; accesing a database using an API (such ADO.NET and JDBC); stored procedures and triggers; introduction to web development, three layered architecture, and XML. Note: Credit is only given on one of CS 2513, CS 3513, and INFO 1103. Prerequisite: CS 1073.

INTERNATIONAL STUDIES

Note: See beginning of Section F for abbreviations, course numbers and coding.

IS 1001   Introduction to International Studies   3 ch

An interdisciplinary introduction to the regional approach to International Studies. The course examines the political, social and economic aspects of developing and developed regions.

IS 1002   Global Issues   3 ch (3C)

An interdisciplinary examination of issues and problems relating to the environment, human rights, gender and inequality, migration, and poverty in a global perspective.

IS 4501   Research Project in International   3 ch
Studies

A seminar requirement of the International Studies Program to enable students to do research. Prerequisites: IS 1001, IS 1002 and 9 ch in IS courses, or permission of the instructor.

INFORMATION TECHNOLOGY

Note: See beginning of Section F for abbreviations, course numbers and coding.

IT 1703   Introduction to Computing Concepts 3 ch (3C)

An introduction to the essential concepts of computers, computing systems and computer-based information systems. Topics also include microcomputer operating systems and current office software. This course may not be taken for credit by BBA, CS, BISc and Engineering and Science (except BSc in Economics) students. Credit will not be given for both IT 1803 and IT 1703.

IT 1713   Multimedia and the Information   3 ch (3C)
Highway

Introduction to multimedia concepts and technical underpinning of digital multimedia (including vector vs bitmap graphics, color, and animation). The current practices in web page design and construction using HTML (including advanced concepts such as CSS, image maps, etc.). Various software packages are introduced including PowerPoint for creating slide shows. Note: This course may not be taken for credit by Computer Science and Information Science students.

IT 1803   Introduction to Computers and   3 ch (3C)
Systems

An introduction to the essential features of computers, computing systems and computer-based information systems. Includes: microcomputer operating systems, word processing and spreadsheets. This course is intended for students in Business, Education and Physical Education and cannot be taken for credit by CS, BISc, Engineering or Science (except BSc in Economics) students. Note: credit will not be given for only one of IT 1803, IT 1813, or IT 1703.

IT 1813   Introduction to Data Management   3 ch (3C)
This course covers the storage, manipulation, and presentation of data. Examples are drawn from various domains, such as sales, business related, and scientific data. Two software packages are presented for such purpose: MS Excel (concepts including formula, data consolidation, and graphical representation) and MS Access (concepts including table design for data storage, queries in both QBE and SQL format, forms, and report generation). Emphasis is placed on the strengths of each tool, and how to benefit from both by importing data from one tool into another. Macro programming is introduced, so as to create simple applications within these tools. Note: This course may not be taken for credit by Computer Science and Information Sciences students. Credit will not be given for both IT 1803 and IT 1813.

IT 2773   Java Programming for the Internet   3 ch (3C)

The course will cover algorithm design and programming techniques using current software for web programming. Students are expected to have basic web page development skills. Prerequisite: IT 1713 or permission of instructor. Note: This course cannot be taken for credit by CS students. Also, credit will be granted for only one of the following courses: CS 1003, CS 1073, CS 1616, or IT 2773.

LATIN

Note: See beginning of Section F for abbreviations, course numbers and coding.

LAT 1001   Introductory Latin I   3 ch

A beginners course in Latin. No previous knowledge of Latin is required.

LAT 1002   Introductory Latin II   3 ch

A continuation of LAT 1001.

LAT 2001   Intermediate Latin I   3 ch

Emphasis on developing fluency in reading Latin. By the end of the term students will be reading unaltered Latin texts.

LAT 2002   Intermediate Latin II   3 ch

Reading of selections from Caesar, Cicero, and Ovid.

LINGUISTICS

Note: See beginning for Section F for abbreviations, course numbers and coding.

For Linguistics taught in French, see FR 3412, FR 3432, FR 3434, FR 3442, FR 3464 under the French section.

LING 1102   English Syntax (O)   3 ch (3C)

An introduction to traditional concepts in English syntax. Covers two areas: grammatical categories (noun, verb, adjective, adverb, etc.) and sentence structure (subjects, predicates, complements; main vs subordinate clauses). The course is a theoretical presentation of grammatical concepts.

LING 2101   Linguistics I   3 ch

Basic concepts of phonetics, phonology, morphology, language change and language variation. Prerequisite: Two term-courses at the 1000 level.

LING 3111   Language Acquisition   3 ch (3C)

Theories of first and/or second language acquisition with focus on the stages of language acquisition and parametric setting.

LING 3113   Phonetics and Phonology   3 ch (3C)

Articulatory phonetics and phonology with comparative application to English, French, and other languages. This course is the equivalent to LING 3411 (Phonetics & Phonemics) at UNB Fredericton.

LING 3114   Syntax   3 ch (3C)

The generative grammar approach to sentence structure. Comparative applications to English, French, and other languages.

LING 3202   Linguistics II   3 ch

Basic concepts of syntax, semantics, language acquisition and computer applications of language. Prerequisite: LING 2101.

LING 3223   Semantics   3 ch (3C)

Meaning through language: word and sentence meaning, context, inference, speech acts. Comparative applications to English and French.

LING 3224   Cognition and Language   3 ch (3C)

Language as a cognitive system; focus on the work of Steven Pinker.

LING 3212   The History of the English Langauge   3 ch (3C)

The methodology of historical linguistics and an overview of Indo-European languages from the background for the discussion of changes in English: changes in a consonant and vowel systems, transitions to a non-case system, setting of parameters in syntax.

MATHEMATICS

Note: See beginning of Section F for abbreviations, course numbers and coding.

MATH 1001   Calculus for Life Sciences   3 ch (4C)
Functions, limits, continuity, the concept of derivative, basic rules of differentiation. Derivatives of polynomials, exponential, logarithmic and trigonometric functions. Extreme values and related rates. Introduction to integration, area, volume, average value. Applications to life sciences will be stressed throughout the course. This course is restricted to students in Health Sciences, Nursing, and Biological Sciences. Notes: (1) Credit will be given for only one of MATH 1001 ,MATH 1003, MATH 1823, or MATH 2853 (2) A minimum grade of B is required in MATH 1001 to take MATH 1013. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Pre-calc 12A and Pre-calc 12B, or equivalent. Students must also pass a Placement Test which is administered by the Mathematical Sciences Department during Orientation week in September. See "Note 18 to Admission Chart" in Section B of this Calendar for further details.

MATH 1003   Introduction to Calculus I   3 ch (4C)
Functions and graphs, limits, derivatives of polynominal, log, exponential and trigonometric functions. Curve sketching and extrema of functions. Prerequisite: A grade of at least 60% in New Brunswick high school courses: Pre-calc 12A and Pre-calc 12B, or equivalent. Students must also pass a Placement Test which is administered by the Department of Mathematical Sciences during Orientation Week in September. See "Note 12 to Admissions Chart" in Section B of this Calendar for further details. Note: Credit will be given for only one of MATH 1001, MATH 1003, MATH 1823 or MATH 2853 .

MATH 1013   Introduction to Calculus II   3 ch (4C)
Definition of the integral, fundamental theorem of calculus, techniques of integration, improper integrals. Ordinary differential equations. Taylor polynomials and series. Prerequisite: A grade of C or higher in MATH 1003 or a grade of B or higher in MATH 1001.

MATH 1503   Introduction to Linear Algebra   3 ch (3C)
Lines and Planes, The Geometry and Algebra of vectors, Systems of linear equations, Matrix algebra, Linear independence, Linear transformations, Determinants, Complex numbers, Eigenvalues, Eigenvectors, Diagonalization, Rotation matrices, Quadratic forms, Least squares. Note: Credit will not be given for both MATH 1503 and MATH 2213. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Pre-calc 12A and Pre-calc 12B, or equivalent.

MATH 1853   Mathematics for Business I   3 ch (3C)
A brief review of pre-calculus math, logarithmic and exponential functions, limits, introduction to derivatives. Linear systems, matrices, systems of linear inequalities, difference equations, arithmetic and geometric sequences, annuities and instalment buying. Applications to Business and Economics will be emphasized throughout the course. Note: Credit will not be given for both MATH 1833 and MATH 1853. Prerequisite(s): A minimum grade of 60% in New Brunswick high school courses: Pre-Calc 12A and Pre-calc 12B, or MATH1863 or equivalent.

MATH 1863   Precalculus Mathematics   3 ch (3C 1T)
A review of high school mathematics topics, particularly those covered in the New Brunswick high school curriculum. Topics include: elementary set theory, manipulation of algebraic expressions, equation and inequalities, analytic geometry, linear and quadratic functions, polynomial and rational function, exponential and logarithm functions, trigonometric functions, inverse trigonometric functions, analytic trigonometry. Note: This course is designed to serve as preparation for MATH 1001, MATH 1003, and MATH 1853. It carries no credit for certain programs. Please consult with a faculty advisor.

MATH 2003   Intermediate Mathematics I   3 ch (3C 1T)
Analytic geometry and vectors, differential calculus of several variables including partial derivatives, max-min, multiple integrals, parametric equations and polar coordinates, surface area. Note: Credit will be given for courses in only one of the sequences MATH2003/2013 or MATH2503/2513. Prerequisite: A grade of C or higher in MATH 1013.

MATH 2013   Intermediate Mathematics II 3 (3C 1T)
Infinite series and power series, line and surface integrals. Theorems of Green and Stokes, the divergence theorem, differential equations. See note following MATH 2003. Prerequisite: A grade of C or higher in MATH 2003.

MATH 2203   Discrete Mathematics   3 ch (3C)
Logic, methods of proof, mathematical induction, elementary set theory, functions and relations. This course is designed for students desiring a good grounding in mathematics. Theorems and proofs are an important part of the course. Credit will not be given for both MATH 2203 and CS 1303. Students majoring in Mathematics must choose MATH 2203. Prerequisites: Math 1013.

MATH 2213   Linear Algebra I   3 ch (3C)
Linear equations, matrix algebra, determinants, vector spaces, basis, row and column spaces, linear transformations and matrix representations, scalar products, orthogonal projection, least squares, eigenvectors and diagonalization,quadratic forms, singular value decomposition. The course will include use of mathematical software. Credit will not be given for both MATH 2213 and MATH 1503. Prerequisites: MATH 1013 or equivalent.

MATH 2513   Multivariable Calculus for Engineers   4 ch (4C)
Functions of several variables, partial derivatives, multiple integrals, vector functions, Green's and Stoke's Theorems. See the note following MATH 2003. Prerequisite: A grade of C or higher in Math 1013 ; and Math 1503 or 2213.

MATH 2523   Differential Equations and Series   3 ch (4 C)
First order differential equations, higher order linear differential equations, infinite series, power series, series solution of differential equations about ordinary points and singular points, Gamma and Beta functions, Bessel function and Legendre polynomials. Prerequisite: A grade of C or higher in Math 1013.

MATH 2633   Fundamental Principles of 3 ch (3C 1T) Elementary School Mathematics
This course is primarily intended for individuals interested in elementary and middle school teaching, and is open to students registered in concurrent B.Ed. program. The focus is on the mathematical content of K-8 Atlantic Canada Mathematics Curriculum, and extensions beyond the classroom to show the how and the why behind school mathematics. Topics include problem solving, number concepts, number and relationship operations, patterns and relations, shape and space, as well as data management and probability. This course may be taken by others with the approval of the student's department Chair or Dean. With the exception of Certificate of Math Education, this course is not available for credit to students who would have 6ch of Level 1000 mathematics in their degree programs.Prerequisite: Successful completion of at least one year of a university program.

MATH 2853   Mathematics for Business II   3 ch (3C)
Derivatives, marginal analysis, optimization problems with applications in business, anti-derivative, definite integrals and applications, techniques of integration, simple differential equations, functions of several variables, partial derivatives, unconstrained and constrained optimization, Lagrange multipliers. Applications to Business and Economics will be emphasized throughout the course. Note: Credit will be given for only one of MATH 1001, MATH 1003, MATH 1823 or MATH 2853. Prerequisite: MATH 1853.

MATH 2903   Financial Mathematics I   3 ch (3C)
Simple, compound, continuously compound interest, future value, series of payments, sinking funds, amortization, installments. Major assets type. Valuation of fixed interest securities, effects of tax, ordinary shares, bonds. Deterministic models for term structure dynamics. Prerequisite: MATH 1003 or MATH 1853.

MATH 2913 Financial Mathematics II 3 ch (3C)
Derivatives: cash-and-carry markets, price-discovery markets, expiration date, forwards and futures, options, swaps. The algebraic no-arbitrage concept. Asset prices, returns and payoffs, portfolio. Lattice models, payouts and foreign currencies. Prerequisites: MATH 1013 and MATH 2903.

MATH 3073 Partial Differential Equations 3 ch (3C)
Methods of solution for first order equations. Classification of second order equations. Characteristics, analytic and numerical methods of solution for hyperbolic, elliptic and parabolic equations. Prerequisite: MATH 2003 and MATH 2013; or MATH 2513 and MATH 2523, or equivalent.

MATH 3093   Elementary Number Theory   3 ch (3C)
Primes, unique factorization, congruences, Diophantine equations, basic number theoretic functions.Recommended for Education Students or prospective Mathematics teachers. Prerequisites: At least 6 credit hours in Math excluding Math 1863.

MATH 3213   Linear Algebra II   3 ch (3C)

Vector spaces and subspaces, independent and spanning sets, dimension, linear operators, determinants, inner product spaces, canonical forms. Prerequisites: Either MATH 1503 and MATH 1013; or MATH 2213

MATH 3243   Complex Analysis   3 ch (3C)

Complex analytic functions, contour integrals and Cauchy's Theorem; Taylor's, Laurent's series and Liouville's Theorem; residue calculus. Prerequisite: MATH 2003 and MATH 2013, or MATH 2513 and MATH 2523; or equivalent.

MATH 3303   Operations Research I   3 ch (3C)

Linear programming models, simplex method, duality theory, post-optimality analysis, network simplex method and special cases, introduction to interior point methods. Credit will not be granted for both MATH 3303 and BA 3623. Prerequisite: MATH 1503 or MATH 2213.

MATH 3343   Networks and Graphs   3 ch (3C)

Graphs, Euler paths, tournaments, factors, spanning trees, applications; electric networks and Kirchhoff's laws, matroids; kernels, Grundy function and application to game theory; Menger's theorem, flows in networks, flow algorithms. Prerequisites: MATH 1503 or MATH 2213.

MATH 3503   Differential Equations for 3 ch (3C1T)
                    Engineers

Nonhomogeneous differential equations, undetermined coefficients, variation of parameters, systems of 1st and 2nd order ordinary differential equations, Laplace transforms, Fourier series, partial differential equations with constant coefficients, boundary value problems. Prerequisite: MATH 1503 or 2213 (C grade minimum). Corequisite: MATH 2513 or MATH 2003.

MATH 3633 Fundamental Principles of   3 ch (3C)

This course is primarily intended for individuals interested in school teaching. The focus is on the mathematical content of the K-12 Atlantic Canada Mathematics Curriculum with extensions beyond the classroom, to show the how and why behind school mathematics. Topics include mathematical language; real numbers and other mathematical structure; Euclidean geometry; functions; mathematical connections; problem solving. Intended for students registered in concurrent B.Ed. programs, but may be taken for credit by others with the approval of the student's department Chair or Dean. Prerequisite: A minimum grade of 60% in New Brunswick high school courses Pre-calc 12A and Pre-calc 12B or equivalent, and successful completion of at least one year of a university program; or MATH 2633.

MATH 3703   Topics in Mathematics   3 ch (3C)
Selected topics at an advanced level. Content varies from year to year. Topics of course will be entered on student's transcript. Prerequisite: Consent of instructor.

MATH 3713   Analysis I   3 ch (3C)
The real number system. Elementary set theory. Metric spaces. Sequences and series. Continuity. Prerequisites: One of MATH 2013 or MATH 2523, 2203; and either MATH 1503 or MATH 2213.

MATH 3733   Abstract Algebra   3 ch (3C)

An introduction to the elementary theory of groups. Rings and Fields. Applications to number theory. Prerequisite: MATH 2203 and either MATH 1503 or MATH 2213.

MATH 3753 Applications of Mathematical Models 3 ch (3C)

Provides an overview of mathematical modeling strategies for particular applications. Introduces students in a variety of disciplines to mathematical modeling based problem solving. General concepts such as stochastic vs. deterministic modeling are discussed and case studies of specific applications are presented. Case studies may include models of survival, models of cognition, models of population growth and financial models. Students develop case studies in the areas of their major or their own expertise. Prerequisites: one of STAT 3093, PSYC 3913, MATH 2013, MATH 2513, MATH 2523; or permission of the instructor.

MATH 3903 Financial Mathematics III 3 ch (3C)
Calculus in stochastic environment: random functions, derivative, chain rule,integral, integration by parts, partial derivatives. Pricing forwards and options. Ito's lemma and financial applications. Hull-White, Artzner-Heath, and Brennan- Schwartz models. Martingales, pricing methodology, and risk-neutral probability. Prerequisites: MATH 1503 or MATH 2213; and MATH 2913.

MATH 4903 Financial Mathematics IV 3 ch (3C)

Forming risk-free portfolios: the Black-Scholes partial differential equation;constant dividend case, exotic options, drift adjustment, equivalent martingale measures. Cox-Ross-Rubinstein, Merton and Vasicek's models. Stochastic optimization: Hamilton-Jacobi-Bellman equation, application to American options. Prerequisites: MATH 3903 and STAT 3093.

MATH 4993 Project in Mathematics 3 ch

Research project in the Mathematical Sciences carried out by the student under the supervision of a member of the Department. The student will submit a written report and make an oral presentation. Prerequisite: Normally 75% of total credits required in the program.

MECHANICAL ENGINEERING

A grade of C or higher is required in all Mechanical Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

ME 1312   Computer Aided Design   4 ch (2C 3L)

Introduces the technology of 3D parametric geometric modeling to design and model mechanical engineering parts, assemblies and devices. Geometric variables and their interrelationships will be covered by projects involving the design of mechanical components, assemblies and machines to meet functional requirements. Manufacturing requirements including Geometric Dimensioning and Tolerancing. The use of the model for analysis, optimization and simulation will be stressed. Presentation of the model through engineering drawings and pictorial renderings. Animation of mechanisms. A comprehensive commercial CAD program will be used. ENGG1003, Corequisite: MATH 1503.

ME 2111   Mechanics of Materials I   3 ch (3C 1T)

Basic concepts, uniaxial stress and strain, Hookes law, torsion, pure bending, bending design, shear flow, transverse loads, stress and strain transformation, Mohrs circle, strain measurement. Prerequisite: APSC 1023.

ME 2122   Mechanics of Materials II   3 ch (3C 1T)

Fatigue, yield criteria, thin-wall pressure vessels, strength and deflection of beams, buckling of columns, instability, indeterminate beams, energy methods, Castiglianos theorem. Prerequisite: ME 2111 or ME 2121 or CE 2023.

ME 2125   Mechanics of Materials Design   1 ch (2L)
                    Project

Analysis of the strength of a mechanical device. Shapes and materials will be modified to meet deflection and stress limits. Written reports will document choices made and assessment of design. Group oral reports. Prerequisite: ME 2111 or ME 2121 or CE 2023. Corequisite: ME 2122.

ME 2143   Kinematics and Dynamics of   3 ch (3C 1T)
                    Machines

Fundamental concepts of linkages, displacement, velocity and acceleration analysis using graphical and analytical methods. Static and dynamic force analysis of linkages. Introduction to cams. Gears: involute nomenclature; bevel. helical and worm gears; ordinary and planetary gear trains. Balancing rotating masses. Simple gyroscopic effects. Prerequisite: APSC 1023. Recommended: CS 1003 or other introductory programming course.

ME 2145   Kinematics and Dynamics Design   1 ch (2L)
                    Project

Student groups to design and build working model of planar linkage mechanism, based on a mechanical application. Cooperation and project management skills. Written reports to document choices made; evaluation of working model performance; and position, velocity, acceleration and force analyses. Group oral reports. Prerequisite: APSC 1023. Corequisite: ME 2143.

ME 3232   Engineering Economics   3 ch (3C)

Application of engineering economic analysis to mechanical and industrial engineering systems. Major emphasis will be given to decision-making based on the comparison of worth of alternative courses of action with respect to their costs. Topics include: discounted cash flow mechanics, economic analyses, management of money, economic decisions. Restricted to students with at least 60 ch in their program.

ME 2352   Design Optimization   4 ch (3C 2L)

Optimization of any design is essential either to remain competitive or to improve product efficiency and quality. Several optimization methods are presented through a variety of mechanical design and industrial engineering problems. Topics include: single and mulit-variable uncontrained optimization, linear programming transportation, assignment and network problems. Other topics such as constrained and global optimization are introduced. Prerequisite: CS 1003, MATH 1003, MATH 1503. Recommended co-requisite: ME2143.

ME 3413   Thermodynamics I   3 ch (3C)

Properties of a pure substance B work ans heat. First, law and applications in non-flow and flow processes. Second law ans reversibility; entropy, applications of the second law to non-flow and flow processes. Analysis of thermodynamic cycles. Thermodynamic relationships. Prerquisites: CHEM 1882 and MATH 1013. Corequisite: MATH 2513.

ME 3415   Thermodynamics I Laboratory   1 ch (3L*) [W]

Laboratory experiments and measurements related to Thermodynamics I. Labroartory reports and readings are assigned. Co-requisite: ME 3413.

ME 3513   Fluid Mechanics   3 ch (3C)

The principles of fluid mechanics are introduced and methods are presented for the analysis of fluid motion in practical engineering problems. Specific topics include: fluid statics, integral balances of mass, momentum, angular momentum and energy; boundary layer theory and introduction to the Navier- Stokes equations; dimensional analysis; and liquid flow in piping networks with pumps and turbines. Pressure and flow measurement and experimental uncertainty. Prerequisites: APSC 1023. Co-requisite: MATH 2513.

ME 3515   Fluid Mechanics I Laboratory   1 ch (3*L) [W]

Laboratory experiments and measurements related to Fluid Mechanics I. Laboratory reports and readings are assigned. Co-requisite: ME 3513.

NURSING

NURS 1011   Nursing as a Profession   3 ch (3C)
Introduction to the foundations, heritage and practices of nursing as a profession. Examines UNB nursing curriculum and philosophy.
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NURS 1032   Professional Relationships   3 ch (2C 1T)
Introduction to the theoretical foundations of caring, relational aspects of caring in nursing practice, and beginning counselling skills.

NURS 1225   Nursing and Wellness   3 ch (3C) Explores the concepts of wellness, health and illness within the framework of primary health care. Co-requisite: NURS 1235.

NURS 1235   Clinical Practice: Nursing and 3 ch (9L)
                      Wellness

Supplements NURS 1225. Designed to provide students with the opportunity to apply theory and acquire skills in clinical environments. Corequisite: NURS 1225.

NURS 2011   Concepts for Professional Nursing 3 ch (3C)
                      Practice
Includes core concepts (health, client, environment, nursing), nursing standards, professional issues (ethics, legal, collaboration) and primary health care with particular emphasis on health promotion and disease prevention. For BN/RN and LPN Bridge students only.

NURS 2041   Health Assessment   4 ch (3C 1L)
Addresses physical, and psycho-social and cultural assessment throughout the lifespan with an emphasis on adults. The nurse's role in health promotion is explored. Includes a lab component.

NURS 2052   Clinical Decision Making   3 ch (2C 3L)
A hybrid course that combines concepts essential for a comprehensive health assessment safe delivery of medication in a complex care environment and lab experiences in physiology. Using a primary health care framework, the course will enhance clinical judgement , interpretation of clinical findings and appropriate nursing actions that result from both. This course is intended for LPN Bridge Students Only.

NURS 2063   Concentrated Clinical Practice I   4 ch (12L)
The application of theory and nursing practice skills acquired in previous learning experiences. Practice takes place over four weeks in institutional and community settings. Prerequisites: All year 2 nursing courses and Biol 2831, Biol 2852

NURS 2132   Pharmacology   3 ch (3C)

Involves the study of pharmacology and its application to the practice of Nursing. The course will focus on classifications of drugs, physiological responses of body systems to medications, nursing responsibilities, and factors influencing patient/client ability to manage medication therapies. Prerequisite: NURS 2041 and NURS 2135: BIOL 2831. Co-requisite: BIOL 2852.

NURS 2135   Chronic Health Challenges   3 ch (3C)

Focuses on the impact and influences of long-term health challenges on clients. Examines rehabilitative and supportive nursing practice. Co-requisite. NURS 2157.

NURS 2145   Mental Health Challenges   3 ch (3C)

Explores the experiences of persons living with psychiatric illnesses and examines related nursing therapeutics. Co-requisite. NURS 2189.

NURS 2157   Clinical Practicum I   3 ch (9L)
Provides students with the opportunity to apply theory and acquire skills in practice environments. Pre and Co-requisites: NURS2135, NURS2145, or NURS2177.

NURS 2177   Young Families' Health   3 ch (3C)
Focuses on promoting the health of childbearing and child-rearing families. Prerequisites: NURS 2041, NUR2135, and NURS2157. Corequisite: NURS2189.

NURS 2189   Clinical Practicum I   4 ch (12L)
Provides students with the opportunity to apple theory and acquire skills in practice environments. Pre and Co-requisites: NURS2135, NURS2145, or NURS2177.

NURS 3033   Communications in Health Care   3 ch (2C 1T)
Explores more advanced skills in helping relationships with patients/clients, and focuses on the development of skills related to effective collaboration with members of intra-professional and inter-professional health care teams. Cross-listed with HSCI 3003. Prerequisite: completion of Year 2 NURS courses or designated LPN Bridge courses.

NURS 3061   Issues in the Canadian Health Care System   3 ch (3C)
This course focuses on the history and organization of the Health Care System and discusses current health care issues. Cross listed with HSCI 3061. Pre-requisites: NURS 2063 for BN students, all required LPN Bridge courses for BN/LPN students and NURS 2011 for BN/RN students. Corequisite: NURS 3092.

NURS 3064   Community Development I   4 ch (4C)
Focuses on community assessment and program planning in institutional and non-institutional settings. Students assess primary health care needs of a community, and are involved with planning, implementing, and evaluating health care needs of a community, and are involved with planning, implementing, and evaluating health care programs for target groups. Prerequisites: NURS 2063 for BN students, all required LPN Bridge courses for BN/LPN students and NURS 2011 for BN/RN students. Co-requisite: NURS 3092.

NURS 3067   Clinical Practicum: Community Development I   4 ch (12L)
Emphasis is placed on applying program development skills in community settings. Pre-requisites: NURS 2063 for BN students, all required LPN Bridge courses for BN/LPN students and NURS 2011 for BN/RN students. Corequisites: NURS 3064 and NURS 3092.

NURS 3071   Acute Health Challenges   3 ch (3C)
Examines the client's experience of acute health challenges, with a focus on nursing therapeutics. Prerequisites: Completion of Year 2 NURS courses or designated LPN Bridge courses. Corequisite: NURS3073.

NURS 3073   Clinical Practice: Acute Health Challenges   6 ch (18L)
Complements and supplements NURS3071.

NURS 3081   Theoretical Foundations of Nursing   3 ch (3C)

Explores theoretical foundations of nursing practice and research,
including critical analysis of theories and concepts related to nursing.
Prerequisites: NURS 2063 for BN, NURS 2011 for BN/RN.

NURS 3092   Nursing Research *(Cross-Listed: HSCI 3091)*   **3 ch (3C)**
Introduces the purpose, process and utilization of nursing research. Introduces an exploration of the interrelationships between theory and practice and critique of published reports. Prerequisite or co-requisite: STAT 2263 or approved substitute.

NURS 3703   Concentrated Clinical Practice II   5 ch (15L)
An integrative experience to practice acquired and new nursing skills in institutional settings. Prerequisite: All required year three nursing courses and Biol 3251.

NURS 4142   Issues and Leadership in Nursing Practice   3 ch (3C)
Critically evaluates current issues affecting the nursing profession, including concepts relating to nursing leadership and nursing management as well as the influence of organizational structures on nursing work. Examines mandates of nursing professional associations, unions, and the Acts and Standards (including ethics) governing nursing practice. Prerequisite: completion of Year 3 courses for BN students; completion of NURS 2011 for BN/RN students.

NURS 4152   Concentrated Clinical Practice II   7 ch (21L)
A preceptored clinical experience in which student learning is facilitated by a registered nurse preceptor in one nursing practice setting and a nursing program representative in a faculty liaison role.

NURS 4166   Integrated Care   2 ch (2C)
Further explores the experiences of a population living with complex health challenges from a population health perspective. Focuses on Nursing therapeutics with further development of independent clinical judgement & decision making appropriate to primary health care. Prerequisites: NURS 4322 for BN students. NURS 2011 for BN/RN students. Co-requisite: NURS 4176.

NURS 4176   Clinical Practicum: Integrated Care   3 ch (9L)
Provides students with the opportunity to apply theory and acquire skills in practice environment. Prerequisites: NURS 4322 for BN students, NURS 2011 for BN/RN students. Co-requisite: NURS 4166.

NURS 4211   Families with Multiple Challenges   3 ch (3C)
Explores the impact of complex health challenges on the family. Examines the implications for nursing practice. Pre-requisite: Nurs 3703 for BN students. Corequisite: Nurs 4321, Nurs 4322 for BN students. Prerequisites: Nurs 3092 and Nurs 2011 for BN/RN students.

NURS 4234   Independent Study   3 ch
An elective independent study program under the guidance of all faculty member is pursued on the basis of student interest in any area of nursing. Faculty approval required.

NURS 4321   Nursing Complex Situations   3 ch (3C)
Explores clients' experiences of complex health challenges. Examines related nursing therapeutics with an emphasis on clinical judgement and decision making. Prerequisites: NURS 3703. Corequisite: NURS 4322.

NURS 4322   Clinical Practicum: Nursing in Complex 6 ch (18L)
                Situations
Provides students with the opportunity to care for families who have at least one member experiencing an acute or chronic illness. Prerequisites: NURS 3073 for BN students. Corequisites: NURS 4321 and NURS 4211.

PHILOSOPHY

Note: See beginning of Section F for abbreviations, course numbers and coding.

PHIL 1001   Introduction to Philosophy I   3 ch (3C)

A survey of Western Philosophy from Thales of Miletus to Thomas Aquinas.

PHIL 1002   Introduction to Philosophy II   3 ch (3C)

Survey of Western Philosophy from Francis Bacon to Contemporary Philosophy. Prerequisite: PHIL 1001.

PHIL 1053   Introduction to Logic, Reasoning and   3 ch (3C)
                Critical Thinking

An introduction to informal logic - the logic of ordinary language. Topics covered include inductive, deductive, moral and ethical arguments and fallacies in reasoning. Special emphasis is given to showing the importance of logic and critical reasoning as it relates to our personal and professional lives, the public forum of business, politics and ethical debates, and popular culture and media.

PHIL 2003   Introduction to Moral, Social and   3 ch (3C) [W]
                Political Philosophy

An historical investigation into such moral and socio-political concepts as goodness, virtue, happiness, justice, choice, duty, custom, natural and civil law, the state, freedom and the individual.

PHIL 2034   Religion and Ethics   3 ch (3C) [W]

An examination of such notions as good and evil, compassion and social justice, divine and natural authority, community and society, from the perspectives of religious affirmation and moral reasoning.

PHIL 2111   Symbolic Logic I   3 ch (3C)

A study of the principles of symbolic logic and the standard notations and methods used in determining the validity and invalidity of arguments.

PHIL 3014   Metaphysics and Epistemology   3 ch (3C) [W]

A study of issues in the branches of philosophy concerning reality and knowledge: metaphysics (the overall framework of reality) and epistemology (the theory of knowledge). Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3033   Pre-Socratics and Plato   3 ch (3C) [W]

An examination of early forms of Greek thought from the pre-Socratics and Plato. The Platonic tradition will also be surveyed and assessed. Prerequisite: PHIL 1001 or permission of the instructor.

PHIL 3034   Aristotle and Hellenistic Philosophies 3 ch (3C) [W]

A study of Aristotelian thought and of the diverse philosophies of the Hellenistic period. Prerequisite: PHIL 1001 or permission of the instructor

PHIL 3063   Philosophy of Language   3 ch (3C)

A study of some of the basic concepts of argument and reasoning, such as truth and falsity, analyticity, validity, agreement, stating and questioning. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3075   Philosophy of Art   3 ch (3C) [W]

This course examines the principles and concepts of art, as developed by philosophers and artists themselves, from ancient aesthetic theory, through essays on taste, to more recent views of aesthetic perception and the function of art in society. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3085   Philosophy & Film (O)   3 ch (3CO)

An exploration of the philosophical themes and issues in selected films. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3115   Contemporary Continental   3 ch (3C)
                Philosophy (O)

An in-depth study of the origins of and subsequent developments in Contemporary Continental Philosophy: the European philosophical tradition in western philosophy. Prerequisite: PHIL 1002 or permission of the instructor.

PHIL 3116   Contemporary Analytic Philosophy (O)   3 ch (3C)

An in-depth study of the origins of and subsequent developments in Contemporary Analytic Philosophy: the Anglo-American philosophical tradition in western philosophy. Prerequisite: PHIL 1002 or permission of the instructor.

PHIL 3117   Contemporary Political Philosophy (O)   3 ch (3C)

An exploration of the most influential approaches to contemporary political philosophy and the central issues that are addressed therein. Topics include: liberalism and communitarianism; justice, rights and freedoms; equality; private and public virtues; social responsibilities; citizenship and nationhood; and economic and environmental sustainability. Prerequisite: One term-course in Philosophy or Politics or permission of the instructor.

PHIL 3124   Contemporary Moral Problems   3 ch (3C) [W]

A wide-ranging look at a variety of claims and issues perplexing moral agents in contemporary society. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3133   Health Care in Ethics I   3 ch (3C) [W]

Examines major problems in contemporary medical practice, including confidentiality, informed consent and paternalism, compulsory sterilization and blood transfusions, contraception, abortion and genetic engineering, euthanasia, allocation of scarce resources, moral aspects involved in strikes of medical personnel, and conflict of duty situations. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3134   Health Care in Ethics II   3 ch (3C) [W]

A continuation of Health Care Ethics I. Examines major problems in contemporary medical practice, including confidentiality, informed consent and paternalism, compulsory sterilization and blood transfusions, contraception, abortion and genetic engineering, euthanasia, allocation of scarce resources, moral aspects involved in strikes of medical personnel, and conflict of duty situations. Prerequisite: PHIL 3133.

PHIL 3141   Philosophy of Mind   3 ch (3C) [W]

A study of various philosophical approaches to the nature and concept of mind. Topics to be covered include: Cartesian Dualism, Freudian Psychology, Behaviourism, Cognitive Psychology and Artificial Intelligence. Prerequisite: One term course in Philosophy or permission of the instructor.

PHIL 3153   Business Ethics   3 ch (3C) [W]

An evaluation of a selection of moral problems in business enterprises. Topics include: the state and business; the profit motive; ethics in the workplace; moral development; justice as fairness; social responsibility; wage equity; bribery; discrimination in hiring; ecology; business and the developing world; advertising; sexual harassment. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3171   Philosophy of Religion I   3 ch (3C) [W]

A critical examination of the central philosophical issues in the Western Religious Tradition. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3172   Philosophy of Religion II   3 ch (3C) [W]

A further analysis and elaboration of issues raised in PHIL 3171. Prerequisite: PHIL 3171 or permission of the instructor.

PHIL 3181   Philosophy of History I   3 ch (3C) [W]

A philosophical exploration of the nature of history and historiography. Topics include: laws and explanation; objectivity and subjectivity; point of view and value judgements; and narrative. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3241   Philosophy of Natural Science   3 ch (3C) [W]

An analysis of such scientific concepts as explanation, theory, and law, with special attention to the implications of recent scientific theories. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3242   Philosophy of Human Science   3 ch (3C) [W]

An analysis of the methods, theories and presuppositions of such human sciences as economics, psychology, history, and anthropology. Prerequisite: One term-course in Philosophy or permission of the instructor.

PHIL 3531   Late Antiquity & Early Medieval   3 ch (3C)
               Philosophy (A)

This course will concentrate on major figures, persistent themes and significant philosophical works of late antiquity and early medieval philosophy, from the rise of Christianity to the Carolingian Renaissance. Prerequisite: One term-course in philosophy or permission of the instructor.

PHIL 3532   Medieval & Renaissance Philosophy (A) 3 ch (3C)

This course will concentrate on major figures, persistent themes and significant philosophical works of the medieval period, from the rise of scholasticism, through the full flowering of medieval philosophy in the 13th century, to the breakdown of the medieval synthesis and the rise of Renaissance thought. Prerequisite: PHIL 3531.

PHIL 3631   Phenomenology and Existentialism   3 ch (3S)

A study of the phenomenological method and existential inquiries into human existence. Topics include: existence; freedom, angst; alienation; death; meaning and hope. Prerequesite: One term-course in Philosophy or permission of the instructor.

PHIL 3841   17th & 18th Century Modern   3 ch (3C) [W]
               Philosophy

A study of the Rationalist and Empiricist traditions of the 17th and 18th century from Descartes to Hume. Prerequisite: PHIL 1002 or permission of the instructor.

PHIL 3852   Kant and 19th Century German   3 ch (3C) [W]
               Philosophy

A study of late 18th and 19th century German philosophy from Kant to Marx. Prerequisite: PHIL 1002 or permission of the instructor.

PHIL 4916   Selected Topics in Philosophy   3 ch [W]

These courses focus on specialized areas of interest. Prerequisite: At least two term-courses at the upper level in Philosophy or permission of the instructor.

PHYSICS

Note: See beginning of Section F for abbreviations, course numbers and coding

PHYS 1011   Introductory Physics I   3 ch (3C 1T)

This course is an introduction to the branch of physics called mechanics. Mechanics is the study of both how objects move and why they move they way they do. Describing the motion of objects requires understanding the basic kinematics quantities.position, displacement, velocity, and acceleration, as well as the connection between them. Understanding the cause of motion can be achieved by considering the forces acting on the object and/or by focusing on the conserved properties of the system (momentum, energy, angular momentum). Mechanics applies to a wide range of phenomena, essentially to anything that moves, but this course will highlight ties to and applications in the physical sciences. Prerequisite: Grade 12 Physics or equivalent. Co-requisite: either MATH 1001 or MATH 1003. Students intending to take Physics courses beyond Introductory Physics or continue in the Physical Sciences stream should take MATH 1003 and PHYS 1021 as co-requisites to this course.

PHYS 1012   Introductory Physics II   3 ch (3C 1T)

This course introduces the students to wave phenomena and to electricity and magnetism. Throughout, the concepts related to motion learned in the previous course are used to describe and explain new phenomena. The study of waves introduces the student to propagating, periodic disturbances. In addition to their importance in mechanical phenomena (e.g./seismic waves), waves from the basis of both optics and acoustics . The study of electricity and magnetism introduces the student to the concept of of charge and to the effects of charges on their surroundings (fields and forces). This course will highlight ties to and and applications in the physical sciences Prerequisite: PHYS 1011; MATH 1001 or MATH 1003. Students intending to take Physics courses beyond Introductory Physics or continue in the Physical Sciences stream should take MATH 1013 and PHYS 1022 as co-requisites to this course.

PHYS 1021   Experiments in Introductory Physics I   2 ch (3L)

This course provides the students hands-on experience with concepts covered in PHYS 101. Corequisite: PHYS 1011.

PHYS 1022   Experiments in Introductory Physics II   2 ch (3L)

This course provides the student hands-on experience with concepts covered in PHYS 1012. Co-requisite: PHYS 1012.

PHYS 1801   Introductory Physic for Biological   5 ch (3C 1T 3L E)
               Sciences

A general introduction to Physics, with applications to biological systems. Topics include mechanics, fluid mechanics, electromagnetism, optics acoustics, acoustics, and radiation phenomena. This course is intended primarily for students in Biological Sciences. **Note:** Credit will not be given PHYS 1801; and PHYS 1011/PHYS 1021. Prerequisite: A minimum grade of 70% in high school Physics. Co-requisite: MATH 1001 or MATH 1003.

PHYS 1917   Physics for Engineering   5 ch (4C 2T/3L)

Vectors, kinematics, momentum, force, potential and kinetic energy. Kinetic theory of gases, circular motion, charge, field and potential, gravitation, electrostatics, optics, sound. Prerequisite: Grade 12 Physics or equivalent.

PHYS 2011   Mechanics   5 ch (3C 3L)

Scalar and vector quantities, statics, kinematics, dynamics, work, energy, power, rotational motion, impulse and momentum, vibratory motion. Prerequisites MATH 1013, PHYS 1011/1012 and PHYS 1021/1022.

PHYS 2022   Electricity and Magnetism   5 ch (3C 3L)

Current, resistance and DC circuit analysis. Transients in LCR circuits. AC circuit analysis, phasors, resonance in series and parallel LCR circuits. Electrostatics; electric fields, Gauss' Theorem, potential, capacitance. Magnetic fields, induced e.m.f. Prerequisites: PHYS 1011/1012 and PHYS 1021/1022.

PHYS 2041   Mechanical and Thermal Properties of Matter 3 ch (3C)

Intermolecules forces, elementary thermodynamics and kinetic theory, applications (gases). Imperfect gases: solids and liquids state, elastic and thermal properties of solids; fluid flow. Prerequisites: MATH 1013, PHYS 1011/1012 and PHYS 1021/1022.

PHYS 2055   Survey of Modern Physics   5 ch (3C 3L)

Relativley, quantization in nature, photoelectric effect, Compton effect, x-rays, x-ray diffraction, deBrogile waves,phase and group velocities, the uncerstaintiy principle, energy levels and atomic structure, nuclear structure, nuclear reactions, radioactivity, fission, fusion, elementary particles of physics. Prerequisites: MATH 1013, PHYS 1011/1012 and PHYS 1021/1022.

PHYS 2183   Introductory Astronomy   3 ch (3C)

A basic astronomy course of students in science, engineering or computer science. Topics include an overview of the history and techniques, dynamics, of the solar system , stellar interiors and evolution, cosmology and glactic structure. Prerequisites: MATH 1013 and either PHYS 1011/PHYS 1012, APSC 1013 or by permission of the instructor.

PHYS 2543   Environmental Physics   3 ch (3C)

Open to students in all faculties. Provides an introduction to environmental physics of the atmosphere. Topics include: physics of the atmosphere, energy transportation and transformation; air pollution, sources, effects and control. Prerequisites: (MATH 1001 OR MATH 1003), PHYS 1011 and PHYS 1021; or by permission of instructor.

PHYS 2975   Light and Sound   5 ch (3C 3L)

Periodic motion and their linear superposition, free and forced damped harmonic motion, resonance, normal modes, vibrating strings. Transverse and longitudinal waves in various media, acoustics, reflection, and refractionof waves at vibrating strings. Transverse and longitudinal waves in various media, acoustics, reflection and refraction of waves at boundaries. Topics selected from the following list: geometrical optics, interference. Diffraction, polarization, wave-particle duality, dispersion, coherence. Prerequisite: MATH 1013, and either PHYS 1010 and PHYS 1020 or APSC 1013. Corequisite: MATH 2513.

POLITICS

Note: See beginning of Section F for abbreviations, course numbers and coding.

POLS 1201 Introduction to Canadian   3 ch (3C/T) [W]
Politics I
Survey course focusing on Canadian government and politics at the national level.

POLS 1301 Global Political Studies   3 ch [W]
This course introduces students to the global issues of imperialism, globalization and democratization and their impacts on the governance of various countries. Prerequisites: None. Credit cannot be given for both POLS 1301 and IS 1001.

POLS 2201   Canadian Politics II   3 ch [W]
This course expands on ideas introduced in POLS 1201 with a focus on the relationship between Canadian political institutions and Canadian society. Prerequisite: POLS 1201.

POLS 2301 Politics of the Developing   3 ch (3C) [W]
World
Overview of political issues facing developing countries.

POLS 2401 Introduction to Political Ideas   3 ch (3C) [W]

An introduction to the ideas and principles that serve as the foundation for Political Science. Prerequisite: 1 term-course in Politics.

POLS 2601   Introduction to International   3 ch (3C/T) [W]
Politics
General introduction to the historic and contemporary practices of international relations.

POLS 3007   Digital Democracy   3 ch [W]
This course examines technologically mediated political practices in liberal democracies.

POLS 3101   Constitutional Politics in   3 ch (3S/T) [W]
Canada
Examines the structure and process of constitution-making, and conflicting visions of constitutional change.

POLS 3112   Political Economy of Canada   3 ch (3S/T) [W]
Examines the political economy of Canada, with a focus on the contribution of the political economy tradition to an understanding of Canada's, political, social and economic development.

POLS 3201   New Brunswick Politics 3 ch (3S/T) [W]
An overview of the history and development of New Brunswick politics.

POLS 3205   Canadian Provincial Politics   3 ch (3C/S) [W]
Designed to provide the student with an overview of the nature of government and political processes in the Canadian provinces.

POLS 3211   Contemporary New Brunswick 3 ch (3S/T) [W]
Ethics
Specialized study of current or selected issues in New Brunswick provincial politics.

POLS 3221   Canadian Political Issues I   3 ch (3C/S) [W]
Emphasis on current problem areas in Canadian Politics.

POLS 3222   Canadian Political Issues II   3 ch (3C/S)

Emphasis on a selected problem area in Canadian Politics.

POLS 3225 Gender and Canadian Politics   3 ch [W]

Examines the role of gender in Canadian social movements, political parties and political institutions, including Parliament, the courts and the media. Prerequisites: POLS 1201 or GEND 2001.

POLS 3231   Representation and Recognition in Canadian 3 ch [W]
Politics
This course addresses the representation and recognition of women, aboriginals, Francophones, LGBT individuals, ethnic minorities and individuals with disabilities in the Canadia political system. Prerequisite: POLS 1201.

POLS 3232   Language Issues in Canada   3 ch (3S/T) [W]
Study of linguistic duality in Canada, with particular attention to conflicts over language rights.

POLS 3241 Canadian Voting Behavior   3 ch (3S/T) [W]
A study of the electoral system, representation, and voting behavior in Canada.

POLS 3252 Canadian Political Parties   3 ch (3S/T) [W]
Directed at a systematic study of the structure and functions of political parties in Canada.

POLS 3255 Interest Groups and Social Movements   3 ch [W]
Explores the development, goals, strategies and political impact of interest groups and social movements.

POLS 3261 Canadian Federalism   3 ch (3C/S) [W]
Advanced analysis of specific issues affecting the federation.

POLS 3273 Canadian Intergovernmental Relations   3 ch (3C/S) [W]
Considers the relationships between federal, provincial and municipal governments, and their impact on current issues.

POLS 3277 Political Leadership in Canada   3 ch (3S/T) [W]
Focuses on various aspects of political leadership at the federal level.

POLS 3278   Courts & Legislatures: The Politics of Canadian   3 ch [W]
Policy Making
This course analyses the impact of the inter-relationships of courts and legislatures on policy making at both the provincial and federal levels. Prerequisite: POLS 1201.

POLS 3283 Politics in French Canada   3 ch (3S/T) [W]
The politics and institutions of French Canada; in particular, the nature and sources of relevant political changes within French Canadian society in Quebec and Acadian society in New Brunswick.

POLS 3291   First Nations: Government in Canada   3 ch (3C/S) [W]
Examines the politics and administration of the relationship between aboriginal peoples and the Canadian state.

POLS 3292   Politics of Aboriginal Self-Government   3 ch (3C/S) [W]
A systematic analysis of the principles, structures and institutions of traditional and contemporary aboriginal self-government in Canada.

POLS 3311   Government of the United States 3 ch (3C/L) [W]
An analysis of contemporary issues in American politics, derived from an understanding of the concepts and structures of the national governmental system.

POLS 3322   The United States Presidency   3 ch (3C/L) [W]
An emphasis on the power relationships of the office of the Chief Executive.

POLS 3325   Gender and Comparative Politics   3 ch [W]
Comparative study of gender issues in selected countries, including womens political organizations, political participation and social policies affecting women. Prerequisites: POLS 1301 or GEND 2001.

POLS 3333   Comparative European States   3 ch (3S/T) [W]
A comparative examination of selected European states, their political institutions, political cultures and recent political issues.

POLS 3334   Latin American Politics   3 ch [W]
This course discusses the major political trends, actors and processes that have shaped Latin American governments and political throughout the course of the 20th and 21st Centuries. Prerequisites: POLS 1301 or POLS 2601.

POLS 3335   The Circumpolar North   3 ch (3C/S) [W]
A comparative analysis of political change and development in the Arctic region. Examples drawn from the Soviet Union, Alaska, Canada, Greenland, and Nordic Europe; pan-national movements; and Canadian Arctic policy.

POLS 3341   Comparative Federalism   3 ch (3C/S) [W]
A comparison of selected federal state structures. Definition of the problems and prospects of federation in Canada, the United States, Russia and other examples.

POLS 3345   Political Behaviour   3 ch [W]
An examination of the foundations of political behaviour, public opinion,political participation and political elites.

POLS 3355   Politics of the Environment   3 ch (3C/S) [W]
Focus on the public sensitivity to environmental/ecological issues ,political responses to this phenomena, and consequences of those responses. Uses a case-study approach.

POLS 3372   The State and Economic Interests   3 ch (3S/T) [W]
Examines the role of the Canadian state in economic development, with emphasis on the political dimensions of economic policy. Issues include the deficit, industrial policy, and foreign elements.

POLS 3375   The Political Economies of Asia   3 ch (3S/T) [W]
Examines the political structures, decisions and processes underlying Asia's role in the global economy.

POLS 3381   Politics of Asia   3 ch (S) [W]
Examines political resistance, rebellions and revolutions in selected Asian countries.

POLS 3401   Modern Political Thought   3 ch [W]
Examines a selection of major texts from the modern period of Western political theory, encompassing classic statements of conservative, feminist, liberal, and socialist thought.

POLS 3421   Selected Topics in the History of Ideas   3 ch (3C/S) [W]
A comparison of various political thinkers on specific themes: natural law from Cicero to Rousseau, social contract theory from Locke to Marx, etc.

POLS 3425   Canadian Political Ideas   3 ch (3S/T) [W]
This course surveys the tradition of Canadian political thought from Confederation to the present.

POLS 3433   Montesquieu and the Enlightenment   3 ch (3S) [W]
 The examination of his influence on the Enlightenment.

POLS 3445   Rousseau and the Enlightenment   3 ch (3S) [W]
The examination of his influence on the Enlightenment.

POLS 3451   Marxism   3 ch (3S/T) [W]
A focus on the writings of Karl Marx. Other Marxist theorists may also be examined.

POLS 3456   Politics Through Film   3 ch (3C/S) [W]
Seeks to examine political principles through the medium of film. Tyranny, censorship, totalitarianism, utopia, and liberty will be discussed through an analysis of a variety of films.

POLS 3463   Liberalism   3 ch (3S/T) [W]
Focuses on the core values and the exponents of liberal ideology.

POLS 3471   Study of Politics Through Literature   3 ch (3S) [W]
A multi-disciplinary analysis of the exposition of political ideas in works of classical and contemporary literature.

POLS 3473   Politics and Media in Canada   3 ch [W]
Examines the role of the press as critics and opposition to government & the role of government in regulating media. Designed as an upper level course for students majoring in politics or with a background in media or communications studies.

POLS 3483   Theories of Rights   3 ch (3S/T) [W]
The concept of "right" and differing perspectives on rights discourse.

POLS 3494   Democracy   3 ch (S/T) [W]
Examines the concept, and the various theories, of democracy.

POLS 3501   Contemporary Issues in Public Policy   3 ch (3S/T) [W]
Examines the major approaches explaining and understanding Canadian public policy, and applies them to a study of major public policy fields.

POLS 3601   Contemporary Issues in World Politics   3 ch (3S) [W]
Deals with current trends on the international scene including the global balance of power, relations between superpowers, ideological conflicts, the developing world, war, revolution, etc.

POLS 3603   Critical Perspectives on International   3 ch (S) [W] Relations Theory
A seminar that centers on frameworks for understanding international relations including: race, nationalism, political geography, deterritorialization, sovereignty, feminism, global communication, humanitarianism, human rights, the state and political space, forms of political conflict, identity theory, ethnography, and globalization.

POLS 3622   International Organization and Law   3 ch (3S/T) [W]
Study of supra-national organizations, and structures of international conduct; the effect of both on inter-state relationships.

POLS 3625   Gender and International Politics   3 ch [W]
Introduction to the gender aspects of international relations including militarism, nationalism, international political economy, the environment and human rights. Prerequisites: POLS 2601 or GEND 2001.

POLS 3631   Survey of Global Issues   3 ch (3S/L) [W]
Current global issues such as war, militarism, the arms race, human rights and social justice, ecological imbalance, economic inequalities, and alternative world organizational structures, considered from international and interdisciplinary perspectives. General-interest course.

POLS 3632   Urbanization, Poverty and Politics   3 ch [W]
This course explores the ways in which urban politics and planning have an effect on poverty and income disparities, and examines the role public and green spaces play in people's everyday lives. Prerequisites: POLS 1301 and POLS 2601.

POLS 3651   Canada and the Americas   3 ch [W]
This course discusses Canadian foreign policy towards the region with special emphasis on the influence of the United States. Prerequisites: POLS 1301 and POLS 2601.

POLS 3671   Web Activism   3 ch (S) [W]
Examines how Web activists use global communication technology in campaigns against given governments.

POLS 3673   Global Communication and   3 ch (S) [W] International Relations
Examines the role of global communication media and technologies in international relations. Discussion focuses on inter-governmental interaction, government links to citizens, and the empowerment of sub-state and non-state actors.

POLS 3675   Global News   3 ch (S) [W]
A seminar that focuses on the political meaning of global media communication. The rise of international television news networks will be examined as a factor that influences international relations.

POLS 3677   Information Technologies & Conflict   3 ch (S) [W]
A seminar based on the examination of new information technologies and their role and impact on conflict. Discussion will focus on a variety of technological applications in order to outline trends, features and theoretical implications.

POLS 3683   Human Rights   3 ch (3S/T) [W]
An examination of human rights in an international context, including international human rights instruments, and enforcement and the implications of economic, political and cultural globalization for human rights standards.

POLS 3685   The Politics of Food   3 ch [W]
This course provides an overview of the political and policy issues concerning food production and consumption in Canada and around the World. Prerequisites: POLS 1301 or POLS 1201.

POLS 3901   Approaches to Political Research   3 ch [W]
A survey of the major approaches and techniques used to research and analyze politics. Prerequisite: POLS 2401.

POLS 4000   Honours Thesis   6 ch
Under the direction of a supervisor, an Honours student completes a thesis. Prerequisite: Admission to the Honours programme.

POLS 4001   Honours Seminar in Politics   3 ch (3S/T) [W]
A compulsory seminar course for fourth year Honours students. Provides a broad overview of key debates and some of the most influential writings in the field of political science. Prerequisite: Permission of the Instructor.

POLS 4211   Special Topics in Canadian Politics   3 ch (3S/T) [W]
Advanced study of a specific subject in Canadian politics. Course topics will change annually.

POLS 4226   Directed Reading in Canadian Politics   3 ch (3S/T) [W]
Open to students desiring further specialization, the course requires a research paper in Canadian politics, supervised by an instructor in the subject area.

POLS 4311   Special Topics in Comparative Politics   3 ch (3S/T) [W]
Advanced study of a specific subject in comparative politics. Course topics change annually.

POLS 4336   Directed Reading in Comparative Politics   3 ch [W]
Open to students desiring further specialization, the course requires a research paper in comparative politics, supervised by an instructor in the subject area.

POLS 4411   Special Topics in Political Theory   3 ch (3S/T) [W]
Advanced study of a specific subject in political theory. Course topics change annually.

POLS 4416   Directed Reading in Political Theory   3 ch [W]
The course is open to 4th-year students with a sufficient background and a special interest in political theory. It can be taken only with permission of the relevant instructor.

POLS 4501   Politics Practicum   3 ch (LE)
Independent study course that provides students with volunteer experience e working in a politics related organization. It can only be taken with supervision by an instructor in the subject area. Available to Politics Majors or Honours students.

POLS 4505   Politics, Policy and Prostitution   3 ch [W]
This course examines the political and policy issues around the sex trade in Canada and internationally. Prerequisites: POLS 1301 and POLS 2601.

POLS 4611   Special Topics in International Politics   3 ch (3S/T) [W]
Advanced study of a specific subject in international politics. Course topics change annually.

POLS 4646   Directed Readings in International Politics   3 ch [W]
Work on a research essay pertinent to specialized areas in international or comparative politics, under an instructor assigned by the discipline.

POLS 4655   Drugs, Violence and Global Politics   3 ch [W]
This course explores the interplay of violence and illicit drugs with contemporary international politics, the global economy and public policy. Prerequisites: POLS 1301 or POLS 2601.

PSYCHOLOGY

PSYC1003 is a prerequisite for PSYC1004 and PSYC1004 is a prerequisite for all remaining Psychology courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

PSYC 1003   Introductory Psychology I   3 ch (3C)
An overview of psychology as well as an introduction to the biological basis of behavior, motivation, learning, sensation, perception, memory, thinking and language. Students may be requested to participate in research and some course credit may be earned in this way.

PSYC 1004   Introductory Psychology II   3 ch (3C)

Examines social behavior, personality, assessment, abnormal psychology, and psychological therapy. Students may be requested to participate in research and some course credit may be earned in this way.

PSYC 1273   Life Span Development   3 ch (3C)

An introduction to theory, methods, and research findings in lifespan developmental psychology. The life cycle as a whole and basic processes in socialization, cognition, and personality development will be examined. This course is designed primarily for Nursing students. Enrollment of other students is by permission of the instructor. Students currently enrolled in the BN programme are exempt from the PSYC 1004 prerequisiste requirement for this course only. Note: Students who take PSYC 1273 may not take PSYC 2201 or PSYC 3293.

PSYC 2102   Research Methods in Psychology   3 ch (3C 1L)

An introduction to the methods and theory of empirical and experimental research in psychology. The logic of hypothesis construction and testing in relation to various areas of psychology are examined. Students will be required to complete an experiment. This course is intended for students who plan to major or honour in either Psychology or Biopsychology. Prerequisite: A grade of C or better in PSYC 2901.

PSYC 2201   Child Development   3 ch (3C)

A study of theory, methods and research findings in infancy and childhood. Examines social, cognitive, emotional and physical development. Credit will not be granted for both PSYC 2201 and ED 3021.

PSYC 2401   Fundamentals of Social Psychology   3 ch (3C)

The scientific study of how people think about, influence, and relate to one another. The course examines methods and findings related to such topics as the self in society, judging others, attitudes, persuasion, social thinking processes and conformity.

PSYC 2901   Introduction to Statistical Analysis for 3 ch (3C)
                    Psychologists

Designed to acquaint the student with the basic tools of statistics which are used to summarize and analyze psychological data.

PSYC 3033   Health Psychology   3 ch (3C) (LE)

An aggregate of the scientific and professional contributions of the discipline of psychology towards promotion of an holistic approach for the maintenance of health, the prevention and treatment of illness including etiologic as well as diagnostic correlates of health and illness. Prerequisites: PSYC 1003 and PSYC 1004.

PSYC 3222   Sex Differences   3 ch (3C)

Focuses on biological and behavioural differences between females and males. Examines the psychological implications from conception to maturity of both physical sex differences and differential treatment by family and society.

PSYC 3232   Socialization   3 ch (1C 2S)

The major theoretical and empirical approaches to the nature of the child, the socialization processes, and the development of personality are dealt with in lectures and discussions. Prerequisite: PSYC 2201.

PSYC 3263   The Psychology of Criminal   3 ch (3C)
                        Behaviour

Examines psychological based theories of crime and the contribution of psychology to the understanding of criminal behaviour and the assessment and rehabilitation of offenders. Prerequisites: PSYC 1003 and PSYC 1004.

PSYC 3265   Forensic Psychology   3 ch (3C)
This course will focus on the application of psychological principles within legal contexts((e.g., legal decision-making, eye witness memory) and in relation to policing practices (e.g., interrogation practices, credibility assessment). Prerequisite: PSYC 1003 and PSYC 1004.

PSYC 3293   The Psychology of Aging   3 ch (3C)

Focuses on changes in learning ability, memory, perception, physical development, personality and social development associated with aging, beginning in young adulthood and extending to late adulthood. Prerequisites: PSYC 2201 or ED 3021.

PSYC 3323   Community Psychology and Mental   3 ch (2C 1S)
                        Health

Provides a detailed examination of how to evaluate programs in the community. Areas covered are mental health, criminal justice, and other systems that provide human services.

PSYC 3343   Human Sexuality   3 ch (3C)

Provides an introduction to the psychology of human sexuality, including examination of topics such as sexual anatomy, sexual behaviour, sexual response, sexual dysfunction and therapy, sexual variation and other topics of interest.

PSYC 3352   Developmentally Handicapped   3 ch (3C)
                        Children and Adults

A survey of sensory, physical and intellectual dysfunction in interaction with developmental processes.

PSYC 3362   Introduction to Guidance and   3 ch (3C)
                        Counselling

A survey of the concepts, theories, and resources involved in the guidance and counselling area.

PSYC 3383   Perception   3 ch (3C)

Provides a broad introduction to visual and auditory perception. Topics include the structure and neural functioning of auditory and visual systems and contemporary approaches to traditional problems of perception. The course may include reviews of other sense modalities.

PSYC 3393   Systems of Therapy   3 ch (3C)

The array of contemporary psychotherapeutic techniques is examined with emphasis on the relationship that exists between the theoretical and historical background of a therapy and the form it assumes when put into practice.

PSYC 3412   Advanced Social Psychology   3 ch (3C)

Further examines the scientific methods and findings that pertain to the functioning of individuals in social contexts. Topics include advanced methods used to study groups, aggression, prejudice, attraction and altruism.

PSYC 3453   Cross Cultural Psychology (O)   3 ch (3C)

Cross cultural influences on behaviour, cognition, motivation, and personality variation. Methodological issues are examined. Prerequisite: PSYC 1003, PSYC 1004.

PSYC 3461   Theories of Personality   3 ch (3C)

Theory formation is greatly influenced by the assumptions, beliefs and experience of the theorist. In surveying formal theories of personality, an attempt is made to demonstrate the influence of personal-subjective factors in the development of theory.

PSYC 3493   Changing Behaviour   3ch (3C)
An examination of the application of basic principles of learning to human behavioural processes. A study of the treatment of techniques and assessment procedures employed in behaviour modification programs.

PSYC 3503   Learning   3 ch (3C)
A survey of principles both instrumental and classical conditioning focusing on animal subjects. Such topics as biological constraints on learning, cognitive interpretations of learning, and memory processes will be included. There will be various demonstrations throughout the course

PSYC 3553   Psychopathology   3 ch (3C)

This course will provide the student with a comprehensive picture of maladaptive behaviour from a biological and psychosocial perspective. Problems associated with diagnostic systems, the role of stress, and other causative factors implicated in the traditional clinical syndromes will be discussed.

PSYC 3603   Selective Attention and Memory   3 ch (3C/SL)

Open to 2nd, 3rd and 4th year students who have completed PSYC 1004. An examination of the processes involved in the reception, election and storage of information.

PSYC 3632   Motivation   3 ch (3C)

A critical examination of the concept of motivation in terms of its power to explain findings in the experimental literature and its capacity to generate research.

PSYC 3693   Cognitive Processes   3 ch (3C)

The scientific study of higher mental processes. This course examines experimental methods and findings related to attention, memory, mental imagery, the organization of general knowledge, language, problem solving and creativity.

PSYC 3711   Biological Psychology   3 ch (3C) (LE)

An introduction to the anatomy and physiology of nervous systems with a special emphasis on behavioural indices of function. Illustrative examples of both human and animal research are surveyed. Prerequisites: PSYC 1003 and PSYC 1004.

PSYC 3723   Introduction to Human   3 ch (3C)
                        Neuropsychology

A review of human neuroanatomy with a focus on recent theories and findings regarding the functional organization of the brain. The principles of cerebral asymmetry, disconnection syndromes, and the functions of the occipital, parietal, temporal, and frontal lobes are examined. A special emphasis is placed on the role of brain systems in sensory motor skills, higher order cognitive functions and personality. Prerequisite: PSYC 3711.

PSYC 3724   Introduction to Clinical   3 ch (3C)
                        Neuropsychology

Explores the neuropsychological sequelae of the most common neurological and psychiatric disorders seen in the practice of clinical neuropsychology , including vascular disorders, traumatic head injuries, epilepsy, tumours, multiple sclerosis, anxiety, depression, schizophrenia, dementia, and neuro-degenerative conditions, such as Alzheimer's Disease. Prerequisite: PSYC 3723.

PSYC 3725   The Dementias   3 ch (3C)

An introduction to a devastating group of diseases which cause irreversible decline in cognitive functioning and for which the incidence is expected to triple by the year 2031. The etiological models, cognitive, emotional, and behavioral changes, treatment, care, and management issues of the most common types of dementias are explored including cortical (e.g., Alzheimer's disease, Vascular Dementia, Frontal Lobe Diseases) and subcortical (e.g., Parkinson's Disease, Huntington's Disease, Multiple Sclerosis, and AIDS) dementias. Prerequisites: PSYC 1003 and PSYC 1004.

PSYC 3743   Comparative Psychology   3 ch (3C)

Development of psychological theory by the comparison of data from different species. Emphasizes the evolution and adaptive significance of behaviour. Prerequisites: PSYC 1003 & PSYC 1004

PSYC 3572   Drugs and Behaviour   3 ch (3C)

A survey of all classes of psychoactive drugs, their effects on human and animal physiology and behaviour, their history of use, and various drug-related issues such as abuse, dependency, and legality.

PSYC 3803   Industrial Psychology   3 ch (3C)

Application of psychological knowledge to business and industrial problems. Prerequisite(s): PSYC 1003, PSYC 1004.

PSYC 3913   Introduction to Statistical Inference   3 ch (3C) and Experimental Design in Psychology

This course provides an introduction to research design and statistical inference in psychology. Topics covered are computational procedures and theory up to analysis of variance, including multiple comparisons and multiple regression. Students will also learn how to analyse data using one or more statistical packages. Prerequisites: A grade of C or higher in PSYC 2901

PSYC 4021   Psychophysiological Research   3 ch (2C 1L)

Deals with measurement techniques of the autonomic and central nervous systems of humans functioning under cognitive or situational challenges. The measurements reflect processes and conditions related to stress, cognitive functioning, motivation and individual differences.

PSYC 4053   History of Psychology   3 ch (3C)

This course traces the origins and development of modern psychology from its roots in ancient Greece through the philosophical and scientific developments in Europe that have culminated in the broad polymorphic discipline of today.

PSYC 4111   Basic Research   3 ch (3S)

The purpose is to enable students to become actively involved in basic research. This involvement will take the form of participation in research, reading and discussion of research topics, and development of research skills.

PSYC 4122   Basic Research II   3 ch (3S)

Continuation of PSYC 4111.

PSYC 4131   Honours Research Seminar   0 ch (3S)

A non-credit seminar for Honours students. Topics include problems of research design and discussions of student Honours research projects.

PSYC 4142   Honours Research Seminar   0 ch (3S)

A non-credit seminar for Honours students. Topics include problems of research design and discussions of student Honours research projects. Prerequisite: PSYC 4131.

PSYC 4143   Designing Research Proposals   3 ch

Under the direction of a supervisor a student develops a proposal which is assessed and approved by the Department. Prerequisite: Eligibility for the Honours programme. A letter grade will be assigned.

PSYC 4145   Honours Thesis   3 ch

Under the direction of a supervisor a student conducts, completes and defends the research. Prerequisite: A grade of B+ or higher in PSYC 4143. A letter grade will be assigned.

PSYC 4213   Practicum in Child Studies I   3 ch (4C/S)

This practicum is designed to provide students with experience in the school setting. The major emphasis is on field placement, where students will gain practical experience working with children. This course has limited enrolment, and is open to fourth year Psychology majors and honours students. Prerequisites: PSYC 2201, PSYC 3493, and permission of instructor.

PSYC 4214   Practicum in Child Studies II   3 ch (4C/S)

A continuation of PSYC 4213. Prerequisite: PSYC 4213.

PSYC 4233   Program Evaluation   3 ch (3C)

A seminar course focusing on the principles and methods used in planning and conducting programme evaluations. A basic introduction to the review and assessment of applied/clinical research using meta-analytic methods. Prerequisites: PSYC 2102 and PSYC 2901; Sociology majors take SOCI 3104 in lieu of PSYC 2901.

PSYC 4263   Field Placement in Community   3 ch (LE) Corrections I

The field placement is designed to provide students with practical experience in a community correctional setting that provides services for federal parolees. The course has limited enrollment and is open to 3rd - 4th year psychology & sociology majors. Prerequisites: PSYC 3263 and PSYC 3493 and SOCI 2611 and SOCI 3614; 3rd - 4th year PSYC/SOCI, Cumulative GPA=B (exceptions may be made at the discretion of the instructors).

PSYC 4264   Field Placement in Community   3 ch (LE) Corrections II

The field placement is designed to provide students with additional practical experience in a community correctional setting that provides services for federal parolees. The course has limited enrollment and is open to 3rd - 4th year psychology & sociology majors. Prerequisites: PSYC 3263 and PSYC 3493 and SOCI 2611 and SOCI 3614; 3rd - 4th year PSYC/SOCI, Cumulative GPA=B (exceptions may be made at the discretion of the instructors).

PSYC 4265   Field Placement in Clinical   3 ch (LE) Psychology

Exposure to community mental health settings, with the goal of gaining applied supervised experience with individuals who have mental health, behavioural and/or intellectual challenges. Enrolment is limited to Psyc Major/Honour students with a minimum CGPA of 3.3 (B+) and is subject to permission of the instructor. Prerequisites: PSYC 1003, PSYC 1004, PSYC 3553, PSYC 3493, and either PSYC 3362 or PSYC 3393.

PSYC 4293 Adolescence   3 ch (3C/S)

A seminar course examining physical, cognitive, social and emotional development in adolescence. Prerequisites: PSYC 2201 or PSYC 1273, and PSYC 2102.

PSYC4313Psychological Testing3ch(3C/L)

A seminar course focusing on Psychometric Theory and principles of psychological testing as they arise in consideration of relevant statistical concepts and methods and of historical experience in development and use of tests for general intelligence, differential abilities and personality traits. Prerequisite: PSYC 2102.

PSYC 4463   Attachment and Human Relationships   3 ch (C/S)

A seminar course focusing on an in-depth analysis of selected topics in personality theory and research. Possible topics include attachment, interpersonal relations and communication, intimacy, loneliness, solitude, and issues in personality assessment. Prerequisite: PSYC 2102 and PSYC 3461.

PSYC 4493   Developmental Psychopathology   3 ch (3C/S)

A seminar course that introduces students to the literature of maladaptive behaviour within the developmental perspective. Specific disorders of childhood and adolescence will be included in the seminar topics. Prerequisites: PSYC 2102, PSYC 2201, and PSYC 3553, or permission of instructor.

PSYC 4583   Advanced Perception   3 ch (3C)

A seminar course that provides an in-depth discussion and analysis of selected problems in perception. Topics may include temporal factors in perception, optical illusions, spatial frequency representation, perceptual development, motion perception. Prerequisites: PSYC 2102 and PSYC 3383.

PSYC 4693   Learning Theory   3 ch (3C/S)

An examination of some of the persistent theoretical questions in learning. Prerequisite: PSYC 3503.

PSYC 4733   Cognitive Neuroscience   3 ch (3C/S)

A seminar course that deals with contemporary neurological models of perception and cognition. Topics will be selected to reflect the expertise of faculty. They may include computational networks, blindsight, prosopagnosia, lateralization, etc. Prerequisites: PSYC 2102, PSYC 3711, and either PSYC 3383 or PSYC 3693.

PSYC 4813   Substance Use Disorders   3 ch (3C)   A seminar course that covers a broad spectrum of topics in the area of addiction including the epidemiology of substance abuse and dependence, the biopsychosocial bases of addiction, as well as, issues of comorbidity and treatement. Prerequisites: PSYC 2102 and one of PSYC 3752 or PSYC 4833.

PYSC 4833   Psychopharmacology   3 ch (3C)
A seminar course focusing on the drugs used in the treatment of depression, aniety, panic disorder, obsessive-compulsive disorder, phobias, schizophrenia, dementias, and related disorders. The emphasis is on the biological bases of these syndromes and the pharmacological agents used to alleviate them. Prerequisite:PSYC 2102 and PSYC 3711.

SCIENCE

Note: See beginning of Section F for abbreviations, course numbers and coding.

SCI 1001   University Skills for Science Students   2 ch (2C)

This course introduces first year students to skills which will assist in their success in first year university. Helps students develop their self-assessment skills and their approaches to problem solving.

SCI 1831   What On Earth Isn't Chemistry?   3 ch (3C)
(Cross-listed: CHEM 1831)

Intended for students (with limited chemistry background) who wish to gain a better understanding of the chemistry in the world around them. The course will cover aspects of ; atomic and molecular structure, the periodic table, what chemical names mean, balancing equations (and the relationships involved), acids and bases, nuclear chemistry, radiation and organic compounds. The concepts will be examined in the context of understanding "everyday" chemistry. This course cannot be used as a substitute for any other first level Chemistry course.

SCI 1862   Shaping the Earth's Surface   3 ch (3C)

Designed for the non-scientist. Examines the basic geological forces that shape the earth's surface and our environment. Subjects include volcanism, earthquakes, erosion, soils, groundwater, rivers, coastlines, deserts, landslides, and the earth's past, present and possible future climates.

SCI 1872   Basic Physics and Astronomy for   3 ch (3C)
                    Non-Scientists

Overview of physics and astronomy from the perspective of historic development and fundamental principles of science. Topics include: concepts of force, energy and wave; survey of astronomy tracing development of our view of the universe. Offered in alternate years with SCI 1862 (Shaping the Earths Surface). Prerequisite: High School math and science courses are an asset.

SCI 2001   An Introduction to Space Studies   3 ch (3C)

Examines aspects of humankinds interaction with space: the scientific, the technological, the economic, the political, and the social components. Prerequisite: 24 chs.

SCI 3155   Women and Science   3 ch (3C)

An overview of womens historical and contemporary participation in science, issues in science and math education, feminist critiques and theories on science and gender, and the impact of technology on womens lives. Prerequisites: GEND 2001 (pre- or co-) or 30 ch of any SASE program.

SCI 3255   Women, Development and the   3 ch (3C)
                    Environment

An examination of the effects of the status of women, poverty, population growth and economics on the state of the environment and conservation in developing nations. Environmental issues to be discussed include: over cultivation and deforestation, over fishing, poaching, antibiotic resistance, migration, biodiversity, extinction and resource depletion. Prerequisites: GEND 2001 (pre- or co-) or 30 ch of any SASE program.

SPORT AND EXERCISE PSYCHOLOGY

Note: See beginning of Section F for abbreviations, course numbers and coding

SEP 1001   Introduction to Kinesiology   3 ch (3C)

This course is intended to help the student understand what the discipline of Kinesiology is, why it is important, what Kinesiology majors study, what types of knowledge they acquire over the course of four years, and what types of careers are available to Kinesiology students.

SEP 2021   Youth in Sport   3 ch (3C) [W]

Examines the influence of sport experiences on the total development of youth. Includes an analysis of the nature and impact of youth sport programs to determine the major psychological, physiological, sociological and moral considerations surrounding youth involvement in sport. Prerequisites: SEP 1001, PSYC 1004 or permission of Instructor.

SEP 2023   Introduction to the Sociology   3 ch (3C) [W]
                    of Sport

Considers sport as a social institution and studies various topics which have occupied sport sociologists. Prerequisite: SEP 1001 or permission of instructor.

SEP 2032   Introduction to Sport Psychology   3 ch (3C) [W]

Examines selected topics which have implications for performance in sport and physical activity. Emphasis is on the application of theory to developmental coaching practice. Prerequisite: SEP 1001, PSYC 1004 or permission of instructor.

SEP 2251   Contemporary Health Issues I   3 ch (3C)

This course will examine current concepts in health. Includes promotion of healthy behaviour, building healthy lifestyles,examining personal nutrition and healthy eating practices, as well as sexuality and reproductive choices. Prerequisites SEP 1001, PSYC 1004 or permission of the instructor.

SEP 2252   Contemporary Health Issues II   3 ch (3C)

This course will continue to examine current concepts in health. Includes protecting one's self from infectious diseases, reducing one's risk of major diseases, drug, tobacco and alchol use, misuse and abuse, as well as teaching about the spirit health and wellness. Prerequisites: SEP 2251 or permission of the instructor.

SEP 3023   Careers, Professionals, and Lives in 3 ch (3C)
                    Health Sport
This course will investigate the pathways to careers and professions coming out of Physical Education, Health, Excersise Science,and Sport. Introductory topics related to physical activity,excersise science, and sport will be discussed with the intention of exploring their content in relation to career pathways. Students will demonstrate an ability to be conversant with the scholarly literature in professions related to health, physical education, excersise science, and sport. Prerequisite: SEP 1001 (grade of C or better) plus SEP 2021 , SEP 2023 , SEP 2032 (grade of B- or better in each), or permission of instructor.

SEP 3031   Exercise Psychology   3 ch (3C) [W]

This course examines a broad range of topics related to contemporary interests in exercise and exercise adherence from a psychological perspective. Prerequisites: SEP 2021, SEP 2023 and SEP 2032 (grade of B- or better in each) or permission of the instructor.

SEP 3032   Sport Psychology   3 ch (3C) [W]

Examines contemporary trends in sport psychology. Topics covered include: personality, motivation, arousal, stress, anxiety, competition, cooperation, imagery, self-efficacy, goal setting, concentration, burnout, and gender issues. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each) or permission of the instructor.

**SEP 3123   Careers of Elite Athletes: Sociological 3 ch (3C) [W]
                Analysis**

This course will take a sociological perspective, primarily interactionist and career-oriented, on the involvement of individuals in sports practices. An attempt will be made to provide an overview of such involvements, from the initial exposure and introduction to sport practice, through the deepening commitments and obligations to the ultimate withdrawal. Such an overview will be examined in the context of the variety of contingencies which influence each phase of the athletic career. While the focus will be upon those individuals who have made it through the sports system to some sort of elite status, the analysis by its very nature will not ignore the experiences of those who disengage from involvements in sports practices at earlier stages. Material will be drawn from both the theoretical and empirical literature, and will be critiqued in terms of its usefulness for understanding the phenomenon of the individuals involvement in athletic career. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each), or permission of the instructor.

SEP 3135   The Economics of Sport   3 ch (3C) [W]

This course applies microeconomic theory to the understanding of sports, sport management, sports marketing and public policy regarding sports. Note: Students can apply this as a 3000-level course towards an Economics degree. Prerequisite: ECON 1013 or permission of instructor.

SEP 3145   Counseling in Sport & Exercise Psychology   3 ch (3C)

This course encompasses research and applied work in several domains related to sport & exercise psychology. These include conseling process and outcome; supervision and training, career development and counseling and prevention and health. Prerequisites: SEP 2021, and either SEP 2023 or SEP 2032 with a grade of B- or better in each or permission of the instructor.

**SEP 4021   Aggression and Violence   3 ch (3C) [W]
                Perspectives in Sport**

The study of aggression and violence in sport. Topics include: behavioral theories of aggression, frequency of occurrence, and behavioral modification programs to reduce aggression and violence in sport. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each), or permission of the instructor.

**SEP 4904   Directed Studies in Exercise and   3 ch (3C) [W]
                Sport**

Provides opportunities for students to explore a number of special areas in Kinesiology and sport. Faculty approval is required prior to registration. Title of the topic will appear on the students transcript. Open only to students in third year and above. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each), or permission of the instructor.

**SEP 4993   Selected Topics in Sport and   3 ch (3C) [W]
                Exercise Psychology**

Selected topics of special interest from the areas of Kinesiology, fitness and sport are examined in detail. Topics will be specified by the Faculty. Title of topic chosen will appear on the students transcript. Open only to students in third year and above. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each), or permission of the instructor.

**SEP 4994   Selected Topics in Sport and   3 ch (3C) [W]
                Exercise Psychology**

Selected topics of special interest from the areas of physical education, fitness and sport are examined in detail. Topics will be specified by the Faculty. Title of topic chosen will appear on the students transcript. Open only to students in third year and above. Prerequisites: SEP 2021, SEP 2023, and SEP 2032 (grade of B- or better in each), or permission of the instructor.

SOCIAL SCIENCES

Note: See beginning of Section F for abbreviations, course numbers and coding.

SOCS 4501   Social Science Practicum Course   3ch (3C/S)
Combined seminar and independent study course that provides students with volunteer experience working in an organization, institution or business related to their disciplines. It can only be taken with the approval of an instructor in the subject area. Prerequisite: Successful completion of 30 term courses in Arts.

SOCIOLOGY

Note: See beginning of Section F for abbreviations, course numbers and coding.

Unless otherwise indicated, students must complete Sociology 1001 before taking any sociology courses at the 2000 level or above. Students are required to complete at least 3 term-courses of sociology courses at the lower level (10002000 courses) before enrolling in any upper level sociology courses. Students who are not majoring or honouring in Sociology will be admitted to a 4000 level course only if they have completed 6 term-courses of Sociology and have consulted with the instructor. A minimum grade of C (2.0) is required for all sociology courses taken to meet the Majors, Honours requirements or prerequisites.

SOCI 1001   Introduction to Sociology   3 ch (3C)

Surveys the basic concepts, theories and analytical methods of sociology and introduces students to sociology as a way of thinking.

**SOCI 2007 Introduction to Human Evolution   3 ch (3C)
and Social Anthropology**

An introduction to the social and evolutionary anthropology of human diversity. Prerequisite: SOCI 1001 with a grade of "C" or better; permission of the instructor.

SOCI 2205   Interpersonal Relations   3 ch (3C)

An introduction to a variety of perspective designed to provide insight into social interaction on the interpersonal level. Attention is also given to some of the methodological problems involved in achieving a better understanding of this area of social life. Credit will not be granted for both SOCI 2203 and SOCI 2205. Prerequisite: SOCI 1001 with a grade of C or better.

SOCI 2251   Film and Society   3 ch

This course examines the rise of the North American film industry, its organization and its current cultural influence. It investigates the history of early film, the rise of the studio system, the star as celebrity, the emergence of a number of film aesthetics, and it analyses how film has represented social issues especially those of class, gender and race.

SOCI 2253   From TV to the Internet   3 ch

This course provides a broad-based introduction to the interdisciplinary field of the sociology of the media. It explores the political, economic, ideological and organizational settings within which the media operates and charts its growing importance in many aspects of contemporary life.

SOCI 2323   Sociology of Work   3 ch

This course will examine the changing nature and organization of work within the context of regional, national and international developments.

**SOCI 2376   Sociology of Health, Illness and   3 ch (3C)
Healing**

Examines the social nature and consequences of health, illness and healing and looks at medicine as a form of social control. Areas to be covered include the delivery of health care, social construction of medical knowledge, social inequality and its impact on health and disease. Prerequisite: none

SOCI 2413   Canadian Society   3 ch (3C) [W]

Examines the historical preconditions, current processes in and structure of Canadian society. This may include French-English relations, regionalism, native rights, Canadian mosaic and position in the world system. No prerequisite required.

SOCI 2471   Sociology of Western Civilization   3 ch (3C)

Beginning with the culture of prehistoric Indo-European speakers, this course examines the Greco-Roman world, the Christian institutions of the Middle Ages, Renaissance and the Reformation periods. Students will be required evaluate and interpret these periods from sociological perspective wich focuses on how societies and cultures develop through history. One of the founders of this perspective was Max Weber, probably the best known and most influential figure in sociological theory. Students will be expected to study some of Weber's writing on the peculiar writings on the relationship of sociology of the established field of history. Prerequisites: SOCI 1001 with a grade of 'C' or better; or permission of the instructor.

**SOCI 2501   Introduction to Gender and Gender 3 ch (3C)
Studies**

An introduction to gender and gender studies from a sociological viewpoint with some consideration of interdisciplinary perspectives. Examines basic concepts, approaches, and methods pertinent to understanding gender relations and divisions in a global and historical context. NOTE: Students who take SOCI 2501 may not receive credit for GEND 2001.

**SOCI 2533   Social Movements and Social   3 ch (3C)
Revolutions (O)**

An analysis of social movements and revolutions from a sociological perspective. Emphasis is on critical understanding of why they arise, why some fail and why others succeed.

**SOCI 2611   Language, Crime and Human 3 ch (3C)
Agency**

Introduces students to the field of qualitative criminology. Focuses on criminological developments since the work of Becker in the 1950s.Emphases will be placed on interactionist, ethnomethodological,feminist, and other micro-level analyses of crime in Western societies.

SOCI 2615   Historical Sociology 1   3 ch

Introduction to historical and sociological understanding of modern and post-modern societies. Particular emphasis will be placed on Canada and Europe.

SOCI 2991   Cuban Society   3 ch

Examines the historical preconditions, together with the current processes in, and structure of, Cuban society. Prerequisite: SOCI 1001.

SOCI 3000   Theoretical Foundations of Sociology   6 ch (3C)

Surveys the origins and development of sociological theory. Considers major classical theorists such as Marx, Durkheim and Weber. Prerequisites: 4 term-courses in Sociology including SOCI 1001.

SOCI 3003   Sociology of Economic Ideas   3 ch (3C)

Explores the relationships between the evolution of economic ideas and the prevailing socio-historical conditions. Also examines broader implications of economic ideas for the formulation of economic and social policy.

**SOCI 3104   Quantitative Methods in the Social   3 ch (3C)
Sciences**

Introduces students to the logic and main stages of quantitative research, covering sampling, measurement, data collection methods,and statistical analysis as well as research ethics.

SOCI 3105   Qualitative Methods in Social Sciences   3 ch (3C)

Introduces students to the inter-disciplinary emergence of qualitative methods (e.g., feminist, interractionist, textual), with an emphasis on epistemological, philosophical and reflexive concerns as well as practical applications.

**SOCI 3214   Sociology of Communications: Canadian   3 ch (3C)
Culture Through Film**

A sociological examination of the principal ways communication can be understood. The course examines how Canadian films have addressed issues of regional identity, electronic communications (McLuhan), and national identity. Prerequisite: SOCI 1001, two term-courses of lower level SOCI, with a grade of C or better in all three courses, or permission of the instructor.

SOCI 3251   Film and Society II   3 ch (3C)

This course provides a broad- based introduction to the interdisciplinary field of the sociology of film. It investigates the relationship between film and society and focuses its attention on post World War II Hollywood Films, Italian Neo-realist and French NewWave films. Prerequisite: SOCI 1001, SOCI 2251

SOCI 3257   Film and Society III   3 ch (3C)

This course will investigate the relationship betwee film and society and will focus its attention on contemporary film. Prerequisites: SOCI 1001, SOCI 2251 plus 1 additional term-course at the 2000 level in Sociology, with a grade of C or better in all three courses, or permission of the instructor,

SOCI 3331 Cinematic Rome (O)   3 ch (S)

This course situates cinematic Rome in its cultural, urban, social and political settings. It focuses on films that treat the city of Rome as a protagonist as well as a symbolic cultural space that will be traversed, examined, contested, and reclaimed. The course will further examine how Rome is used in film as a site for the projection of modern romance, Cold War imperial political conflicts, sexual identities, decadence, and cultural anxieties. Course will normally be taught on site in Rome. Prerequisite: SOCI 1001 and 2 term-courses of lower-level SOCI, or permission of Instructor.

SOCI 3386 Sociology of Religion 3 ch (3C)
This course will examine ways that religious groups and their members are affecting and being affected by changes in society. Prerequisites: 3 term-courses in Sociology including SOCI 1001, each with a grade of C or better,

SOCI 3501 Signs, Symbols and Society 3 ch
An introduction into the origin and role of signs and symbols in the production and reproduction of human societies. Prerequisite: SOCI 1001 and two term-courses at the lower level of Sociology, with a grade of C or better in all three courses, or permission of the instructor.

SOCI 3517 Sociology of Culture 3 ch (3C)
Examines cultural texts and practices in society. It will analyze the historical emergence of culture and how it is related to assumptions about class, gender, politics and history. Prerequisite: 3 term-courses in Sociology.

SOCI 3523 Sociology of Third World   3 ch (3C)
                 Development

A comparative historical study of the wealth and poverty of nations. Emphasizes how the environment, culture and politics affect economic development.

SOCI 3531 Sociology of Multiculturalism 3 ch (3C)
This course will examine the case for and against multiculturalism and mass immigration in Canada and the Western world. Prerequisites: SOCI 1001 and 2 term-courses of lower level Sociology with a grade of C or better in all three courses.

SOCI 3543 Sociology of Gender Relations 3 ch

Examines gender as an organizing principle in social life, exploring how particular patterns of gender relations shape and are shaped by key areas of human activity (e.g., work, education, communication, sexuality, family violence) in ways that generate and perpetuate gender inequalities.

SOCI 3544 Gender and Technology   3 ch

Explores the processes through which gender relations and assumptions about gender enter into the design and use of technologies, the extent to which the social relations of technology are implicated in the generation of gender inequalities, and the impacts of technology on the lives of women and men.

SOCI 3614 Culture, Criminal Justice & Social 3 ch (3C)
                 Structure

Advanced study in the field of qualitative criminology. Focuses on developments in the field since the emergence of the New Criminology in the 1970s. Emphasis will be placed on Marxist, post-structuralist and other macro-level analyses of crime in Western Societies. Prerequisite:

SOCI 1001, SOCI 2611

SOCI 3615 Historical Sociology 2   3 ch

Advanced study of socio-cultural and socio-historical transformations in Western societies. Emphasis will be placed on the critical literature in this field, and the detailed analysis of specific empirical transformations. Course topics change annually. Prerequisite: SOCI 2615.

SOCI 3822 Sociology of Modernization   3 ch (3C)

Course explores the transition from traditional to modern society. Emphasis is on the structures of everyday life before and after modernization.

SOCI 3889 Sociology of Native Issues: Culture 3 ch
                 and Colonization

This course explores the spirituality and diversity of native culture in Canada, the impact of European colonization and the use of genocide, reserves and residential schools. Prerequisite: SOCI 1001 and two term-courses of lower level Sociology with a grade of C or better in all three courses, or permission of the instructor.

SOCI 3911 Cinematic New York (A)   3 ch

This course examines films shot in New York within the historical and sociological context of the city as well as within the body of work of a number of directors who made New York an important setting for their stories. The course will normally be taught on site in New York. Prerequisites: SOCI 1001 and two term-courses in lower level Sociology; or permission of Instructor.

SOCI 3921 Sociology of Knowledge   3ch (3C)

This course examines the social construction of knowledge. Explores the social and historical processes by which we have come to accept certain claims to knowledge as valid. Also examines controversies about the progressiveness and rationality of knowledge.

SOCI 4014 Designing Research Proposals 3 ch
Under the direction of a supervisor, an Honours student develops a proposal which is approved by the Discipline.

SOCI 4015 Honours Thesis 3 ch

Under the direction of a supervisor, a student conducts, completes and defends a thesis. Prerequisite: Sociology 4014

SOCI 4023 Special Topics in Sociological Theory 3 ch (3S)
Intensive study of a selected theorist, theory group or issue in sociological theory. Prerequisite SOCI 3000 or permission of the instructor.

SOCI 4263 Discourse and Text   3 ch
Advanced studies in discourse and textual analysis. Topics may vary from year to year, but will typically cover a selection from the following intellectual schools: phenomenology, ethnomethodology, conversation analysis, discourse analysis, cultural studies, post-structuralism, deconstruction, and feminism. Prerequisite: SOCI 3105

SOCI 4315 Cultural Studies in Sociology 3 ch (3C)
Examines cultural texts and practices in society. It will analyze the historical emergence of culture and how it is related to assumptions about class, gender, politics and history.

SOCI 4317 Sociology of the Arts 3 ch (3C)
Investigates the social contexts of artistic endeavour and consumption of such art forms as painting, music, literature, theatre, film and architecture. Explores of the role of both amateur and professional artisits as well as their products and publics.

SOCI 4363 Political Sociology   3ch (3S)
A comprehensive historical study of the political routes the major countries of the East and the West took to reach modern industrial society. Emphasis is on the interrelations of state power, class, ideology, and industrialization.

SOCI 4403 Special Topics in Canadian Society 3 ch (3S)
Intensive examination of one or more selected topics. Prerequisite: SOCI 2403 or SOCI 2413.

SOCI 4503   Research Seminar in Popular Culture 3 ch

This course examines the daily cultural artifacts that surround us, their multitude of meanings, and their use by social actors. This course will provide a historical background for understanding contemporary popular culture, and will investigate current theoretical debates on mass culture, popular culture and postmodernism. Prerequisites: SOCI 3000 and one of SOCI 3104 or SOCI 3105; or 4 term-courses in Sociology and ICS 3001 and ICS 3003; or permission of instructor.

SOCI 4555   Gender and Organization   3 ch (3S)

An advanced level focus on how organizations are viewed and explained as gendered, sexualized entities. Examines feminist critiques of traditional approaches to organization; feminist conceptualizations of gender and organization; empirical studies of men and women in particular organizations; organizations, gender and violence; and gender and military organization. Prerequisites: Either (a) Sociology 1000 or (b) Gender Studies 2001 and permission of the Instructor

SOCI 4705   Sociology of Civilization   3 ch (3C)
A comparative study of the cultural, political and economic heritage of world civilizations.

SPANISH

Note: See beginning of Section H for abbreviations, course numbers and coding.

SPAN 1203   Introductory Spanish I   3 ch
Designed to give beginners a sound basic knowledge of Spanish. Explains fundamentals of grammar with some reading at the elementary level. Language laboratory available for oral practice.

SPAN 1204   Introductory Spanish II   3 ch
Continuation of SPAN 1203. Prerequisite: SPAN 1203 or equivalent.

SPAN 2203   Intermediate Spanish I   3 ch

Designed to consolidate and to develop language skills acquired in

SPAN 1203 and SPAN 1204. Fundamentals of grammar will be

completed and modern Spanish and Spanish American authors read.

Audio-visual materials are also used. Prerequisite: SPAN 1204 or

equivalent.

SPAN 2204   Intermediate Spanish II   3 ch

Continuation of SPAN 2203. Prerequisite: SPAN 2203 or equivalent.

SPAN 3007   Fundamentals of Spanish Language3 ch(3C)
                and Culture (O)
This intensive course combines the study of language and culture and targets the development of all four basic skills: speaking, listening, reading, and writing to extend intermediate-level proficiency. It also offers an opportunity to create a contemporary, and interesting context for meaningful communication with the Spanish-speaking world. Prerequisite: SPAN 2204 or equivalent.

SPAN 3011   Hispanic American Civilization   3 ch
Various aspects of Hispanic American civilization are examined, including geography, history, art, literature, society and contemporary problems. Prerequisite: SPAN 2204 or permission of the instructor.

SPAN 3101 Special Topics   3ch

This course focuses on specialized areas of interest. Taught primarily in Spanish. Prerequisitie: SPAN 2204 or permission3 of the instructor.

SPAN 3974   Contemporary Spanish American   3 ch (3S)
                     Prose Fiction
Representative novels and short stories by Spanish-American writers including Borges, Vargas, Llosa, Garcia Marquez, and Pax whose works exemplify the social conflicts and ideological contradictions of the region. Taught in Spanish. Prerequisite: SPAN 2204 or permission of the instructor

STATISTICS

Note: See beginning of Section F for abbreviations, course numbers and coding.

STAT 1793   Introduction to Probability and Statistics I   3 ch (3C)

Concepts of population and sample, data collection, descriptive statistics and exploratory data analysis, frequency distributions, basic probability concepts, random variables, discrete and continuous probability models and their applications, central limit theorem and its applications and an introduction to statistical inference. **Note:** Credit can be obtained for only one of STAT 1793, STAT 2263 , STAT 2593 , BA 1605 , PSYC 2901 . Prerequisite: Grade 12 Mathematics.

STAT 2263   Statistics for Health Sciences   3 ch (3C)

An introductory course in statistics. Probability, application of Bayes' Theorem. Binomial and Normal random variables. Confidence intervals for means and proportions. Prediction intervals. Tests of hypotheses. Paired data versus two independent samples. Brief introduction to analysis of variance. Regression, correlation. Contingency tables. Examples drawn from the health sciences. Use of a statistical computer package. **NOTE:** Credit can be obtained for only one of STAT 1793 , STAT 2263, STAT 2593 , BA 1605 , PSYC 2901 . Prerequisites: New Brunswick and Mathematics 112 GA (Geometry and Applications) and New Brunswick Mathematics 112 FR (Functions and Relations), or equivalent.

STAT 2593   Probability and Statistics for Engineers   3 ch (3C 1T)

Elementary probability, discrete and continuous distributions, characteristics of distributions. Statistics, sampling, estimation and hypothesis testing, curve fitting, quality control. **Note:** Credit can be obtained for only one of STAT 1793 , SAT 2263 , STAT 2593, BA 1605 , PSYC 2901 . Prerequisite: MATH 1013 .

STAT 2793   Introduction to Probability and Statistics II   3 ch (3C)

Concepts of estimation and test of hypothesis, sampling distributions, confidence interval estimation and test of hypothesis for proportion(s), mean(s) and standard deviation(s), association and trend analysis, elementary experimental designs and analysis of variance. **Note:** Credit can be obtained for only one of STAT 2793, BA 2606 , PSYC 3913 . Prerequisite: one of STAT 2793 / BA 2606 / PSYC 3913 / or STAT 3093(or permission of instructor).

STAT 3083   Probability and Mathematical Statistics I   3 ch (3C)

The first half of a two-part sequence covering various topics in probability and statistics. This course provides an introduction to probability theory and the theory of random variables and their distributions. Probability laws. Discrete and continuous random variables. Means, variances and moment generating functions. Sums of random variables. Joint discrete distributions. Central Limit Theorem. Examples drawn from engineering, science, computer science and business. Prerequisites: MATH 1013 and one of STAT 1793,STAT 2263, STAT 2593, BA 1605, PSYC 2901; or permission of instructor .

STAT 3093   Probability and Mathematical Statistics II   3 ch (3C)

The second half of a two part sequence covering various topics in probability and statistics. This course provides an introduction to essential techniques of statistical inference. Samples and statistics versus population and parameters. Brief introduction to method of moments and maximum likelihood. Tests and intervals for means, variances and proportions (one and two sample). Multiple regression, residual plots. Analysis of variance. Brief introduction to experimental design. Chi-squared tests. Examples drawn from engineering, computing science and business. Use of a statistical computer package. Prerequisites: STAT 3083 and one of STAT 2793, BA 2606, PSYC 3913, STAT 2593; or permission of instructor .

STAT 3703   Experimental Design   3 ch (3C)

Experimental Design methods and theory, one-way and two-way classification models, split plot designs, incomplete blocks, response surface designs. Special emphasis on applications. Prerequisite:one of STAT 2793 , BA 2606 , PSYC 3913 , or STAT 3093 .

STAT 4043   Sample Survey Theory (A)   3 ch (3C)

Simple random sampling; stratified sampling; systematic sampling; multistage sampling; double sampling, ratio and regression estimates; sources of error in surveys. Prerequisite: one of STAT 2793 , BA 2606 , PSYC 3913 , or STAT 3093 .

STAT 4203   Introduction to Multivariate Data Analysis (A)   3 ch (3C)

Multivariate normal distribution; multivariate regression and the analysis of variance; canonical correlations; principal components; classification procedures; factor analysis; computer applications. Student should have some exposure to matrix algebra. Prerequisite: one of STAT 2793 / BA 2606 / PSYC 3913 / or STAT 3093 , MATH 1503 or MATH 2213 (or permission of the instructor).

STAT 4243   Statistical Computing (A)   3 ch (3C)

Course will include random number generation, simulation of random variables and processes, Monte Carlo techniques and integral estimation, the computation of percentage points and percentiles, as well as resampling methods. Prerequisite:one of STAT 2793 / BA 2606 / PSYC 3913 / or STAT 3093 , and CS 1073 or CS 1003 (or permission of the instructor)

STAT 4703   Regression Analysis   3 ch (3C)

Simple and multiple linear regression, least squares estimates and their properties, tests of hypotheses, F-test, general linear model, prediction and confidence intervals. Orthogonal and non-orthogonal designs. Weighted least squares. Use of a statistical computer package. **Note:** Credit can be obtained, for only one of STAT 4703, and ECON 4645 . Prerequisite: one of STAT 2793 / BA 2606 / PSYC 3913 / or STAT 3093 (or permission of instructor).

STAT 4803   Topics in Statistics (O)   3 ch (3C)

Selected topics at an advanced level. Content will vary. Topic of course will be entered on student's transcript. Course will be considered as an upper level elective for Information Sciences students and for Mathematics and Statistics Majors. Prerequisite: STAT 3093 or consent of instructor.

SURVEYING ENGINEERING

A grade of C or higher is required in all Surveying Engineering courses.

Note: See beginning of Section F for abbreviations, course numbers and coding.

SE 1001   Surveying I   5 ch (3C 3L)

Basic instrumentation, techniques and computations for plane surveying and small area topographic surveys. Introduction to electronic distance measurement and total stations; basic curves, area and volume computations.

UNIVERSITY EXPERIENCE

UNIV 1003   Everything I Need to Know in First Year   3 ch (3C)

UNIV 1003 is a one term course, open only to first-year students, which provides an introduction to the nature of university education. The course is designed to help new students better understand the learning process and acquire essential academic skills including research and writing skills. The course will support students as they examine challanges common to students in the university setting.

WORLD LITERATURE

Note: See beginning of Section F for abbreviations, course numbers and coding.

For upper-level courses, the prerequisite is: is WLIT 2503 or permission of the instructor.

WLIT 2503 can be used as a lower level elective for English programmes.

WLIT 2503   Introduction to Comparative Literature   3 ch

This course is an introduction to the discipline of Comparative Literature. Students will read representative works in a variety of genres from different cultures and historical periods.

WLIT 3314   European Romanticism   3 ch (3C)

A study of the literature, art, and music of the period 1770-1850 in Europe. Major themes may include individualism, Romantic heroism, revolution, folklore, childhood and nature.

WLIT 3315   Nineteenth-Century Literature   3 ch (3C)

The development of Western literature, philosophy, and aesthetics during the second half of the nineteenth century, in the context of literary, philosophical, aesthetic, and social movements. Authors studied may include: Baudelaire, Sand, Mallarmé, Rachilde, Marx, Tolstoy, Nietzsche, Ibsen, Dostoevsky, Strindberg, Freud.

WLIT 3725   Literature and/as Philosophy   3 ch (3C)

Through the study of specific authors, this course will be an examination of the manner in which these two humanities disciplines interact, enhance and mutually inform dialectical, analytic, and imaginative forms of thought. Authors and their texts may include de Beauvoir, Camus, Dostoevsky, Kundera, de Sade, Sartre, Tolstoy, Wollstonecraft.

WLIT 3901   Studies in Comparative Literature   3 ch (3S)

An upper-level seminar on a specified topic. Please consult the discipline.

FREDERICTON ACADEMIC PROGRAMS

Undergraduate Degree Programs

The University offers courses of undergraduate instruction leading to the degrees of:

· Bachelor of Arts
· Bachelor of Applied Arts (Craft and Design)
· Bachelor of Arts and Science
· Bachelor of Business Administration
· Bachelor of Computer Science
· Bachelor of Geomatics
· Bachelor of Information Systems
· Bachelor of Integrated Studies
· Bachelor of Medical Laboratory Science
· Bachelor of Nursing
· Bachelor of Philosophy in Interdisciplinary Leadership
· Bachelor of Recreation and Sports Studies
· Bachelor of Science
· Bachelor of Science in Engineering
· Bachelor of Science in Environment and Natural Resources
· Bachelor of Science in Forest Engineering
· Bachelor of Science in Forestry
· Bachelor of Science in Kinesiology
· Bachelor of Science in Software Engineering

Concurrent Undergraduate Degree Programs

The University offers a number of concurrent degree options:

· Bachelor of Arts/Bachelor of Science
· Bachelor of Arts/Bachelor of Computer Science
· Bachelor of Computer Science/Bachelor of Education
· Bachelor of Computer Science/Bachelor of Science in Engineering (Geodesy & Geomatics Engineering)
· Bachelor of Computer Science/Bachelor of Science

Post-Graduate Bachelor's Degree Programs

· Bachelor of Education
· Bachelor of Laws

Degree and Diploma Programs within the School of Graduate Studies

· Doctor of Philosophy
· Master of Arts
· Master of Arts in Sport and Recreation Administration
· Master of Business Administration
· Master of Computer Science
· Master of Education
· Master of Engineering
· Master of Forestry
· Master of Forest Engineering
· Master of Nursing
· Master of Philosophy
· Master of Science
· Master of Science in Forest Engineering
· Master of Science in Forestry
· Master of Science in Engineering
· Master of Science in Exercise and Sports Science
· Postgraduate Diploma in Land Information Management
· Postgraduate Diploma in French

Honorary Degrees

The degrees of Doctor of Science, Doctor of Letters, Doctor of Civil Law and Doctor of Laws are the Honorary degrees conferred from time to time by the University upon persons who have achieved distinction in scholastic or public service.

Other Programs

· Art and Design
· Certificate of Academic Proficiency in Hydrographic Surveying:
· Certificate in Adult Education:
· Certificates in Business Administration, Level I and II
· Certificate in Business Administration and Aviation
· Certificate in Computer Telephony Integration:
· Certificate in Critical Care Nursing
· Certificate in Family Violence Issues
· Certificate in Film Production
· First Nations Business Administration Certificate:
· Certificate in French Immersion Teaching/ in Core French Teaching
· Certificate Programs in Geomatics
· Certificate of Proficiency in French.
· Certificate of Proficiency in Spanish
· Certificate in Software Development:
· Certificate in Teaching English as a Second Language
· Diploma in Advanced Undergraduate Studies:
· Diploma in Construction:
· Diplomas in Geomatics Engineering
· Diploma in Technology Management and Entrepreneurship

FACULTY OF ARTS

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Associate Dean:	John C. Ball, BA, MA, PhD
Acting Associate Dean:	Joanne H. Wright, BA, MA, PhD
Coordinator, Arts Adivisng:	Deborah Johnston, BA, MA, DPhil

General Information

The **Bachelor of Arts (BA)** degree at UNB Fredericton may be earned for study in humanities, languages, sciences, social sciences, or interdisciplinary programs. Within the different branches of knowledge, a collection of some thirty different disciplines at UNB (Fredericton campus) offers students an opportunity for the learning experience of their choice, in preparation for their personal academic goals, which may include:

- entry into advanced professional programs (such as architecture, business, education, journalism, law, divinity, social work, etc.);
- employment in the broad and growing number of career fields which require the skills developed in an Arts degree–the ability to critically analyze a text, to research a topic, to communicate orally and in writing, to work independently or on a team, to apply general principles to a specific problem, to demonstrate flexibility, to adapt to and grow in new situations, and to take initiative;
- admission into graduate training and research in their chosen discipline.

The structure of the four-year **Bachelor of Arts** program encourages Arts students to gain a basic understanding of a variety of academic disciplines as they begin their studies, and then to focus on one or two of those disciplines as they complete the degree requirements. Years 1 and 2 lay a foundation by broadening students' perspectives on the many different ways we have of understanding the world and by strengthening the thinking and communication skills necessary for the students' success in university and beyond. Years 3 and 4 build on that broad foundation by further developing the students' understanding of the approaches, methodologies, and subject matter of the discipline(s) chosen by the students to be their central area(s) of interest–their "Major(s)." An even more intensive specialization is possible for students who maintain high grades, if they chose to complete their degree "with Honours." Students may also choose to complement their Major or Honours subject(s) with a Minor in another discipline.

The BA program may also be combined with complementary fields in other degree programs:

- **BAA (Bachelor of Applied Arts (Craft and Design))**– a four-year articulated degree program (offered in co-operation with the New Brunswick College of Craft and Design) offering a unique combination of the traditional strengths of liberal arts education with practical experience in studio art courses;
- **BAS (Bachelor of Arts and Science)** – a four-year joint degree program (offered in co-operation with the Faculty of Science) which offers a chance to gain broader experience of academic work in both faculties;
- **BA/BCS (Bachelor of Arts/Bachelor of Computer Science)** – a five-year concurrent degree program (offered in co-operation with the Faculty of Computer Science) which leads to both a BA and a BCS; it combines in-depth scientific training with the development of sophisticated analytical, communication, and critical skills;
- **BA/BSc (Bachelor of Arts/Bachelor of Science)** – a five-year concurrent degree program (offered in co-operation with the Faculty of Science) which leads to both a BA and a BSc; it provides an academic framework for students who have a strong interest in one of the Science disciplines and in one of the Arts disciplines and want to work in both.

THE PROGRAMS AND COURSES AVAILABLE IN THE FACULTY OF ARTS

"H"=Honours Programs; "M"= Major Program; "m"=Minor Program; "Ce"=Certificate Program; "Co"-Courses

Subject	H	M	m	Ce	Co	For information, see
Ancient Philiosophy			X		X	Classics & Ancient History/Philosophy
Anthropology	X	X	X		X	Anthropology
Archaeology	X	X			X	Anthropology/Classics & Ancient History
Biology	X*	X*			X	Biology
Chemistry	X*	X*			X	Chemistry
Chinese					X	Culture & Language Studies
Classical Studies	X	X	X		X	Classics & Ancient History
Classics	X	X	X		X	Classics & Ancient History
Creative Writing (ENGL)	X	X			X	English
Drama (ENGL)		X	X		X	English
Earth Sciences	X*	X*			X	Earth Sciences
Economics	X	X	X		X	Economics
Economic Studies		X			X	Economics
English	X	X	X		X	English
Ethics			X	X	X	Philosophy
Family Violence Issues				X	X	Muriel McQueen Ferguson Centre
Film Production (MAAC)	X	X		X	X	Culture & Language Studies
Film Studies			X		X	Culture & Language Studies/English
French	X	X	X	X	X	French
Gender and Women's Studies	X**	X**	X		X	English
German	X	X	X	X	X	Culture & Language Studies
German Studies	X	X	X	X	X	Culture & Language Studies
Greek (Ancient)					X	Classics & Ancient History
Greek (Modern)					X	Classics & Ancient History
History	X	X	X		X	History
History of Philosophy			X		X	Philosophy
International Development Studies	X**	X**	X		X	Anthropology

Subject	H	M	m	Ce	Co	For information, see
Japanese					X	Culture & Language Studies
Latin					X	Classics & Ancient History
Law in Society	X**	X**	X		X	Sociology
Mathematics	X*	X**			X	Mathematics & Statistics
Media Arts & Cultures	X	X	X		X	Culture & Language Studies
Music Studies		X**	X		X	Culture & Language Studies
Neurscience (PSYC)	X	X	X		X	Psychology
Philosophy	X	X	X		X	Philosophy
Physics	X*	X*			X	Physics
Political Science	X	X	X		X	Political Science
Psychology	X	X	X		X	Psychology
Public Policy			X		X	Economics/Political Science
Russian					X	Culture & Language Studies
Sociology	X	X	X		X	Sociology
Spanish & Latin American Cultures	X	X	X	X	X	Culture & Language Studies
Statistics	X*	X*			X	Mathematics & Statistics
World Literature & Culture Studies	X	X	X		X	Culture & Language Studies

* Indicates a BA specializing in one of the Science disciplines. Interested students should direct their inquiries to the Department concerned.

**Indicates subjects which are available only as part of a Joint Honours or Double Major program.

General Regulations

I. This section outlines what students need to do to complete a BA degree at UNB on the Fredericton campus; all students are encouraged to review carefully the regulations in this section, to seek assistance regularly from Faculty and Department advisors, and to take overall responsibility for their own progress through the degree program. While UNB makes every effort to ensure that academic advice is available to all students, it remains the students' responsibility to seek such advice and to ensure they fully understand what is required of them. (Any matter not addressed by the General Regulations of the Arts Faculty will be governed by the General University Regulations in Section B of this Calendar. Questions concerning the application of regulations should be directed in writing to the Associate Dean of Arts.)

II. The **BA degree** requires the successful completion of both (a) the general Arts Faculty requirements and (b) the specific requirements of an Honours/Major program. The general Arts Faculty requirements include

- the first-year and second-year distribution requirements (see below under First-Year Regulations and Second-Year Regulations);

- the successful completion of at least 51 credit hours (ch), and normally 60 ch, of upper level courses (3000 or higher); and

- the successful completion overall of at least 120 ch of approved courses with a Cumulative Grade Point Average (CGPA) of 2.0 (C) or higher.

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The specific Honours/Major requirements are described by Department or Program in the Programs of Study section, below.

III. Students should note the following additional regulations:

1. In the Faculty of Arts, almost all courses are given a weighting of 3 ch per term, so that a one-term course normally counts for 3 ch, and a full-year course for 6 ch. Courses taken outside the Faculty of Arts with a weighting of 3-5 ch (one term) receive a value of 3 ch towards the BA degree; those with a weighting of 6-8 ch (full-year) receive a value of 6 ch toward the BA degree. Courses taken outside the Faculty of Arts with a weighting of 1 or 2 ch do not count toward the BA.

2. The regular academic year, from September to April, is made up of two terms: Fall and Winter. The typical course load for a student is 15 ch (or five 3-ch courses) each term. A student may register for up to 18 ch each term and must register for at least 12 ch each term to be considered full-time (for tuition purposes).

3. As far as possible, requirements should be completed in sequence: first-year distribution requirements; then second-year distribution requirements; then upper-year courses to complete Major(s) or Honours requirements.

4. With the exception of laboratory courses and field schools, any appropriate courses completed successfully in the Faculties of Science or Computer Science may be counted toward a BA degree. In addition, if a student completes the requirements for a Minor in Business (24 ch), the full Minor will count towards the BA; otherwise, no more than 12 ch of courses in Faculties other than Arts, Science, and Computer Science may be counted toward the completion of the BA.

5. Only students completing a BA degree may earn a Major or Honours designation in an Arts discipline, with the following exceptions: students may complete a BBA in Economics or in Law in Society; students may complete a BSc in Economics or in Psychology.

6. Students who have successfully completed the First Year (30 ch) of the BA program on the Saint John campus of UNB shall have their full First Year accepted as equivalent to that offered in Fredericton.

7. To complete the BA degree, students transferring from another university should note that at least 60 ch of the total credit hours, at least 30 ch of the upper-level courses, and at least half of the courses counting towards their Majors, Honours, and/or Minor, must be taken at UNB.

FIRST-YEAR REGULATIONS (1 - 30 Credit Hours)

The first year is designed to offer a strong, broad-based core of knowledge and skills from various Arts disciplines and to provide a foundation for the remainder of the degree program. To fulfill the Faculty's distribution requirements, students should choose their first-year courses (the first 30 ch) as follows:

1. 6 ch - ARTS 1000.
   18 ch - Six credit hours in each of three different disciplines. Three of the four groups of disciplines (A, B, C, D) listed below must be represented.

2. 6 ch - The remaining six credit hours may be taken in one discipline from any of Groups A, B, C, or D, or taken as three credit hours in each of two disciplines, including Drama, Gender and Women's Studies and Music. In either case, the discipline(s) should be different from the three taken under regulation 2, above, since first-year students may take no more than 6 ch in any one discipline.

OR

1. 9 ch - ARTS 1100

2. 18 ch - Six credit hours in each of the three different disciplines. Three of the four groups of disciplines (A, B, C, D) listed below must be represented.

3. 3 ch - The remaining six credit hours may be taken in one discipline from any of Groups A, B, C, D, or including Drama, Gender and Women's Studies and Music. The discipline should be different from any of the three taken under regulation 2, above, since first-year students may take no more than 6 ch in any discipline.

A (Languages)[1]	B (Humanities)	C (Social Sciences)	D (Sciences)[2]
Chinese	Classics	Anthroplogy	Astronomy
French	English	Archaeology	Biology
German	History	Economics	Chemistry
Greek (Ancient)	Media Arts & Cultures	Political Science	Computer Science
Greek (Modern)	Philosophy	Psychology	Earth Sciences
Japanese	Comparative Cultural Studies	Sociology	Mathematics
Latin			Physics
Russian			Statistics
Spanish			

Notes:

1. Other languages such as Arabic, Maliseet, and Mi'kmaq (when available) may be taken to satisfy the requirements of Group A.

2. Laboratory courses taken in other Faculties will not be counted in the credit hour total but will be counted in the calculation of the Grade Point Average (GPA) for the BA program.

SECOND-YEAR REGULATIONS (31-60 Credit Hours)

Students may choose their second-year courses from the disciplines listed under the First-Year regulations, as well as from Drama, Film, Music, International Development Studies, Law in Society, and Gender and Women's Studies. To fulfill the Faculty's distribution requirements, students should chose their courses as follows:

1. 18 ch - Six credit hours in each of three disciplines.

2. 12 ch - At least three credit hours in a fourth discipline; the remaining credit hours may be elective courses in any discipline, as long as no more than 12 ch of the 30 ch total are taken in any single discipline.

During the Winter term of their second year, students must consult with the academic advisor(s) in the discipline(s) in which they intend to complete a Major or Honours program in their final two years, in order to declare a Major or apply for Honours, and to have their proposed course selection approved.

THIRD- AND FOURTH-YEAR REGULATIONS (61-120 Credit Hours)

General Information

1. Choice of Major/Honours program: By the beginning of the Third Year, students declare their Major, or apply for admission to Honours, in the discipline(s) of their choice with the Department(s) or Interdisciplinary Program(s) involved. (Students who wish to specialize in two subjects may declare a Double Major or apply for Joint Honours.) The Honours program is designed for students with a high level of ability who wish to undertake intensive study of one or two subjects, especially in preparation for graduate work.

2. **Upper-level courses**: Normally, all courses taken to fulfill the last 60 ch of the BA degree will be upper-level courses (i.e., with 3, 4, or 5 as the first digit of the course number). In consultation with their academic advisor(s), students may choose to include up to 9 ch of 1000-level or 2000-level courses in the final 60 ch of their degree program.

3. **Approval of courses**: All the courses in which a student enrols must be selected in consultation with the academic advisor(s) in the Department(s) or Interdisciplinary Program(s) in which the student is majoring or honouring. The final selection of courses that will count toward the completion of the BA degree must be approved by the Dean.

4. **Minors**: Students may take a Minor in an Arts discipline in which they are not majoring or honouring, or in Business, Computer Science, or a Science discipline. A Minor comprises 24 ch, with at least 12 ch at the upper level.

BA Majors Program

1. A student may earn a Major by successfully completing at least 30 ch in that subject, 24 of which must be in upper-level courses. Departments may require Single Major students to take up to 42 ch in upper-level courses and Double Major students to take up to 30 ch in upper-level courses.

2. A student will normally declare his or her intention to complete a Major or Double Major before beginning the final 60 ch, and preferably during the Winter term of the second year, by meeting with the academic advisor(s) in the relevant Department(s) (and, if applicable, the relevant Interdisciplinary Program).

3. Students may major in Gender and Women's Studies, Law in Society, or International Development Studies only as part of a Double Major.

4. Most Departments and Interdisciplinary Programs require a grade of C or above in all courses that count towards Major or Honours requirements.

5. Candidates for the degree of BA (Major) are listed at graduation in three divisions based on the CGPA of all courses taken. See Section B of this Calendar, "Listing of Graduates." A student who attains a Grade Point Average equal to or greater than 3.75 over credit hours 61-120 and no grades below C over the last 90 ch shall be awarded a Distinction upon graduation.

BA Honours Program

1. Single Honours students are required to complete at least 36 ch in upper-level courses in the Honours subject. Individual Departments may require up to 48 ch in upper-level courses.

   Joint Honours students must complete at least 24 ch in upper-level courses from each Department. Departments may require up to 30 upper-level ch.

2. In most subjects, Honours may be taken singly or jointly with Honours in another subject. These subjects are: Anthropology, Archaeology, Biology, Chemistry, Classical Studies, Classics, Earth Sciences, Economics, English, French, History, Mathematics, Media Arts & Cultures, Philosophy, Physics, Political Science, Psychology, Sociology, Statistics, World Literature and Culture Studies. Honours in International Development Studies, Law in Society, and Gender and Women's Studies must be taken jointly with Honours in one of the above disciplines.

3.   Students seeking admission to a Single Honours or Joint Honours program are strongly encouraged to apply before beginning the final 60 ch, and preferably during the Winter term of the second year, by meeting with the academic advisor(s) in the relevant Department(s). For a Joint Honours program, a single admission will be made by the Departments (or, if applicable, the Department and the Interdisciplinary Program) acting in collaboration. Only under exceptional circumstances will Fourth-Year students be permitted to enter an Honours program.

The basic requirement for admission to Honours is that the student shall have demonstrated a high level of ability in previous work in the subject(s) in which Honours is proposed. Departments may refuse to admit to Honours any student whose CGPA is below 2.5 at the completion of 60 ch.

4.   Single Honours students who successfully complete the requirements for a Double Major in a second discipline may, if they choose, declare that Double Major. Upon graduation, their transcript will record that they have fulfilled the requirements for a Major in that subject.

5.   A first-class Honours degree requires a GPA of 3.6 in the courses of the Honours subject or subjects, excluding introductory courses. For an Honours degree an average of 3.0 is required in these courses. Averages in the Honours subject(s) are calculated on the basis of the minimum number of credit hours required by individual Departments or Interdisciplinary Programs; credit hours successfully completed above this minimum are treated as "non-required" courses. Students are required to sustain a GPA of 2.5 in "non-required" courses taken for credit hours 31-120. Courses which Honours students are obliged to take must be counted as part of the minimum number of credit hours for the purpose of calculating the GPA in the Honours courses.

The recommendation to award an Honours degree will be made to the Dean of Arts by the Department(s) concerned. In the case of Joint Honours, the standing is determined by the overall average in the courses required to fulfill the minimum requirements in both programs, and is subject to the agreement of both Departments (or of the Department and the Interdisciplinary Program) concerned.

Regulations for Granting a Second UNB Bachelor of Arts Degree

BA graduates of UNB may apply for admission to and follow a program towards a second BA degree under the following regulations:

o   The general regulations of the University must be satisfied.

o   The regulations of the Degree program and Departmental regulations concerning Major or Honours must be satisfied.

Normally, the minimum number of credit hours to be successfully completed beyond the work required for the previous degree will not be less than the normal load of the final academic year in the degree program concerned (typically, 30 ch). More than the minimum number of credit hours may be required.

The courses taken must be approved by the Dean and the Department(s) (or the Department and the Interdisciplinary Program) offering the Major or Honours program.

The general regulation that at least half the credit hours for a degree must be taken at this University still applies.

Candidates for a second undergraduate degree may not choose a Major or Honours in the same discipline as in the first undergraduate degree, whether the first degree involved a Single or Double Major or Single or Joint Honours. Candidates may not choose a Major or Honours in a discipline in which they previously completed a Minor.

Students must apply to the Associate Registrar (Admissions) for entry to the second degree program.

Only under special circumstances will students be admitted to a third undergraduate degree program.

After completing a first degree, students may be permitted to upgrade a Minor to a Major or Honours, or to upgrade a Major to Honours, but in either case a notation only will be included on the student record and a second degree will not be awarded.

PROGRAMS OF STUDY

ANTHROPOLOGY

DEPARTMENT OF ANTHROPOLOGY

General Office:	Annex C, Room 28,
Mailing Address:	Department of Anthropology University of New Brunswick P.O. Box 4400 13 McAulay Lane, Room 28 Fredericton, New Brunswick, E3B 5A3
Phone:	(506) 453-4975
Fax:	(506) 453-5071
Email:	c/o Judy Babin, Administrative Assistant anthro@unb.ca
Website:	http://www.unbf.ca/arts/anthropology/

FACULTY
· Betts, Matthew, BA (Toronto), MA (Toronto), PhD (Toronto), Adjunct Prof -2008
· Black, David W., BA (S.Fraser), MA, PhD (McMaster), Prof- 1991
· Blair, Susan E., BA (McM), MA (UNB), PhD (Toronto), Asst Prof - 2006
· Gibbon, Ryan, BSc (Wits), MSc (Wits), PhD (Witwatersand), Asst. Prof - 2013
· Gibbon, Victoria, BSc (Manitoba), PhD (Witwatersand), Asst. Prof - 2013
· Mitra, Koumari, BSc, MSc, PhD (Delhi), Prof and Chair- 2000
· Paponnet-Cantat, Christiane, BA (UBC), MA, PhD (S.Fraser), Prof - 1988
· Plaice, Evelyn, BA (Oxf.Brookes), MA (Nfld), PhD (Manc), Assoc Prof (Jt Educ) - 1999
· Wiber, Melanie, BA (Leth), MA, PhD (Alta), Prof - 1987

General Information

Anthropology is the global study of the human condition, including biological and cultural similarities and differences in the past and the present. The discipline encompasses four sub-fields:

· social and cultural anthropology examines contemporary and recent cultures around the world;
· archaeology is the study of human cultures through material remains;
· biological anthropologyis the study of human biological diversity in the framework of human evolution;
· linguistics is the study of the ways in which language is constructed and affects thought.

The Department of Anthropology offers comprehensive programs in the first three sub-fields; students interested in linguistics are directed to the Department of Culture and Language Studies.

Courses in Area Ethnographies

ANTH 3662 through ANTH 3704 are intended to provide a general knowledge of the societies and cultures of selected geographical regions. These courses are designed for non-Majors as well as for Anthropology Majors and Honours students. Note that there are no prerequisites for these courses.

Prerequisites

To graduate in Anthropology, students must complete at least two first level courses. Upper level courses frequently require specific first and second level courses as prerequisites. Students should take note of these requirements when planning their studies.

Minors, Majors and Honours Programs

Minor

To Minor in Anthropology, a student must complete two of the following: ANTH 1001 , ANTH 1002 , or ANTH 1303 , and at least 18 ch of upper level Anthropology courses, with a grade of 2.0 (C) or better in each course.

Major and Double Major

To Major in Anthropology, or to complete a Double Major with another discipline and Anthropology, a student must complete two of the following: ANTH 1001 , ANTH 1002 , or ANTH 1303 and at least 24 ch of upper level Anthropology courses, with a grade of 2.0 (C) or better in each course.

Honours

Students wishing to be admitted to Honours should study the regulations concerning the BA Honours Program in this calendar and apply in writing to the Department of Anthropologys Honours and Majors Advisor.

Single Honours

To earn an Honours degree in Anthropology, a student must complete two of the following: ANTH 1001 , ANTH 1002 , or ANTH 1303 and at least 36 ch of upper level Anthropology courses. Upper level courses must include ANTH 5701, ANTH 5303 or ANTH 5704. To remain in the Honours program a student must maintain a grade point average of at least 3.0 (B) in Anthropology courses and approved substitutes, with no grade lower than 2.7 (B-) in a required course.

Joint Honours

To graduate with Joint Honours in Anthropology and another discipline, a student must complete two of the following: ANTH 1001 , ANTH 1002 , or ANTH 1303 and at least 24 ch of upper level Anthropology courses. Upper level courses must include ANTH 5701, ANTH 5303 or ANTH 570 . To remain in the Honours program, a student must maintain a grade point average of at least 3.0 (B) in Anthropology courses and approved substitutes, with no grade lower than 2.7 (B-) in a required course.

ARCHAEOLOGY

ARCHAEOLOGY INTERDEPARTMENTAL PROGRAM

Faculty

· David Black Department of Anthropology - dwblack@unb.ca
· Susan Blair Department of Anthropology - sblair@unb.ca
· Maria Papaioannou Department of Classics & Ancient History mariap@unb.ca

Archaeology Program Advisor

Dr. David Black - Department of Anthropology, Annex C, Room 32A Fredericton, NB

The Archaeology Interdepartmental Program offers a comprehensive, four-year curriculum covering anthropological archaeology, classical archaeology and related subjects. The core of the program is offered through the departments of Anthropology and Classics & Ancient History. Students have a choice of Minor, Major, Double Major, Honours or Joint Honours study, with emphasis in either an Anthropological Archaeology stream or a Classical Archaeology stream. The first two years of the program are comprised of required courses, which provide foundational overviews of the discipline of Archaeology. While the upper-level program structure allows students to specialize in one of the two streams (Anthropological or Classical), students are required to take upper-level courses from both streams.

Minor, Majors, and Honours Program

MINOR PROGRAM IN ARCHAEOLOGY

Students may enter the Minor program at any time before completing more than 90 ch of undergraduate study, and after consultation with the Archaeology Program Advisor. The Minor in Archaeology includes 24 ch of courses, forming a coherent sequence, distributed as follows:

· 6 ch of first-level archaeology
· 6 ch of second-level archaeology
·12 ch of upper-level archaeology
Students must achieve a grade of C or better in each individual course

MAJOR AND HONOURS PROGRAMS IN ARCHAEOLOGY

Lower-Level Requirements

First-Level Requirements   ARCH (ANTH) 1303 and ARCH (CLAS) 1323

Second-Level Requirements   ARCH (ANTH) 2303 and ARCH (CLAS) 2333

Upper-Level Requirements

Major: Students may enter the Major program after completing 60 ch of undergraduate study, and after consultation with the Archaeology Program Advisor. The Major in Archaeology includes 24 ch of upper-level courses, distributed as follows:

· 15 ch in the student's chosen Archaeology stream
· 9 ch in the other Archaeology stream

Students must achieve a grade of C or better in each individual course.

Double Major: Students may undertake Double Major study in Archaeology and another discipline; Archaeology requirements are the same as a Major. Students major in Archaeology may not undertake a Double Major with Anthropology or Classics.

Honours: To be eligible for admission to the Honours program. Students must have:
· completed 60 ch of undergraduate study with a cumulative GPA of 2.5 or higher;   .
completed at least 12 ch of Archaeology course work with a cumulative GPA of 3.0 or higher in Archaeology courses.

For admission to Honours, students must apply in writing to the Archaeology Program Advisor. The Honours program in Archaeology include 36 ch of upper-level courses, distributed as follows:

· 24 ch in student's chosen Archaeology stream;
·12 ch in the other Archaeology stream;
· the above must include ANTH 5303 and CLAS 5013;
· at least 3 ch of the above must be a recognized course involving archaeological field research, or an acceptable equivalent; †
· at least 3 ch of a science, an applied science, computing, statistics, or a technical subject relevant to archaeological practice. ‡

Students must achieve a grade of B+ or better in each individual course.

Joint Honours: Students may undertake Joint Honours study in Archaeology and another discipline. Students Honoring in Archaeology may not undertake a Joint Honours with Anthropology or Classics. Archaeology requirements for a Joint Honours include 27 ch of upper-level courses, distributed as follows:

· 18 ch in the student's chosen Archaeology stream
·9 ch in the other Archaeology stream
· the above must include either ANTH 5303 or CLAS 5013
· at least 3 ch of the above must be a recognized course involving archaeological field research, or an acceptable equivalent. †

Students must achieve a grade of B- or better in each individual course.

† This requirement may be satisfied through completing a field school program offered by Anthropology or by Classics & Ancient History, or through field schools offered by other universities or research institutions, or through field experience gained in a non-university setting, such as employment on government-sponsored or private-sector cultural resource management-based archaeological projects. Students should consult the Archaeology Program Advisor in advance with regard to fulfilling this requirement
‡ Examples of UNB courses that would fulfill this requirement: introductory biology, geology, chemistry or physics courses; introductory computer science; STAT 2043; MATH 1003; PSYC 2113; ANTH 3052; BIOL 4352; GGE 1001, 2423; FNAT 2703. Students should consult the Archaeology Program Advisor with regard to fulfilling this requirement.

CLASSICS AND ANCIENT HISTORY

DEPARTMENT OF CLASSICS AND ANCIENT HISTORY

General Office:	Carleton Hall, Room 209
Mailing Address:	Department of Classics and Ancient History University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4763
Fax:	(506) 447-3072
Email:	classics@unb.ca
Website:	http://www.unbf.ca/arts/CLAS/

FACULTY

· Kerr, William G., BA (Tor), BA (Oxon), MA, PhD (Prin), Assoc Prof - 1987
· Murray, James S., BA, MA (UNB), PhD (Pitt.), Prof & Dean - 1984
· Papaioannou, Maria A., BA (Thessalonike), MA, PhD (UBC), Assoc Prof - 2005
· Sears, Matthew A., BA (UNB), PhD (Cornell), Assist Prof - 2013

General Information

"Classics"

· Is the study of ancient civilizations of Greece and Rome through their literary and material remains

· embraces the distant pre-history of these civilizations as well as their continuing influence on modern society

· offers a multicultural, interdisciplinary approach to the classical world through the study of languages, history, literature, mythology, religion, archaeology, art, and philosophy

Courses offered

· Latin [LAT]: students are taught [in English] to read and write Classical Latin. Students without previous experience in this language begin the study of Latin with LAT 1103.

· Greek [GRK]: students are taught [in English] to read and write ancient Greek. Students without previous experience in this language begin the study of Greek with GRK 1203.

· Modern Greek [GRKM]: though the auspices of the Centre for Hellenic Studies at UNBF, students are taught [in English] to read, write, and speak Modern Greek. Students without previous experience in this language begin the study of Modern Greek with GRKM 1003.

· Classics [CLAS]: students study the political, social, and cultural life of the Greeks and Romans through lectures, visual illustrations, and assigned readings in English translation. Students begin the study of the Classical Civilizations in any introductory course (CLAS 1323, 1403, 1413, or 1503).

Credit in History:

Selected advanced CLAS courses may be counted for credit in programs in the Department of History, up to a maximum of 12 ch. Consult the History section of the calendar for a list of these courses.

Classical Archaeology:

CLAS courses in classical archaeology may be taken as part of either a Classics or Classical Study program. They may also be taken as part of the Archaeology Interdepartmental Program in which students can combine the study of classical and anthropological archaeology. Consult the Archaeology section of the Calendar for more details.

Programs of Study

Students should be aware of the difference between the two program options offered by the Department.

Classics

Key to the study of Greece and Rome is a critical knowledge of the works of ancient authors in their original languages. This means that the study of Latin and Greek is necessary for anyone seriously contemplating advanced professional standing, or even graduate work, in any area of Classics. Therefore, students intending to pursue the study of ancient Greece or Rome beyond the BA are directed to the program in Classics (which includes the study of both Latin and Greek). Moreover such students are strongly advised to commence their language study at the earliest possible stage of the degree program.

Classical Studies

The study of the classical cultures of Greece and Rome may also be undertaken as a more general exploration of the rich heritage of modern western culture. Therefore, students with a keen interest in Greece and Rome who do not intend to pursue graduate study of these ancient cultures are directed to the program of Classical Studies. This program may lead to professional training in law or journalism or education, etc., or serve as a valuable complement to a primary academic discipline (such as History, English, Sociology, or Political Science).

Honours, Majors and Minors

Note: The Department of Classics and Ancient History requires a grade of C or above in all courses that count towards Major or Honours requirements.

Honours

Students normally apply for admission to an honours program in Classics or Classical Studies during their second year, pending their successful completion of 60ch of university study with a CGPA of at least 2.5. Admission to the Honours programs normally requires the completion of at least 12ch of courses taught in the Department of Classics and Ancient History, including at least 6ch of a Classical language for those students choosing the CLASSICS option.

Honours in Classics

Students studying for Honours in Classics must complete the following courses:

-Introductory Latin and Greek: 1103/1113 and 1203/1213

-Intermediate Latin and Greek: 2105 and 2205

-Beginning Reading in Latin and Greek: 3105 and 3205

-Advanced courses in Classics, Latin, or Greek totaling 27 ch (of which at least 12 ch must be language courses)

Students studying for Joint Honours in Classics and another discipline must complete the Introductory, Intermediate and Beginning Reading requirements for Honours in Classics, and 15 ch of Advanced courses in Classics, Latin, or Greek (of which at least 3ch must be a language course).

Honours in Classical Studies

Students reading for Honours in Classical Studies and another discipline must complete the following requirements:

-Latin and/or Greek: either 1103, 1113, 2105 and 3105; or 1203, 1213, 2205 and 3205; or 1103, 1113, 1203, and 1213.

-Advanced courses in Classics, Latin, or Greek: 36 ch

Students reading for Joint Honours in Classical Studies must complete the Latin and/or Greek requirements for Honours in Classical Studies, and 24 ch of Advanced courses in Classics, Latin, or Greek.

Majors

Students wishing to Major in Classics or Classical Studies normally declare their major during their second year after they have seen their Department advisor.**Major in Classics**

A Major in Classics requires the completion of the following courses:

-Introductory Latin and Greek: 1103/1113 and 1203/1213

-Intermediate and Beginning Reading Latin or Greek: 2105/3105 or 2205/3205

-Advanced Classics, Latin, and/or Greek: 27 ch (of which at least 3 ch must be a language course)

A Double Major in Classics and another discipline requires the completion of the language courses for the Major, and 21 ch (of which at least 3 ch must be a language course) in advanced Classics, Latin, or Greek courses.**Major in Classical Studies**

A Major in Classical Studies requires the completion of:

-42 ch of courses in Classics, Latin, or Greek, of which at least 30 ch must be advanced courses. (While there is no language requirement in this program, the Department encourages each student to attempt the study of the classical languages.)

-A Double Major in Classical Studies and another discipline requires the completion of 36 ch of courses in Classics, Latin, or Greek, of which at least 24 ch must be advanced courses.

Minors

A Minor in Classics consists of 24 ch of courses offered by the Department of Classics and Ancient History, including at least 12 ch of a classical language and 12 ch of advanced courses in Latin, Greek, or Classics.

- A Minor in Classical Studies consists of 24 ch of courses offered by the Department of Classics and Ancient History, including at least 6 ch at the introductory level, and at least 12 ch of advanced courses in Latin, Greek or Classics.

- A Minor in Ancient Philosophy consists of 24 ch of courses offered by the Department of Classics & Ancient History and the Department of Philosophy as follows:

> -6 ch of introductory Philosophy: PHIL 1101, PHIL 1301.

> -6 ch of ancient language: GRK 1203/1213 or LAT 1103/1113 or any other 6ch of Greek and/or Latin.

> -6 ch of advanced Philosophy (PHIL) courses, including at least one of PHIL 3301, PHIL 3302, PHIL 3305, PHIL 3306, PHIL 3311.

> -6 ch of advanced Classics (CLAS) courses, including at least one of CLAS 3703, CLAS 3723, and CLAS 3733.

UNB Term in Athens

The Department of Classics & Ancient History, in cooperation with other departments in the Faculty of Arts at UNBF, offers students an opportunity to spend a term in Athens studying UNB courses offered by UNB professors. Each student participant enrols in an integrated 15ch program which combines classroom work in state-of-the-art teaching facilities with field trips, cultural experiences, extended travel to other areas of Greece, and a cruise visiting several Aegean islands.

The program includes:

- **3 credit hours of language study**: **GRKM 1003**: *Modern Greek I* – An introduction to language skills which will enable students to gain a basic ability to speak, read and write the language of modern Greece. [Prerequisite: none]
- **6 credit hours of classical archaeology and art history**: **CLAS 3603**: *The Art and Architecture of Greece I* – A survey of outstanding examples of the art and architecture of Greece at important archaeological sites and in major museums in Greece. [Prerequisite: successful completion of 30ch of university courses]; **CLAS 3605**: *Ancient Athens* – A practical workshop introducing students to the ancient city's Greek and Roman remains which are found at archaeological sites and museums in and around Athens. [Prerequisite: successful completion of 30ch of university courses]
- **6 credit hours in the discipline of the collaborating department**: The collaborating department will vary from year to year. Students are encouraged to enquire concerning departmental plans in future years.

Courses will be conducted both in the classroom and "on-site", and will include standard UNB reading and writing assignments and final examinations. Note that travel costs are not included in the tuition for these courses.

Credit Courses from Cognate Disciplines

The Department of Classics and Ancient History will accept for Classics credit courses in ancient philosophy [PHIL 3301 , PHIL 3302], and archaeological methods and practice [ANTH 3342 , ANTH 3352 , ANTH 3353] to a maximum of 12 ch.

CULTURE AND MEDIA STUDIES

DEPARTMENT OF CULTURE AND MEDIA STUDIES

General Office:	Carleton Hall, Room 333
Mailing Address:	Department of Culture and Media Studies Studies University of New Brunswick Box 4400 Fredericton, N.B. Canada E3B 5A3
Phone:	(506) 453-3571
Email:	cals@unb.ca
Website:	http://www.unbf.ca/fredericton/arts/departments/cals/index.html

FACULTY

· Cruikshank, Lauren, BA (Bishop's), MA (Queen's), PhD (EGS),

Asst Prof – 2014

· Guse, Anette, Staatsexamen I & II (Heidelberg), MA (Wat), PhD (Queens), Assoc Prof-2005
· Hamling, Anna, BA, BEd (Cardiff), MA (Qu), PhD (Warsaw), Sr Teach Assoc - 1999
· Hornsby, Richard, Mus. Bac,Perf, M.M
· Lavoie, Sophie, BA (Kings College/Dalhousie), MA (Queens), DEA, PhD (Provence), Assoc Prof - 2008
· Linton, Murray, BA, MA (UNB), Sr Instr - 1999
· Preston, Scott, BFA, MA (Concordia), PhD (York), Asst Prof-2010
· Reid, Allan, BA (Sask), MA, PhD (Alta), Prof & Chair - 1991

The twin forces of globalization and technological change continue to reshape our increasingly complex and interconnected world. These circumstances compel us to respond to new challenges and new opportunities by understanding and appreciating diversity, by learning to navigate established and emerging mediascapes, and by discovering new ways to express ourselves through music, film, mediz arts, and multi-lingual communication.

The Department of Culture and Media Studies invites students to explore culture and cultural forms in an interdisciplinary environment. Students learn about culture through the lenses of film and media, literature, music, and other art forms, as well as the study of foreign. All of these subjects are examined in a variety of contexts and perspectives, from the practical to the critical and theoretical.

The Department of Culture and Media Studies offers the following academic programs:

Comparative Cultural Studies: Minor, Major, Honours;

Film Production: Major (MAAC Film Production option); Certificate in Film Production;
Film Studies: Minor;
German: Minor, Major, Honours, Certificate of Proficiency in German;
Media Arts and Cultures: Major, Minor, Honours;
Music Studies: Minor, Double-Major only
Music: Minor, Double Major;
Spanish: Minor, Major, Certificate of Proficiency in Spanish.

The Department also offers language acquisition courses in Arabic, Japanese, Russian, and Chinese. For course listings consult Section H of this calendar or the Departmental website at :http://://www.unb.ca/fredericton/departments/cals/index.html

GERMAN

This program is not accepting any new admissions at this time. Please refer to the Department of Culture and Media Studies for further information on the Concentration in German.

German Studies

This program is not accepting any new admissions at this time. Please refer to the Department of Culture and Media Studies for further information on the Concentration in German.

Comparative Cultural Studies

General Information

The program in Comparative Cultural Studies is dedicated to the interdisciplinary study of cultures and cultural forms in a cross-cultural perspective. Students learn about culture(s) and arts across time and geographic origin, in a range of contexts and expressions, through practical and theoretical perspectives. Along with the study of a second language, students will pursue courses in a diverse range of disciplines including popular culture, cultural theory, literature, music, and film, all primarily from a cross-cultural perspective. It is through critical comparative analysis and study that we can truly begin to understand ourselves and our own traditions, identities, and realities alongside those of others. With an international and comparative focus, this program will allow students to view their world in new and exciting ways. We also encourage students to participate in travel study and exchange programs whenever possible.

Programs of Study
Honours, Majors, and Minors

Students interested in Comparative Cultural Studies have the following options:

- Honours in Comparative Cultural Studies
- Honours in Comparative Cultural Studies (German or Spanish option)
- Major in Comparative Cultural Studies
- Major in Comparative Cultural Studies (German or Spanish option)
- Minor in Comparative Cultural Studies

Honours programs are intended for students who are interested in a concentrated course of study.

The German and Spanish options are designed to allow students with an interest in one of these areas to concentrate their 15 ch of CCS elective courses and have this recognized on their transcript. All students electing the German or Spanish option still complete all of the core courses for the general Comparative Cultural Studies program.

The Minor, which consists of 24 ch of CCS courses, is for students majoring in other disciplines.

Joint Honours and Double Majors with Comparative Cultural Studies are also possible.

NOTE: Students may take up to 6ch of their program electives outside the department with permission of the program director.

Honours Program

Admission to the Honours Program in Comparative Cultural Studies is open to qualified students who have completed 45 ch of courses toward the BA degree. Normally students will have completed (or be in process of completing) 12 ch in lower-level CCS courses and 12 ch in a second language. Students should normally apply for admission to the Comparative Cultural Studies Honours Program in their fourth term and will enter the program during their third year, if they qualify.

To be admitted to Honours, students must have achieved an average of 3.3 (B+) in their Comparative Cultural Studies courses. Students must maintain an average of 3.3 in CCS courses and of 2.5 in non-CCS courses in order to maintain Honours standing

The Honours in Comparative Cultural Studies requires the completion of 48 ch of CCS courses, Specific requirements are as follows:

Each student's program of study must be approved by the director of the program.

Honours (48 ch plus 12 ch in an additional language)

Lower Level

- CCS 1021 and CCS 2021
- 6 ch of additional 1000- or 2000-level CCS courses
- 12 ch in an additional language

Upper Level

- CCS 3021 and CCS 3023
- 9 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 15 ch of upper-level additional CCS electives
- CCS 5000

[To complete an Honours program in CCS with a concentration in German or a concentration in Spanish, students must complete 12 ch of courses in the relevant language and 15 ch of upper-level electives in the chosen concentration. See the lists below under "Optional Concentrations".]

Joint Honours (42 ch plus 12 ch in an additional language)

Lower Level

- CCS 1021 and CCS 2021
- 6 ch of additional 1000- or 2000-level CCS courses
- 12 ch in an additional language

Upper Level

- CCS 3021 and CCS 3023
- 6 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 12 ch of additional upper-level CCS electives
- CCS 5000

Majors Program

A Major in Comparative Cultural Studies requires the completion of 42 ch of CCS courses, with a grade of C or better in each. The specific requirements are as follows:

Major (42 ch plus 12 ch in an additional language)

Lower Level

- CCS 1021 and CCS 2021
- 6 ch of additional 1000- or 2000-level CCS courses
- 12 ch in an additional language

Upper Level

- CCS 3021 and CCS 3023
- 9 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 15 ch of additional upper-level CCS electives

Double Major (36 ch plus 12 ch in an additional language)

Lower Level

- CCS 1021 and CCS 2021
- 6 ch of additional 1000- or 2000-level CCS courses
- 12 ch in an additional language

Upper Level

- CCS 3021 and CCS 3023
- 6 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 12 ch of additional upper-level CCS electives

Optional Concentrations

Students completing a Major or Honours in Comparative Cultural Studies can receive an additional concentration by meeting all of the criteria for Majors or Honours listed above *plus* the criteria listed below:

CCS: German

- Complete 12 ch of German language courses

For their 15 ch of elective courses:

- Complete CCS 3061 or CCS 3071
- Complete the remaining 12 ch of additional courses selected from the following list:

German Concentration Electives*

CCS 3043	CCS 3061	CCS 3121
CCS 3045	CCS 3063	CCS 3123
CCS 3053	CCS 3066	CCS 3124
CCS 3054	CCS 3071	CCS 4093
CCS 3055	CCS 3072	

*With prior permission, students may take up to two courses from outside the department to satisfy the requirements for the concentration.

CCS: Spanish

- Complete 12 ch of Spanish language courses

For their 15 ch of elective courses:

- Complete CCS 3903 or CCS 3904
- Complete the remaining 12 ch of additional courses selected from the following list:

Spanish Concentration Electives*

CCS 3014	CCS 3424	CCS 3954
CCS 3015	CCS 3455	CCS 3973
CCS 3062	CCS 3456	CCS 3974
CCS 3113	CCS 3774	CCS 3975
CCS 3413	CCS 3903	CCS 3984
CCS 3414	CCS 3904	CCS 4043
CCS 3423	CCS 3909	CCS 4062

*With prior permission, students may take up to two courses from outside the department to satisfy the requirements for the concentration.

Combined CCS/MAAC programs

In addition to pursuing joint study with other programs, students have the opportunity to complete a Double Major or Joint Honours in the Department of Culture and Media Studies' two interdisciplinary programs: Comparative Cultural Studies and Media Arts & Cultures. Because the two programs already share a set of core courses, the unique guidelines for combining the two are outlined below.

Double Major in CCS and MAAC

Lower Level

- CCS 2021
- 9 ch of additional 1000- or 2000-level CCS courses
- 9 ch of additional 1000- or 2000-level MAAC courses
- 12 ch in an additional language

Upper Level

- CCS 3021, CCS 3023, MAAC 3401, MAAC 3101, MAAC 3102
- 6 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 15 ch of additional upper-level CCS electives
- 15 ch of additional upper-level MAAC electives

Students should be careful not to double-count any courses cross-listed as both CCS and MAAC.

Joint Honours in CCS and MAAC

Lower Level

- CCS/MAAC 2021
- 9 ch of additional 1000- or 2000-level CCS courses
- 6 ch of additional 1000- or 2000-level MAAC courses
- 12 ch in an additional language

Upper Level

- CCS 3021, CCS 3023, MAAC 3401, MAAC 3101, MAAC 3102
- 6 ch chosen from CCS 3011, CCS 3065, CCS 3794, CCS 3795, CCS 3909
- 15 ch of additional upper-level CCS electives
- 15 ch of additional upper-level MAAC electives
- CCS 5000 or MAAC 5000 or MAAC 5980

Students should be careful not to double-count any courses cross-listed as both CCS and MAAC.

Minor Program

A Minor in Comparative Cultural Studies requires the completion of 24 ch of CCS courses with a grade of C or better. CCS 2021, CCS 3021, and CCS 3023 are required. 6 of the remaining 15 ch must be upper-level courses. The program must be approved by the Director.

LINGUISTICS

[This program is not accepting any new admissions at this time.]

GENERAL INFORMATION

The Linguistics Program combines courses in the traditional areas of linguistics and in related disciplines. It is administered by a committee drawn from the departments involved. Interested students should contact the Director of Linguistics or the Student Advisor.

Requirements

Linguistics is offered as part of a Double Major or a Joint Honours in conjunction with another Major or Honours program.

PROGRAMS OF STUDY:

Double Majors:

1. 9 ch from the three Required Courses.
2. 18 ch from Group A and Group B Courses, with not more than 6 ch from Group B.
3. The courses chosen to fulfil prerequisites or major requirements must be completed with a mark of C or better, and may not count towards the other subject of the Double Majors Program.

Joint Honours:

1. 9 ch from the three Required Courses.
2. 24 ch from Group A and Group B Courses, with not more than 6 ch from Group B.
3. The courses chosen to fulfil prerequisites or honours requirements must be completed with a mark of C or better, and may not count towards the other subject of the Joint Honours Program.

Courses
Note: For course descriptions refer to the appropriate department listings.

Required Courses	
LING2401	Introduction to Language
LING3411	Phonetics and Phonemics
LING3422	Morphology and Syntax
Optional Courses	
Group A	
ED 5078	Foundations of Speech and Language
ENGL/LING 3006	Linguistic Introduction to Canadian English
ENGL/LING 3010	History of the English Language
FR/LING 3404	Introduction à la linguistique
FR/LING 3414	Sociolinguistique
FR/LING 3424	Phonétique et phonologie
FR/LING 3444	La créativité lexicale
FR/LING 3454	Histoire de la langue française
FR/LING 3464	Syntaxe
FR/LING 3484	Questions de psycholinguistique
FR/LING 3494	Mythes et réalités sur le langage
FR/LING 4414	Français canadien
FR/LING 4444	Sémantique
FR/LING 4464	Théorie linguistique
FR/LING 4465	Morphologie générative
LING 3903	Independent Studies in Linguistics I
LING 3904	Independent Studies in Linguistics II
MATH/LING 4903	Formal Languages
PHIL 2113	Introduction to Symbolic Logic
PHIL 3144	Set Theory and Logic
PSYC 3213	Language Development
PSYC 4215	Individuals with Disabilities

Group B	
ABRG	(Micmac language courses at any level)
ABRG or NATI	(Maliseet language courses at any level)
ANTH 3412	Language and Culture
ANTH 3434	Cross-Cultural Communication
CHNS	(Chinese language courses at any level)
CS 4613	Programming Languages
CS 5905	Topics in the Theory of Computing
ED 3560	Introduction à la didactique du français langue seconde
ED 3561	Introduction to Second Language Education
ED 4568	Le développement langagier en classe de langue seconde
ENGL 3003	Old English I
ENGL 3004	Old English II
FR	(French language courses at any level)
FR 3044	Grammaire et stylistique
FR 3204	Stylistique comparée du français et de l'anglais
GER	(German language courses at any level)
GRK	(Ancient Greek language courses at any level)
JPNS	(Japanese language courses at any level)
LAT	(Latin language courses at any level)
LING 3803	Independent Studies in Language I
LING 3804	Independent Studies in Language II
PHIL 3083	Syntax and Semantics of Formal Systems
PSYC 2203	Foundations of Developmental Psychology
PSYC 3243	Cognitive Development
PSYC 3623	Cognition
RUSS	(Russian language courses at any level)
SPAN 3205	Advanced Translation
SPAN	(Spanish language courses at any level)
SPAN 4204	Spanish Language of the Americas

Note: Language improvement courses may not be counted for Linguistics credit by native speakers.

For more information consult
URL: http://www.unb.ca/web/arts/IDS/Lin/
or contact: Wladyslaw Cichocki, Director of Linguistics,
Phone: 447-3236 Fax: 453-3565 Email: cicho@unb.ca

Media Arts & Cultures

General Information

Media Arts & Cultures is an interdisciplinary program that combines the study of media forms, texts, and contexts with a hands-on approach to creativity and technology. In this program, students *learn about media by making media*. They not only consider, critique, and engage intellectually with media, but also learn tools and techniques with which media content is created today. In Media Arts & Cultures, we blur the line between critical consumers and creative producers, between scholars of media and authors of media.

Honours, Majors, and Minors
Students interested in Media Arts & Cultures have the following five options:

- Honours in Media Arts & Cultures
- Honours in Media Arts & Cultures (Film Production)
- Major in Media Arts & Cultures
- Major in Media Arts & Cultures (Film Production)
- Minor in Media Arts & Cultures

Honours programs are for students who are interested in a concentrated course of study (typically in preparation for further studies). The Film Production options are designed to allow students with an interest in filmmaking to focus their MAAC elective courses in this area. All students electing the Film Production option still complete all of the core courses for the general Media Arts & Cultures program. The Minor consists of 24 ch of MAAC courses for students majoring in other disciplines. Joint Honours and Double Majors with Media Arts & Cultures are also possible.

HONOURS

Admission to the Honours Program in Media Arts & Cultures is open to qualified students who have completed 45 ch of courses toward the BA degree. Normally students will have completed (or be in process of completing) 12 ch in lower level MAAC courses. Students should apply for admission to the Media Arts & Cultures Honours Program in their fourth term. Students may enter the program during their third year, if they qualify.

To be admitted to Honours, the student must have achieved an average of 3.3 (B+) in their Media Arts & Cultures courses. Also, an average of 3.3 in MAAC courses and of 2.5 in non-MAAC courses must be maintained if the student is to retain Honours standing.

Each student's program of study must be approved by the Director of Media Arts & Cultures.

Single Honours Requirements

- 3.3 GPA in MAAC courses and a 2.5 GPA in non-MAAC courses.
- 12 ch of Introductory and Intermediate level MAAC courses (including at least MAAC 2001 or MAAC 2021)
- 42 ch of Advanced level MAAC courses.
  - These must include MAAC 3021, MAAC 3101, MAAC 3102, and MAAC 3401, as well as either MAAC 5000 (Honours Thesis) or MAAC 5980 (Honours Project)

Joint Honours Requirements

A student completing Honours in Media Arts & Cultures jointly with another subject follows the same requirements as Single Honours but may reduce the overall number of advanced level ch in MAAC courses to 30.

Honours in Media Arts & Cultures (Film Production)

The Department offers students wishing to concentrate in film production the following Honours option: Media Arts & Cultures (Film Production). The requirements for this program are:

- 3.3 GPA in MAAC courses and a 2.5 GPA in non-MAAC courses.
- MAAC/FILM 299 & MAAC 202242 ch of Advanced level MAAC courses.
- An additional 6 ch of Introductory and Intermediate level MAAC courses (chosen from MAAC 1001, MAAC 1002, MAAC 2001, MAAC 2021)
- 42 ch of Advanced level MAAC courses.
  - These must include MAAC 3021, MAAC 3101, MAAC 3102, and MAAC 3401, as well as either MAAC 5000 (Honours Thesis) or MAAC 5980 (Honours Project)

Students considering this option should discuss their plans with the Director of Media Arts & Cultures when they apply to the Honours program. All students following the Film Production option must have their course of study approved by the Director.

List A

FILM/ENGL 3183 Creative Writing: Screenwriting for Short Formats (this is a limited enrolment)
FILM/ENGL 3186 Creative Writing: Feature Screenplay (this is a limited enrolment course)
MAAC/MUS 3362 Sound Design
MAAC/FILM 3981 Screen Acting
MAAC/FILM 3998 Film Production
MAAC/FILM 3999 Editing and Post Production
MAAC 4401 Animation Principles

List B

ENGL 3906-9 Film Genre
ENGL 3916-9 National Cinemas
FILM/ENGL 3903 Film Theory
MAAC/CCS 3065 The Thrill of Fear: Horror Narratives across Media & Cultures
MAAC/FILM 3075 Framing Reality: Theory and Practice of Documentary Media
MAAC 3085 Television Studies
MAAC/CCS 3066 Trauma and Seduction: Early German Cinema
MAAC/CCS 3072 (Re)constructing National Identity: Contemporary German Cinema
MAAC/CCS 3082 History of Canadian Cinema
CCS 3455 The Cinema of Spain
CCS 3546 Latin American Cinema
MAAC/CCS 3795 Dark Futures: Visions of Dystopia since World War I

Major in Media Arts & Cultures

A major in Media Arts & Cultures requires the completion of 42ch of MAAC courses, with a grade of C or better in each. The specific requirements are as follows:

Single Majors Requirements

- 12 ch of Introductory and Intermediate level MAAC courses (including at least MAAC 2001 or MAAC 2021)

- 30 ch of advanced level MAAC courses.

   o These must include MAAC 3101, MAAC 3102, and MAAC 3401.

Double Majors Requirements

A student completing a Major in Media Arts & Cultures jointly with another subject follows the same requirements as Single Majors but may reduce the required number of Advanced level ch in MAAC courses to 24.

Optional Majors Program: Media Arts & Cultures (Film Production)

The Department offers students wishing to concentrate in film production the following Major option: Media Arts & Cultures (Film Production). The requirements for this program are:

- MAAC/FILM 2999 & MAAC 2022

- An additional 6 ch of Introductory and Intermediate level MAAC courses (chosen from MAAC 1001, MAAC 1002, MAAC 2001, or MAAC 2021)

- 30 ch of advanced level MAAC courses

   o These must include MAAC 3101, MAAC 3102, MAAC 3401, MAAC 4001, at least 6 ch from the approved Film Production courses list (List A below), and at least 6 ch from the approved Film Studies course list (List B below)

Students considering this option should discuss their plans with the Director of Media Arts & Cultures when they declare their major. All students following the Film Production option must have their course of study approved by the Director.

List A

FILM/ENGL 3183 Creative Writing: Screenwriting for Short Formats (this is a limited enrolment)
FILM/ENGL 3186 Creative Writing: Feature Screenplay (this is a limited enrolment course)
MAAC/MUS 3362 Sound Design
MAAC/FILM 3981 Screen Acting
MAAC/FILM 3998 Film Production
MAAC/FILM 3999 Editing and Post Production
MAAC 4401 Animation Principles

List B

ENGL 3906-9 Film Genre
ENGL 3916-9 National Cinemas
FILM/ENGL 3903 Film Theory
MAAC/CCS 3065 The Thrill of Fear: Horror Narratives across Media & Cultures
MAAC/FILM 3075 Framing Reality: Theory and Practice of Documentary Media
MAAC 3085 Television Studies
MAAC/CCS 3066 Trauma and Seduction: Early German Cinema
MAAC/CCS 3072 (Re)constructing National Identity: Contemporary German Cinema
MAAC/CCS 3082 History of Canadian Cinema
CCS 3455 The Cinema of Spain
CCS 3546 Latin American Cinema
MAAC/CCS 3795 Dark Futures: Visions of Dystopia since World War I

Minor in Media & Arts Cultures

The Minor in Media & Arts Cultures consists of 24 ch in MAAC completed with a grade of C or better. MAAC 2021 and MAAC 3401 are required. At least 6 ch, and no more than 12 ch, must be from Introductory and Intermediate-level courses. Students should note that any courses compulsory for their degree programs cannot be counted toward a Minor. Students transferring credits from another university should note that at least half the credits counted towards a UNB Minor in MAAC must be from courses taken at the University of New Brunswick.

UPPER LEVEL COURSES

GROUP A

MAAC 3362	Sound Design
MUS 3000	Studio Work
MUS 3003/4*	Studio Work: Private Lessons I & II
MUS 3005/6/7**	Studio Work: Music Ensemble I, II & III
MUS 3113	Computers in Music, an Introduction
MUS 3123	Musical Composition
MUS 3133	Conducting
MUS 3798	The Forbidden, the Rebellious and the Misunderstood: Canadian Jazz, Popular and Classical Music, 1950 to the Present
MUS/HIST 3765	History of Music in Medieval and Renaissance
MUS/HIST 3775	History of Music in Baroque and Classic Periods
MUS/HIST 3785	History of Music in the Romantic Era
MUS/HIST 3795	A History of Music in the Twentieth Century
MUS/HIST 3796	History of Music Dramas of Richard Wagner
MUS/WLCS 3794	Music and Cultural Identity
MUS/WLCS 3799	Women in Music

* Students should note that these two courses (MUS 3003/3004) are only 1.5 ch courses. Both must be taken to meet the requirement of a single 3 ch course.

**Students should note that these three courses (MUS 3005/3006/3007) are only 1 ch courses. All three must be taken to meet the requirement of a single 3 ch course.

GROUP B

GER/WLCS 3021	The New Berlin: Memory and Reinvention
GER/WLCS 3023	Berlin to Broadway
GER/WLCS 3061	From People to a Nation: German Culture before 1900
GER/WLCS 3071	German Today: German Culture from 1900 to the Present
PHIL 3311	Nietzsche on Socrates' Death-Wish
POLS 3417	Politics and Music
SOCI 3243	Sociology and Culture
WLCS 3003	Contemporary Issues in World Literature and Culture
WLCS 3011	Dreams Desires, Delusion: Romanticism
WLCS 3022	New York Modern
WLCS 3064	The Holocaust: East European Representations and Responses

GROUP C

MUS 2143	Introduction to Jazz Theory
MUS 2797	Rock and American Popular Music
WLCS 2024	Culture and Dance 1: So You Think You Can Dance
WLCS 2025	Culture and Dance 2: Dance in the Global Village

STU

FNAR 1031	Ear Training and Sight-Singing I
FNAR 1041	Ear Training and Sight-Singing II
FNAR 1303	The Guitar in Western Music
FNAR 2001 & 2101	Piano Class I and II
FNAR-2043	Hot 100: Songwriting and Arranging
FNAR-2073	Pop Ballad (1970-2000): Songwriting And Arranging
FNAR 2213	Music of the Church
FNAR 2333	History of Jazz
FNAR 3013	Music and Meaning
FNAR-4006	Level I Orff Schulwerk

Minor in Music

General Information
The Music Minor offers students from all Faculties the opportunity to study music from a variety of perspectives, including theory, history, and analysis, and performance, among others. It is designed so as to create rich learning experiences for students interested in making music as well as for those primarily interested in learning about music. For details of courses and requirements, see below.

Eligibility

Admission to the Music Minor is open to students from any Faculty who have completed 30 ch towards a degree. Students should contact the Director of Music for program approval and advising. Students are encouraged to begin the Minor in their second year of study.

Program of Study

The Minor consists of 24 credit hours approved by the Director. Of these 24 ch, at least 12 ch must be at the upper level. All students are required to take at least one of the following theory-based courses: MUS 2113 , MUS 2114 , MUS 2123 , or MUS 2124 , and at least one of the following history-based courses: HIST/MUS 3775 , 3785 , 3795 , or 3796 . For the remainder of the courses, students are expected to consult with the Director of Centre for Musical Arts to ensure a coherent set of courses is selected to reflect a distinct area of concentration. Students wishing to focus on performance will typically take at least 12 ch from performance and theory based courses, while students primarily interested in the history and appreciation of music will typically take at least 12 ch from courses in those areas.

Courses will be selected from the following list. Additional courses may be counted towards the Minor subject to the approval of the Director.

MUS 2113	Introduction to Music
MUS 2114	Introduction to Music Appreciation
MUS 2123	Music Theory I
MUS 2124	Music Theory II
MUS 2143	Introduction to Jazz Theory
MUS 2797	Rock and American Popular Music
MUS 3000	Studio Work
MUS 3001	Studio Work: Private Lessons
MUS 3002	Studio Work: Ensemble Work
MUS 3113	Computers in Music, an Introduction
MUS 3123	Musical Composition
MUS 3133	Conducting
MUS 3797	Music of Canada
MUS 3798	Canadian Jazz: The Forbidden, the Rebellious, and the Misunderstood
HIST 3701	The Cultural Turn: Cultural Studies in Historical Context
HIST/MUS 3765	History of Music in Medieval and Renaissance periods
HIST/MUS 3775	History of Music in the Late Baroque and Classical Period
HIST/MUS 3785	History of Music in the Romantic Era
HIST/MUS 3795	History of Music in the Twentieth Century
HIST/MUS 3796	History of the Music Dramas of Richard Wagner
MUS/WLCS 3799	Women in Music
MAAC 3362	Sound Design
POLS 3417	Politics and Music
SOC 3472	Sociology of Music
WLCS/GER 3023	Berlin to Broadway

RUSSIAN AND EURASIAN STUDIES

GENERAL INFORMATION

This program is not accepting any new admissions at this time

Russian and Eurasian Studies is an interdisciplinary major and minor program administered by a committee drawn from the departments involved in the program. Interested students should first contact the Director who is the representative from the Russian section of the Department of Culture and Language Studies.

PROGRAMS OF STUDY:

Major in Russian and Eurasian Studies

A major in Russian and Eurasian Studies shall consist of a minimum of 30 ch of advanced level courses relating to Russia and the former Soviet Union and Eastern Europe. To qualify to enter this program, students must first have satisfactorily completed 6 ch in the Russian language at the introductory level (RUSS 1013 and 1023) and 6 ch at the intermediate level (RUSS 2013 and 2023). The 30 ch for the Major will be selected from the list below and must meet the following requirements:

1. 6 ch in the Russian language (RUSS 3013, 3023)

2. two of: 6 ch in Russian or East European literature, 6 ch in Political Science of Russia, the former USSR and Eastern Europe 6 ch in the History of Russia, the former USSR, and Eastern Europe

3. 12 additional ch (3 ch each):

GEOG 5644	Geography of the USSR
POLS/ECON 3112	The Political Economy of Russia and Ukraine
POLS 3113	The Foreign Policies of East European States
POLS/ECON 3343	The European Union in Transition
POLS/ECON 3361	Eastern Europe in Transition
POLS 3431	Politics of the Former Soviet Empire
POLS 3432	Europe: East and West
POLS 3831	Contemporary China
RUSS 1043	Russian Culture I
RUSS 1053	Russian Culture II
RUSS 3013	Advanced Russian I
RUSS 3023	Advanced Russian II
RUSS 3051	Introduction to 19th Century Russian Literature in Translation
RUSS 3052	Introduction to 20th Century Russian Literature in Translation
RUSS 3083	Seminar I: Genre
RUSS 4003 / WLCS 4003	Russian Women Writers
RUSS 4053	Seminar II: Author
SPAN/RUS/ WLCS 4043	Literature and Religion in 19th and 20th Century Russia and Spain

Minor in Russian and Eurasian Studies

A minor in Russian and Eurasian Studies will consist of 12 ch of Russian language (RUSS 1013 , 1023 , 2013 , 2023), as well as 6 ch each in two of political science, history or literature from the above listed courses.

Access to the upper year political science and history courses will be contingent upon departmental consent where students in the Russian and Eurasian Studies Program do not have the necessary prerequisites.

SPANISH AND LATIN AMERICAN CULTURES

This program is not accepting any new admissions at this time

GENERAL INFORMATION

Texts

Full listings of texts required in every course for the following academic year will be available early in the Spring.

Counselling and Guidance

During registration and after, students are urged to consult theAcademic Advisor and the other members of the Department on any matters concerning their individual programs.

Prerequisites

Please refer to individual class descriptions for information concerning prerequisites.

Introductory and Intermediate Level Courses:

Language: The language courses are a continuous series and must be taken in the normal sequence. Students with some prior knowledge of Spanish should have this assessed in order to be placed at their proper level. The first two years provide students with a solid working knowledge of Spanish. Students may change streams in consultation with the Department.

Civilization: Courses in Spanish and Spanish American civilization (SPAN 2013 , SPAN 3014 , and SPAN 3015) are offered in English and are open to any student who has successfully completed at least 30 credit hours at university level.

Advanced Level Courses

Language: SPAN 3202 , SPAN 3203 , SPAN 3204 , SPAN 3205 ,

SPAN4203 , and SPAN 4204 provide a greater degree of proficiency

and specialization in writing, reading, translation and spoken fluency. Advanced level course classes are, for the most part, conducted in Spanish to help students achieve oral fluency.

Literature and Civilization: All literature and civilization deal with Spanish and Spanish American literature or civilization and are offered either annually or in alternate years. This should be taken into account when planning the junior and senior years.

PROGRAMS OF STUDY:

Students must have their programs approved by the Department.

Minors

Students in Minors must obtain a grade of C or higher in all required Spanish courses.

Students a Minor in Spanish are required to successfully complete SPAN 1203, SPAN 1204, SPAN 2203, and SPAN 2204, plus four other Spanish courses (12 ch) in language, literature, culture or civilization offered in the Department. Courses cross-listed must be taken as Spanish credits and include a writing component in Spanish.

Majors

Students in Majors must obtain a grade of C or higher in all required Spanish courses.

Students in Single or Double Majors are required to successfully complete SPAN 3203 and 3204, plus six other advanced Spanish courses, for a total of 24 advanced-level ch in Spanish.

Honours

Honour students must obtain a grade of B- or higher in all required Spanish courses.

A. Single Honours

Students in Single Honours are required to successfully complete SPAN 3203 and SPAN 3204 , plus ten other advanced Spanish courses, for a total of 36 advanced-level ch in Spanish.

B. Joint Honours

Students in Joint Honours are required to successfully complete SPAN 3203 and 3204 , plus six other advanced Spanish courses,

Certificate of Proficiency in Spanish

Persons who are not majoring or honouring in Spanish and who would like to have official recognition of their competence in the language may apply for admission to this program, which is administered for the University by the Department of Culture and Language Studies on the Fredericton campus. The goal of the program is to enable students to acquire a functional command of Spanish, by upgrading, over a four-year period, the five basic language skills: speaking, listening, reading, writing, and translation and interpretation.

The program normally consists of 12 ch of Spanish courses at the Introductory and Intermediate levels, followed by 12 ch at the Advanced level. These will normally be SPAN 1203 or SPAN 1003 , SPAN 1204 SPAN 1304 or SPAN 1004 , SPAN 2203 , SPAN 2204 , SPAN 2303, SPAN 3203 , SPAN 3204 , SPAN 3205 , SPAN 4203 , SPAN 4204 . In all of these courses the student is to attain a mark of B- or higher. A maximum of six credit hours may be transferred from another program upon consultation with the Department.

Students interested in being considered for the Certificate must seek the approval of the Department of Culture and Language Studies.

Full-time students may take these courses as part of their undergraduate program. Persons not working towards a degree may enroll for the courses as part-time students.

The Certificate of Proficiency in Spanish will be awarded by the University through the Registrar's Office. The student's transcript will bear a separate entry, showing that the Certificate has been awarded.

A brochure containing further details is obtainable from the Department of Culture and Language Studies on the Fredericton campus and the Division of Humanities and Languages on the Saint John campus.

STUDY ABROAD IN SPAIN AND LATIN AMERICA

The Department actively encourages interested students to participate in one of several Study Abroad Programs made available to them at UNB- Fredericton. A student who attends language or literature courses at a university in a Spanish-speaking country will be awarded up to 12 credit hours upon departmental recommendation. Students majoring or honouring in Spanish normally spend at least one academic semester at a university in a Spanish-speaking country, preferably in their third or fourth year of studies. For further information please consult the

undergraduate advisor for Spanish.

UNB currently has international exchange agreements with institutions in the following Spanish-speaking countries: Chile, Costa Rica, Cuba,

Mexico, Spain and Uruguay. For a description of the student abroad programs (summer term and full year) consult the Departmental website or the UNB International office. Please note that applications must be made to the UNB International office in early fall of the year prior to departure.

WORLD LITERATURE AND CULTURE STUDIES

GENERAL INFORMATION

The Program in World Literature and Culture Studies is dedicated to the study of literature and cultures in a broad interlingual, intercultural and interdisciplinary framework. It offers students the opportunity to explore various cultures and literatures through the study of texts, either in their original language or in translation and to develop a more global consciousness and awareness through cultural literacy. World Literature and Culture Studies introduces students to:

1. The literatures of two or more languages and cultures
2. Questions and theories about literatures and cultures
3. Contemporary and/or historical perspectives on two or more cultures

The study of different texts and cultures will enrich and enhance students' understanding of their own as well as of other cultures. This process is facilitated by the systematic comparison of such questions as literary genres, periods, movements, and dominant themes and motifs, or in the context of the mutual impact of two or more national or regional cultures.

Why World Literature and Culture Studies?

Globalization, democratization, and post-colonial forces continue to powerfully shape our increasingly complex and interconnected world. World Literature and Culture Studies provides a valuable opportunity to study these relationships as expressed in literary and other cultural texts from a variety of perspectives.
Those who would otherwise choose to study one national or regional literature may find here a broader frame of reference for their interest. Students have the opportunity to read intriguing and challenging texts from around the world while discovering the connections betweenliterature and other disciplines and among the various literatures studied in the program; this program offers students the possibility of exploring the relations between literature and such areas as ideology,colonialism, film and other visual arts, gender studies, politic al thought, and International Development Studies.

World Literature and Culture Studies allows students to improve their analytical and critical thinking skills, develop their abilities in expository writing and oral communications, expand the context of functionality in asecond or even third language. Finally, students not only gain perspective on the world, but also deeper insights into their own culture.

PROGRAMS OF STUDY

General Program Requirements

Students planning to major in World Literature and Culture Studies will normally take the following sequence of courses, with adjustments for Honours or combined programs:

Year I

· Either 6 ch in World Literature (WLCS 1001 and 1002) or 6 ch in Introductory Culture courses. (Both alternatives count as Humanities for first-year Arts requirements)
·6ch in a second language (Introductory level)

Year II

·Either 6 ch in World Literature (WLCS 1001 and 1002) or 6 ch in Introductory WLCS Culture courses (depending on which of the two were taken in Year I)
·6 ch in a second language (Intermediate level)
·3-6 ch recommended (but not required) in related courses, incl ANTH1001, CLAS 1003, 1403, 1413, 1503; HIST 2015; IDS 2001

Year III/IV

· 30 upper level credit hours including at least 9 ch WLCS; HIST 3701 (Approaches to Cultural Studies) or equivalent; 18 ch from Groups A and B of which no less than 6 ch will be from each, and the total will be drawn from no less than three disciplines,. In addition, students are strongly encouraged to continue in the study of at least one second language

MINOR, MAJORS AND HONOURS

Minor

A Minor in WLCS consists of a total of 24ch and must include:

1. Either 6ch in (one) second language OR 6ch of introductory courses in culture
2. WLCS 1001 and 1002
3. 12 additional upper-level ch in literature, culture and/or film courses taken from the Department of Culture and Language Studies

Majors

·WLCS 1001 / 1002
·6 credit hours in Introductory Culture courses
·12 credit hours in a second language
·30 credit hours in advanced-level courses including:
9 ch WLCS courses
HIST 3701 or equivalent1
·8 ch from Groups A and B, of which no less than 6 ch will be from each, and at least 3 disciplines will be included in total

Double Majors

The same as for majors except:

· 24 credit hours in advanced-level courses including:
   6 ch WLCS courses
   HIST 3701 or equivalent
   15 ch from Groups A and B, of which no less than 6 ch will be from each, and at least 3 disciplines will be included in total

Honours

The same as for majors except:

· 36 credit hours in advanced-level courses including:
   15 ch WLCS courses including WLCS 5000 (Honours Thesis)
   HIST 3701 or equivalent
   18 ch from Groups A and B, of which no less than 6 ch will be from each, and at least 3 disciplines will be included in total

Joint Honours

The same as for majors except:

· 30 credit hours in advanced-level courses including:
   12 ch WLCS courses including WLCS 5000 (Honours Thesis)
   HIST 3701 or equivalent
   15 ch from Groups A and B, of which no less than 6 ch will be from each, and at least 3 disciplines will be included in total

WORLD LITERATURE AND CULTURE STUDIES (WLCS) COURSES

Notes:

1. All readings and lectures are in English.
2. 1000-level courses are open to all students, and have no prerequisites.
3. Upper level courses are open to all students who have completed at least 30 credit hours of university or by permission of the instructor.

Introductory Culture Courses

(See under German, Russian, Spanish for course descriptions)

WLCS1013/SPAN1013	The Culture of Spain and Latin America I	3 ch (3C) [w]
WLCS1014/SPAN1014	The Culture of Spain and Latin America II	3 ch (3C) [w]
WLCS1043/RUSS1043	Russian Culture I	3 ch (3C) [w]
WLCS1053/RUSS1053	Russian Culture II	3 ch (3C) [w]
WLCS2021/MAAC 2021	From Tribes to a Nation: German Cultures before 1900	3 ch (3c) [w]
WLCS3061/GER 3061	From Tribes to a Nation: German Culture before 1900	3 ch (3C) [w]
WLCS 3071/GER 3071	Germany Today: German Culture from 1900 to the Present	3 ch (3C) [w]

Group A

Any advanced-level literature courses from the following disciplines: Classics, English, French, German, Greek, Latin, Russian and Spanish as well as courses in film studies. Individual departmental prerequisites must be met. Course selection should be discussed with and approved by the Chair of the Department of Culture and Language Studies.

Group B

Approved courses (listed below) from other university departments. Individual departmental prerequisites must be met. Other courses may be appropriate for this group as well. Course selection should be discussed with the Chair of the Department of Culture and Language Studies

ANTH 3413	Language and Culture
ANTH 3434	Cross-Cultural Communication
ANTH 3694	Latin America
ANTH 3704	South Asia
ANTH 4224	Anthropology of Religion
CLAS 3913	Love and Sexuality in Greece and Rome
HIST 3015	Racism in the West from Antiquity to the Enlightenment
HIST 3016	Racism in the West from the Enlightenment to Today

HIST 3716	Renaissance Art
HIST 3729	Art Now
HIST 3735	The History of Modern Art
HIST 3905	History of the Physical Sciences
PHIL 2074	Introduction of Classics in Aesthetics
PHIL 3311	19 Selected Topics in Existential and Postmodern Philosophy
POLS 3323	Cities in the Urban Century
POLS 3731	Governments and Their Spies
POLS 3417	Politics and Music
POLS 3471	When Bards are Bothered: Political Critique in Literature
POLS 3715	The Critique of Alienation
POLS 3831	Contemporary China
SOCI 3243	Sociology and Culture
SOCI 3252	International Media, Culture and Communications
SOCI 3253	Sociology of the Media
SOCI 3706	Sociology of Colonialism and Post-Colonialism
SOCI 4225	Language and Society

DRAMA

General Office:	Carleton Hall, Room 247
Mailing Address:	Department of English University of New Brunswick, P.O. Box 4400, Fredericton, N.B., Canada, E3B 5A3
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Email:	lfalken@unb.ca
Website:	http://www.unb.ca/fredericton/arts/departments/ english/dramaunb/index.html

FACULTY

Director: Dr. Len Falkenstein

· Ball, John C., BA, MA, PhD (Tor), Prof & Acting Dean of Arts -1965
· Falkenstein, Len, BA, MA, (Sask), PhD (Alta), Prof - 1999
· Finlay, Tatrina, BA, MA, (Mt Allison), MA (UNB), Asst-Prof - 2008
· Martin, Randall. BA (Tor), MA (Birmingham), DPhil (Oxon), Prof -1994

General Information

The UNB Drama program offers pre-professional training in all aspects of theatre, including acting, directing, stage management, and costume, set, lighting, and sound design. Students in the program stage 5-7 major productions annually under the auspices of Theatre UNB, the production wing of the program. The Drama program is administratively housed within the Department of English.

Programs of Study

Major

Students can complete a Major in English with a concentration in Drama. For information on this program, see the English Department section in this Calendar.

Minor

The Drama Minor consists of 24 ch chosen from required, recommended, and elective courses as listed below. Students can complete the Minor over either 3 or 4 years, having entered the program in the first or second year of their studies. Required courses for the Minor are DRAM 2170, DRAM 3170, and either DRAM 4170 or both DRAM 4173 and DRAM 4174. For the remaining 6ch in the program, students can choose from a range of elective courses, with DRAM 1173 and ENGL 3877 being strongly recommended.

The recommended program of study is as follows:

Year One:	DRAM 1173
Year Two:	DRAM 2170
Year Three:	DRAM 3170
Year Four:	DRAM 4170

The remaining 3ch of electives can be taken in any year. Students entering the program in the second year of their studies can take DRAM 1173 and DRAM 2170 simultaneously. Students wishing to spread the work of DRAM 4170 across two different academic years can choose to take DRAM 4173 and DRAM 4174, two 3ch courses which are the equivalent of DRAM 4170.

Students interested in the program are advised to consult the Director of Drama for further information.

Core and Elective Courses

Core Courses
DRAM 2170	Principles of Drama Production	6ch
DRAM 3170	Advanced Drama Production	6ch
DRAM 4170	Thesis Production and Independent Project	6ch

[or DRAM 4173 Thesis Production (3ch) + DRAM 4174 Independent Drama Project (3ch)]

Elective Courses
Recommended Electives
DRAM 1173	Introduction to Acting and Performance	3ch
ENGL 3877	Modern Drama	3ch

Other Electives
ENGL 2195	Creative Writing:Poetry and Drama	3ch
ENGL2263	Shakespeare and Film	3ch
ENGL 3163	Creative Writing: Drama	3ch
ENGL 3260	Shakespeare	6ch
ENGL 3263	Shakespeare's Predecessor's and Contemporaries	3ch
CLAS 3403	The Comic Theatre of Greece and Rome	3ch
CLAS 3413	The Tragic Theatre of Greece and Rome	3ch
FILM 3981	Introduction to Directing and Acting for Film and Television	3ch
FILM 3990	Advanced Production	3ch
FILM 3998	Film Production	3ch
FILM 3999	Editing and Post Production	3ch
GER 3023	Berlin to Broadway: Musical Theatre Across the Oceans	3ch
MAAC 3101	Media Design I	3ch

Equivalent courses offered by St. Thomas University can also be used for the Minor, with the permission of the Director of Drama. Other courses, including some offerings in Film, Creative Writing, and Music, can also be taken as electives, with the permission of the Director.

ECONOMICS

DEPARTMENT OF ECONOMICS

General Office:	Singer Hall, Room 465
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Phone:	(506) 453-4828
Fax:	(506) 453-4514
Email:	econ@unb.ca
Website:	http://www.unbf.ca/arts/econ/

FACULTY
·Dalkir, Elif, BS (Mathematics-METU), MS (Bogazici), MA (Mathematics-Kansas), PhD (Economics & Mathematics - Kansas), Asst Prof. 2012
· Dalkir, Mehmet S., BS, MS (Engineering-METU), MA (Kansas), PhD (Kansas), Asst Prof - 2005
· Farnworth, Mike, BA, MA (Qu.), PhD (McM), Asst Prof - 2000
· Lantz, Van, BA (Car.), MA (Dal), PhD (S.Fraser), Prof (Joint Forestry & Enviro Mgmt) - 2000
· Leonard, Philip, B.Comm (Queen's), MA (Ottawa), PhD (McMaster), Research Assoc and Health Economist with NB-IRDT - 2014
· McDonald, Ted, BA (St. F.X.), MCom, PhD (Melbourne), Prof - 2001
· Murrell, David, BA (Duquesne),BSocSc, MA (Ott), PhD (Qu), Prof - 1985
· Myatt, Anthony E., BA (Lancaster), MA, PhD (McM), Prof - 1983
· Passaris, Constantine E., BA (American U, Cairo), MA (Nfld), PhD (Leicester), Prof - 1972
· Yevdokimov, Yuri, BSc (Sumy), MA (Academy of Science), MSc (Ill), PhD (Manit.), Prof (Joint Civil Eng.) - 1999
· Peters, Paul, BES (Waterloo), MES (Waterloo), PhD (Texas) Assist Prof and Canada Research Chair (Joint with Sociology) - 2014
· Yu, Weiqiu, BSc (Shandong), MA (UNB), PhD (S.Fraser), Prof & Chair - 1993

PROGRAMS OF STUDY

The Department of Economics offers Majors and Honours programs to students in the Faculties of Arts, Business Administration and Science. The Department also offers a Minor to students from all Faculties. The usual entry level courses are introductory microeconomics (ECON 1013 or ECON 1014) and introductory macroeconomics (ECON 1023 or ECON 1024).

Students normally choose a Majors/Honours program in their second or third year and should register with the Department at the beginning of the academic year. Registration forms can be obtained from the departmental secretary in SH465 or downloaded from the departmental website at:
http://www.unb.ca/fredericton/undergrad/ba/economics/index.html

Minimum Academic Standards

Students in all Faculties should note that the minimum grade in a course required by any of the Economics programs (Majors, Honours and Minor) is a "C". A grade of "D" is acceptable only if 1) the course is a normal part of the final year of that program, and is being taken for the first time in the final year; or 2) the course is not needed to meet the minimum credit hours of that program.

ECONOMICS PROGRAMS TO ARTS STUDENTS

Programs available to Faculty of Arts students include Majors and Honours in Economics, a Major in Economic Studies and a Minor in Economics. There is also a Minor in Public Policy jointly offered with Political Science.

Major in Economics

The Major consists of a minimum of 30 ch in Economics of which 24 ch must be in advanced courses (i.e. courses that start with the number 3 or higher are advanced). Required courses include ECON3023, ECON3013 , and a 3 ch course in statistics. Since the Economics Department does not offer an undergraduate statistics course, most statistics courses offered by other Departments are acceptable as an Economics statistics credit, e.g. ADM2623/ECON3601.

Major in Economic Studies

This Major consists of a minimum of 30 ch in Economics, of which 24 ch must be in advanced courses. There are no other restrictions on course selection. The Economic Studies Program is appropriate for those who want a liberal arts background in Economics without the commitment to theory and statistics required by the Major in Economics.

Honours in Economics

There are two Honours programs: Single Honours and Joint Honours. They are suitable for students who intend to become professional economists, particularly those who plan to do graduate work at UNB or another university.

The **Single Honours program** consists of a minimum of 54 ch in Economics courses or approved substitutes, of which 36 ch must be in advanced courses. The **Joint Honours program** consists of 48 ch in Economics courses or approved substitutes, of which 24 ch must be in advanced courses.

Students may substitute up to 9 ch of non-Economics courses for non-compulsory Economics courses. Department of Economics approval is required. These substitute courses must be approved by the Director of Undergraduate Studies.

To remain in the Honours programs, a student must maintain a GPA of 3.0 in Economics courses and approved substitutes.

The following courses are compulsory for Honours students: ECON 3013 and ECON3023 , ECON3601/ADM2623 and ECON3628/ADM3628 or approved substitutes, ECON3665, ECON4013, ECON4023, ECON4625, and ECON4665.

Minor in Economics

In addition to the Majors/Honours programs in Economics, a Minor in Economics is also available to students from all Faculties. The minor in Economics shall consist of at least 24 ch in Economics. The courses for the Minor must be from a "coherent set of sequence of courses" as called for by the general university regulations for a Minor.

Minor in Public Policy

This is a joint Minor proposed by the departments of Economics and Political Science. Students may minor in Public Policy by completing 24ch of courses offered by the Department of Economics and the Department of Political Science. Students are required to complete 24ch as follows:

a. 6ch of economics chosen from: ECON 1014 or ECON 1013,ECON 1002 or ECON 1023 , ECON 2203 , ECON 3505 , ECON 3705 , ECON 3905 .

b. 6ch of introductory political science (POLS) courses chosen from POLS 1103, POLS1203 , POLS 2013 , POLS 2202 , POLS 2200 , POLS 2503 , POLS 2603.

c. 6ch of advanced economics (ECON) courses from ECON 3055 , ECON 3203 , ECON 3504 , ECON 3702 , ECON 3755 , ECON 3775 , ECON 3801 , ECON 3815 , ECON 3845 , ECON 3865 .

d. 6 ch of advanced political science (POLS) courses from POLS 3103 , POLS 3213 , POLS 3215 , POLS 3241 , POLS 3251 , POLS 3257 , POLS 3282 , POLS 3284 , POLS 3292 , POLS 3391 , POLS 3461 , POLS 3647 , POLS 4724.

ECONOMICS PROGRAMS TO BUSINESS ADMINISTRATION STUDENTS

Please refer to the Faculty of Business Administration for further details on the Economic Program in Business Administration.

ECONOMICS PROGRAMS TO SCIENCE STUDENTS

Please refer to the Faculty of Science for further details on the Economics Programs in Science.

Additional Programs: Cooperative Education Program

The Department operates a small Co-operative Education (Co-op) Program available to academically qualified Honour and Majors in Economics and Majors in Economic Studies. It is co-ordinated through the Faculty of Business Administration. This Program offers students the opportunity to undertake paid work-terms, the work to include economic research and analysis beyond classroom instruction. The Program offered within the Department consists of a minimum of three (3) four-month work-term sessions which may or may not be taken consecutively depending on the work-term offer taken. These work-term sessions are in addition to the normal eight semesters of academic study. The Program allows the student to obtain a Major in Economics or Economic Studies or Honours in Economics in addition to Co-op participation. Students normally apply to enter the Co-op program after completing the first year of study, but later admission may be possible.

The following Program rules apply:

1. Admission into the Program is selective. Students must maintain a minimum GPA of 3.0 while participating in the Co-op Program.

2. Students must be fully registered at UNB during each work-term so that they can be considered as full-time students while working.

3. A Co-op fee will be charged for each registered 4-month work-term to cover placement and administration costs.

4. Students must undertake a minimum of 3 work-terms. The work-terms may alternate with study-terms, or the terms may run consecutively over two or three terms, depending on employer demand.

5. Each 4-month work term will be monitored directly by the employer, and by the departmental Co-op Director through oral and written communications with the employer and student. The student must complete a work-term report after each 4-month term. Work-term evaluations by the employer and work-term reports must be satisfactory for the Co-op designation to appear on university transcripts. Each successful work-term will appear on the student's transcript.

6. Students must complete at least one study-term after their last work-term.

7. The term "Co-operative Education in Economics" will follow the degree designation on the student's final transcript.

ENGLISH
DEPARTMENT OF ENGLISH

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Fax:	(506) 453-5069
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Website:	http://www.unb.ca/fredericton/arts/departments/english

FACULTY

Andrews, Jennifer, BA (McG.), MA, PhD (Tor), Prof & Chair - 1999
Austin, Diana, BA (UNB), MA (Qu), DPhil (Oxon), Prof & Univ Teaching Prof - 1983
Ball, John C., BA, MA, PhD (Tor), Prof & Assoc Dean of Arts - 1995
Canitz, A. E. Christa, BA, MA (Birmingham), PhD (UBC), Prof - 1993
Cockburn, Robert Hood, BA, MA, UNB, Prof Emeritus - 2004
Davies, Gwendolyn, BA (Dal-King's), Ed Cert, MA, (Tor), PhD (York), DCL (Dal-Kings), FRSC, Emerita Prof & Dean - 2008
Doerksen, Daniel, W., BA (Winn), BEd (Manit), MA, PhD (Wis), Hon Res Prof - 1998
Falkenstein, Len, BA, MA (Sask), PhD (Alta), Prof - 1999
Finlay, Tatrina, BA (Mt Allison), MA (UNB), Asst Prof - 2008
Gibbs, Robert J., BA (UNB), BA (Cantab), MA, PhD (UNB), Prof Emeritus - 1989
Gray, Robert W., BA (UVic), MA (Manitoba), PhD (Alberta), Assoc Prof - 2008
Jarman, Mark, BA (Vic), MFA (Iowa), Prof - 1999
Klinck, Anne L., BA, MA (Oxon), MA (UBC), MA (McG), PhD (UBC), Hon Res Prof - 2008
Leckie, Ross, BA (McG.), PD/AD (Educ), (Alta), MA (C'dia.), PhD (Tor), Prof - 1997
Martin, Randall, BA (Tor), MA (Birmingham), DPhil (Oxon), Prof & Univ. Research Prof - 1994
Ploude, Roger J., BA (St Thomas), MA (Dal), PhD (Qu), Prof Emeritus -2010
Rimmer, Mary P., BA (C'dia), AM, PhD (Harv), Prof - 1991
Robbins, Wendy J., BA (Bishop's), MA, PhD (Qu), Prof - 1984
Schryer, Stephen, BA (McMaster), MA (UWO), PhD (California, Irvine), Assoc Prof - 2009
Snook, Edith, BA, MA (Alta), PhD (UWO), Prof - 2001
Tryphonopoulos, Demetres, BA, MA, PhD (UWO), Prof & Univ Research Prof & Acting Dean, School of Graduate Studies - 1990

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General Information

Students should note that changes are sometimes made after the compilation of the Calendar. For the most up-to-date information on offerings and regulations students should obtain a copy of the Department's Undergraduate Handbook issued in spring each year.

Students in all courses in English are required to write original essays on assigned topics. The policy of the Department is that marks awarded for these essays are reckoned in determining standing in each course, and any student who fails to complete the essays will be denied credit for the course.

The Department of English affirms the crucial importance of the classroom experience in all its courses designed for classroom delivery. Since students must be in class in order to have that experience, no student can pass any classroom ENGL course without attending at least half of the classes in that course. Individual ENGL courses may require students to attend a higher percentage of classes, and there are specific attendance policies for 1000- and 2000-level courses as well as for Honours seminars. It is expected that no student will miss more than four class hours per term without good reason.

Students who withdraw from a course must inform the Registrar's Office to avoid receiving a failing grade. The deadlines for withdrawing from courses without academic penalty are stated in the academic Calendar.

Students should acquire a good dictionary, the revised *Form and Format*, a recent handbook of literary terms, and the Undergraduate Handbook with course descriptions issued annually by the Department.

In consultation with an advisor, students may take courses in English at St. Thomas University in lieu of those listed in this Calendar, provided the regulations concerning transfer credits are met.

Introductory and Intermediate-Level Programs: General Regulations and Information

The introductory and intermediate-level programs are designed to give students a fuller appreciation of major works of literature and to improve their ability to write effective English. The programs offer a range of courses intended to be of value both to students who will specialize in English and to students in Arts and other Faculties who have a general interest in English.

Course Numbering

Courses beginning with the digit 1 are introductory; those beginning with 2 are intermediate. Advanced-level courses begin with 3, 4, or 5. Students above the first-year level who have taken a previous university English course must elect intermediate-level courses, except for ENGL 1000 , which may be elected with departmental permission, and ENGL 1103 and ENGL 1104 . Students above the first-year level who have not taken a previous university English course may elect either introductory or intermediate courses except ENGL 2901 and ENGL 2902 .

Apart from the initial numeral indicating the year in which a course is normally taken, the numbering of courses is merely a means of identification and does not indicate that one course is more or less advanced than another. Students must have taken 6 ch at the introductory or intermediate level before enrolling in a course at the advanced level. Any student intending to major or honour in English should take ENGL 2901 and 2902 ; to enter these courses a grade of C or better in ENGL 1000 or equivalent is required. First-year students in Faculties other than Arts must elect introductory courses.

Second-year students may not take more than 12 ch of English courses, normally at the intermediate level. Students may not take an intermediate-level course in any subject area in which they have already had an advanced-level course.

It is expected that no student will miss more than four classes per term without good reason.

Please see the Director of First- and Second-Year Studies for more information.

Major, Honours and Minor

Majors and Honours students must complete ENGL 1000 (or equivalent), ENGL 2901 , and ENGL 2902 . Students should note that any courses compulsory for other programs may not be counted towards an English Major, Honours, or Minor program.

Majoring in English

Students who wish to major in English should discuss their next year's program with one of the Co-Directors of Majors and Honours in the spring or at fall registration. Students are encouraged to register in the program as early as possible. One of the Co-Directors of Majors and Honours should be consulted about any changes in a student's program.

Single-Major students must complete a minimum of 30 ch of advanced-level English courses, including at least 6 ch in pre-1660 literature in English and at least 6 ch in literature in English, 1660-1900. For a Double Major the requirements are the same except that the minimum is 24 ch. No course may be counted toward the fulfilment of the minimum Majors requirement unless it is passed with a grade of C or better.

In order to give a recognizable coherence to the regular Majors program, there are regulations regarding the minimum 30 ch (Single Major) or 24 ch (Double Major) of advanced-level courses. No more than a total of 9 ch of upper-level courses from the following categories may be included in these minimum requirements: Film Studies, Writing (Creative, Expository, or Screen), Drama Production.

Optional Major Program: English (Drama)

The Department offers to students wishing to concentrate in drama the following Majors option: English (Drama). The requirements for this program are that a student complete:

1. ENGL 1000 (or equivalent), ENGL 2170 , 2901 , 2902 .
2. at least 30 ch in English literature courses at the advanced level, including ENGL 3170 , at least 6 ch in pre-1660 literature in English, at least 6 ch in literature in English, 1660-1900, and at least 12 ch courses in dramatic literature.

Students wishing to enroll in this program should consult one of the Co-Directors of Majors and Honours.
A **Minor in Drama** is also offered, which can be combined with other Major or Honours programs. For details, see **Drama Program.**

Optional Major Program: English (Creative Writing)

The Department offers students wishing to concentrate in Creative Writing the following Majors option: English (Creative Writing). The requirements for this program are that a student complete the normal

English Majors requirements as explained under "Majoring in English," along with courses from relevant creative writing areas, as follows:

1. both of ENGL 2195 , 2196
2. at least two of the following four course options: ENGL 3123 , 3143 , 3163 , and either 3183 or 3186.

Any student who is interested in this program should consult the Director of Creative Writing

Honours Program

Students enter the Honours program in their third year but may declare their intention of pursuing Honours during their second year. Only in exceptional circumstances will students be admitted in their fourth year. ENGL 1000 (or equivalent) is required of those who wish to enroll in Honours. Students should complete ENGL 2901 and ENGL 2902 by the end of the second year and must have met this requirement by the end of the third year. The student must have achieved an average of 3.3 (B+) in these or other English courses. An average of 3.3 in English courses and of 2.5 in non-English courses must be maintained if the student is to retain Honours standing.

Students taking Single Honours must take a four-year total of at least 60 ch in English; at least 30 ch of the total must be in advanced-level courses other than Honours seminars. Students in Joint Honours must take a four-year total of 39 ch in English; at least 27 ch of this total must be in advanced-level courses, including Honours seminars. Whether taking Single or Joint Honours, the student must complete at least 6 ch of advanced-level courses in pre-1660 literature in English and at least 6ch in literature in English, 1660-1900, as well as ENGL 3083 .

During their third and fourth years, students in Single Honours must complete 18 ch of Honours seminars. Students in Joint Honours must complete at least 12 ch of Honours seminars.

Honours students may count only 9 ch total of upper-level courses drawn from the following group: Film Studies, Writing (Creative, Expository, or Screen), Drama Production. Students are required to consult with one of the Co-Directors of Majors and Honours in choosing their courses so as to ensure that they follow a well-balanced program.

Students interested in Honours English are encouraged to discuss the program with one of the Co-Directors of Majors and Honours.

Optional Honours Program: English (Creative Writing)

The Department offers students wishing to concentrate in creative writing the following Honours option: English (Creative Writing). The requirements for this program are that a student complete the normal English Honours requirements as explained under Honours Program, along with courses from the relevant writing areas, as follows:

1. both of ENGL 2195, 2196
2. at least two of the following courses: ENGL 3123 , 3143 , 3163 , and either 3183 or 3186.

Any student wishing to enroll in this program should consult the Director of Creative Writing.

Minor Program

The Minor in English consists of at least 24 ch in ENGL completed with a grade of C or better, at least 12 ch of these from advanced-level (third- and fourth-year) courses. The courses for the Minor must be approved by one of the Co-Directors of Majors and Honours, and must form a "coherent set or sequence of courses" as called for by the general university regulations for the Minor. Students should note that any courses compulsory for their programs may not be counted toward a Minor.

Students pursuing and ENGL Minor are strongly advised to take ENGL 1000 (or a combination of courses such as ENGL 1144 or ENGL 1145 and ENGL 2263, ENGL 2603, ENGL 2608, ENGL 2703, or ENGL 2903) and ENGL 2901 and ENGL 2902 as a lower-level foundation.

Students transferring credits from another university should note that at least half the credits counted towards a UNB Minor in English must be from courses taken at the University of New Brunswick.

Option in English Language and the Linguistics of English (ELLE)

 [This program is not accepting any new admissions at this time.]

The Department offers to students who wish to concentrate in English a Major and an Honours option in English Language and the Linguistics of English.

Students may enter the ELLE option at the beginning of the third year; prospective students should have taken ENGL 1000 (or equivalent) and ENGL 2901 and ENGL 2902 , as part of the overall Major program. Students should discuss their next year's program with the ELLE Program Director in the spring or at registration in the fall.

Major in ELLE

Students in the ELLE program must take at least 30 ch in advanced-level English courses (24 ch for the Double Major), of which at least 18 ch must be drawn from the following:

ENGL 3003	Old English I
ENGL 3004	Old English II
ENGL 3006	Linguistic Introduction to Canadian English
ENGL 3010	History of the English Language
ENGL 3040	Chaucer & Co.
LING 3411	Phonetics and Phonemics
LING 3422	Morphology and Syntax

The three LING courses above may be counted as English courses in an ELLE program.

The 30 ch of advanced-level English courses (24 ch for Double Majors) must also satisfy the normal English Major requirements as explained above under "Majoring in English."

Honours in ELLE

Single Honours students must take at least 21 ch, Joint Honours students at least 18 ch of the above courses. In addition, all students must take 12 ch of Honours seminars, including 6 ch from among ENGL 5000 , ENGL 5004 , ENGL 5005 . Single Honours students must have a further 12 ch, Joint Honours students a further 6 ch, of advanced-level English courses.

Total requirements: 60 ch of courses for Single, 42 ch for Joint Honours. Single-Honours students may make up their remaining requirements in ELLE-related subjects other than English.

Students are not permitted to take a Double Major or Joint Honours in both English Literature and ELLE.

Minor in ELLE

The Minor in ELLE consists of at least 24ch of English courses, of which at least 12ch must be ELLE courses (see list above). Students cannot combine a Minor in ELLE with a Major or Honours in ENGL.

FILM STUDIES

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Email:	arts@unb.ca
Website:	http://www.unb.ca/fredericton/arts

FACULTY

Patrick Bergeron, PhD	French
Anne Brown, PhD	French
Jeffery Brown, PhD	History
David Frank, PhD	History
Robert Gray, PhD	English (Creative Writing) & Film
Anette Guse, PhD	Culture and Media Studies
Sophie Lavoie, PhD	Culture and Media Studies
Randall Martin, PhD	English
Tony Merzetti,	NB Film Makers' Co-Op
Tony Myatt, PhD	Economics
Scott Preston, PhD	Culture and Media Studies, **ADVISOR**
Allan Reid, PhD	Culture and Media Studies
Brent Wilson, PhD	Gregg Center for War and Society

GENERAL INFORMATION

The Film Studies Minor offers students from all faculties the opportunity to study film (and video) from a variety of perspectives, including theory, history, and analysis, as well as a range of topics around national cinemas and genres, among others. In addition, students have the opportunity to study film from creative and practical perspectives in production and other practice-driven courses as well as creative writing for the screen. For details of courses and requirements, see below.

ELIGIBILITY

Admission to the Film Studies Minor is open to students from any Faculty who have completed 30 ch towards a degree. Students should contact the Advisor for the Film Studies Minor for program approval and advising. Students are encouraged to begin the Minor in the second year of their program.

PROGRAM OF STUDY

The Minor consists of 24 credit hours, approved by the Advisor. Of these 24 ch, FILM/MAAC 2022 "The Art of Film", FILM/ENGL 2909 "International Film History", and FILM/ENGL 3903, "Film Theory" are required, and at least 12 ch must be at the upper level. Students must take approved courses from at least 3 different disciplines, including ENGL, FILM, FR, HIST, MAAC, and CCS.

Courses will be selected from the following list. Additional courses may be counted towards the Minor subject with the approval of the Advisor.

ECONOMICS	
2009	Understanding Economics Through Film
ENGLISH	
2263	Shakespeare and Film
3905	The City in Cinema
3906-9	Film Genre
3916-9	National Cinema
3183	Creative Writing: Screenwriting
3186	Creative Writing: Feature Screenplay
FILM/MAAC/CCS	
2022	The Art of Film
2998	Digital Filmmaking I
2999	Digital Filmmaking II

3075	Framing Reality: Theory and Practice of Documentary Media
3981	Introduction to Directoring and Acting for Film and Television
3998	Film Production
3999	Video Production
FILM/ENGLISH	
2909	International Film History
3183	Screenwriting and Writing for the New Media
3186	Creative Writing: Feature Screenplay
3903	Film Theory
MAAC/FILM/CCS	
3082	History of Canadian Cinema
FRENCH	
3524	The Novel and Film
4524	Quebecois Film
4354	French Cinema
GERMAN/WLCS/FILM/MAAC	
3066	Trauma and Seduction:Early German Cinema
3072	(Re)constructing National Identity: Contemporary German Cinema
HISTORY	
1315	Canadian History on Film
3415	America at the Movies
3803	War through Film
5331	Film and History in Canada
MEDIA ARTS & CULTURES	
3212	Lens Media
3362	Sound Design
CCS	
3973	Latin American Narrative at the Movies
3455	Latin American Cinema
3456	The Cinema of Spain
WLCS	
4053	Culture and Film: The Cinema of Transnational Democracies

FRENCH

DEPARTMENT OF FRENCH

General Office:	Tilley Hall, Room 231
Mailing Address:	Department of French University of New Brunswick, P.O. Box 4400, Fredericton, N.B., Canada, E3B 5A3
Phone:	(506) 453-4651
Fax:	(506) 453-3565
Email:	french@unb.ca
Website:	http://www.unbf.ca/arts/french/

FACULTY

· Brown, Anne, BA (UNB), MA (McM), PhD (McG.), Prof - 1988
· Bergeron, Patrick, BA, MA (Laval), PhD (Laval-Montpellier), Assist Prof - 2005
· Cichocki, Wladyslaw, BSc, MA, PhD (Tor), Prof - 1985
· Horne, Christine, BA (Sainte-Anne), MA, PhD (Dal), Assoc Prof - 1999
· Richard, Chantal, BA (UNB), MA, PhD (Moncton), Asst. Prof - 2008
· Viau, Robert, BA, MA, PhD (Ott), Prof - 1989

General Information

Courses

Courses are offered in language acquisition at all levels. Advanced-level courses are offered in language acquisition, linguistics and literature. All courses are conducted in French.

Courses whose second digit is "0" form a basic program in language acquisition, proceeding by complementary pairs in which the emphasis falls on different aspects of language learning (Oral communication/ Written communication) thus: FR 1034 / FR 1044 ; FR 2034 / FR 2054 ; FR 3034 / FR 3054 ; 4034 / FR 4054 . Students who intend to work towards the Certificate of Proficiency in French (see the end of this section for details) follow this sequence. Each pair of courses must be completed with a grade of C or higher before beginning the next level.

A different sequence is followed by graduates of Immersion programs, and by francophones (see below, Placement).

Placement

With the exception of francophones, all students registering for a French course for the first time at UNB are required to take the French Placement Test.

First year students normally take the French Placement Test during the pre-registration period (in June/July) or during orientation week. Returning students are encouraged to take the French Placement Test during the pre-registration period (in February/ March) or, at the latest, during orientation week.

Placement testing is done in the French Department Multimedia Laboratory, Singer Hall 156. For assistance please contact Daniel Grant, Laboratory Supervisor in Singer Hall 170. You may also contact the departmental secretary in Tilley Hall Room 231, email: french@unb.ca

The French Placement Test must be completed no later than the end of the first week of classes in September, for the fall semester, and at the end of the first week of classes in January, for the winter semester. The Department of French cannot guarantee a place in a course until the testing is completed, and reserves the right to remove from the class lists or wait lists students who have not taken the French Placement Test, or who missed three consecutive class hours within the first two weeks of classes. Students' test results will be a main factor in determining which courses they will be advised to take. Normally students who did not complete Grade XII French will register in FR 1014 (formerly FR 1324), followed by FR 1015 (formerly FR 1325) then in FR 1024 (formerly FR 1334). These courses prepare the student for entry into FR 1034 .

Anglophone and other non-francophone students who did complete Grade XII (core) will register in FR 1034 . Advanced placement will be determined by testing. Credit is not given for the courses bypassed by advanced placement, unless the student took an equivalent course for credit at another institution. High school courses cannot be counted for university credit.

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Anglophone and other non-francophone students who have graduated from a French Immersion program are placed in FR 1184 , followed by FR 1194 . Francophones are placed in FR 1124 or FR 2154 when FR 1124 is not offered, followed by FR 2164 , FR 2174 or FR 2184 . Any of these pairs are followed by advanced-level courses.

External Credit

Students may elect to take language courses off campus, e.g. in summer school. These courses can be counted for UNB credit only if prior authorization has been obtained from the Department, and only if the Department judges that sufficient progress has been made to merit credit equivalent to a course offered by the Department. Prior authorization can be sought by completing a form available from the departmental office. The student is responsible for providing a detailed description of the course and any other information the Department may require in order to assess it. Retroactive approval of courses not taken at UNB will be granted only in special cases. (This condition does not apply to first-year students who wish credit for a course taken before they enrolled at UNB.) Normally a maximum of 9 External credits at the advanced level will be counted towards the Majors and Honours Programs.

Advanced-Level Courses (first digits 3 or 4)

In order to register for any advanced-level course, a student must be able to demonstrate a competence in French equivalent or superior to that normally attained by the successful completion (C or higher) of FR 2054 .

Advanced-level courses are of three kinds: language acquisition (second digit 0), specialized courses in linguistics (2, 3, 4), and specialized courses in literature (5, 6, 8).

Students honouring or majoring in French are required to choose a number of specialized courses. Students honouring or majoring in another discipline who wish to continue the study of French may take any advanced-level French course, provided they have the necessary competence.

Language Acquisition

Language acquisition courses (FR 3034 , FR 3044, FR 3054 , FR 3064 , FR 3204 , FR 4034 , FR 4054). FR 3054 is the prerequisite for FR 4034 / FR 4054 . Students who already have credit for FR 3034 / FR 3054 may take other Advanced Language classes, such as FR 3044 or FR 3204 , or they may proceed directly to FR 4034 . Francophone students may not take FR 3034 or FR 4034 ; Immersion graduates may not take FR 3034 .

Linguistics

Linguistics (FR 3404 , FR 3414 , FR 3424 , 3444 , FR 3454 , FR 3464 , FR 3484 , FR 3494 , FR 4414 , FR 4444 , FR 4464, FR 4465). FR 3404 is a prerequisite for FR 3424 , FR 3444 , FR 3454 , FR 3464 , FR 4464 and FR 4465 .

Literature

Literature courses are of three kinds:

a. courses offering a variety of critical approaches, not limited to France or Canada (second digit 5);
b. term-courses in various periods of French European literature (second digit 6);
c. term-courses in aspects of French Canadian literature (second digit 8).

Check the time-table to see which courses are being offered in the current session. Fuller descriptions of the courses which are being taught are available from the departmental office. Courses listed here under (b) and (c) may be taken by junior and senior level students. In each course a period of literature will be studied, the principal focus being on a small number of prescribed texts.

Honours and Majors

Option A

In option A, students must declare their field of specialization: Linguistics or Literature.

All Single and Joint Honours students must complete a required number of ch in advanced-level courses in French with a grade of B or better.

All Single and Double Major students must complete a required number

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of ch in advanced-level courses in French with a grade of C or better.

Single Honours:	42 ch
Single Major:	36 ch
Joint Honours and Double Major:	30 ch

The required courses are of three kinds:

a. a core program of 6 ch composed of FR3404 and one advanced-level literature course. In addition to this, Single Honours students are required to take FR 4902 Honours Report (6ch).
b. 12 ch in the student's field of specialization. Honours students (Single and Joint) are required to take 15 ch in their declared area of specialization.
c. a required number of ch in other advanced-level courses, determined according to a student's program.

Single Honours:	15 ch
Joint Honours:	9 ch
Single Major:	18 ch
Double Major:	12 ch

The minimum number of required credit hours is as follows:

Single Honours:	6 (a) + 15 (b) + 18 (c) + FR4902 = 42 ch
Joint Honours:	6 (a) + 15 (b) + 9 (c) = 30 ch
Single Major:	6 (a) + 12 (b) + 18 (c) = 36 ch
Double Major:	6 (a) + 12 (b) + 12 (c) = 30 ch

Option B

In option B, all Single and Joint Honours students must complete the required number of credits by taking any advanced level course in French and obtain a grade of B or better in each course. All Single and Double Major students must complete the required number of credits in advanced-level courses in French with a grade of C or better. Francophone students may not take FR 3034 or FR 4034 . Immersion students may not take FR 3034 .

Single Honours:	42 ch
Single Major:	36 ch
Joint Honours and Double Major:	30 ch

Spécialisation et concentration

Option A

Les candidat.e.s doivent choisir un domaine détude : la linguistique ou la littérature.

Le nombre de crédits à accumuler est déterminé selon le programme. Les candidat.e.s à une spécialisation ou à une double spécialisation doivent obtenir une note finale de B ou mieux pour chaque cours de niveau avancé en études françaises.

Spécialisation:	42 cr
Concentration:	36 cr
Double spécialisation ou double concentration:	30 cr

Les cours requis sont de trois types :

a. un tronc commun totalisant 6 cr, composé de FR3404 et d'un cours de littérature de niveau avancé. En plus de ces cours, les candidat-e-s à la spécialisation simple doivent suivre FR 4902 Mémoire de spécialisation (6 cr).
b. 12 cr au sein de l'option choisie (les candidat-e-s à la spécialisation, simple ou double, sont tenus d'obtenir 15 cr dans leur option);
c. des cours complémentaires libres de niveau avancé totalisant un nombre de crédits déterminé selon le programme.

Spécialisation simple:	15 cr
Double spécialisation:	9 cr
Concentration:	18 cr
Double concentration:	12 cr

Le nombre minimum de crédits est fixé comme suit :

Spécialisation simple: 12 (a) + 15 (b) + 15 (c) = 42 cr

Double spécialisation: 6 (a) + 15 (b) + 9 (c) = 30 cr

Concentration: 6 (a) + 12 (b) + 18 (c) = 36 cr

Double concentration: 6 (a) + 12 (b) + 12 (c) = 30 cr

Option B

Les candidat.e.s à la spécialisation ou à la double spécialisation doivent compléter un nombre requis de crédits en suivant des cours de niveau avancé en études françaises et obtenir une note finale de B ou mieux. Les candidat.e.s à la concentration ou à la double concentration doivent compléter un nombre requis de crédits en suivant des cours de niveau avancé en études françaises et obtenir une note finale de C ou mieux. Le FR 3034 et le FR 4034 sont fermés aux étudiants.e.s scolarisé.e.s en français. Le FR 3034 est fermé aux diplômé.e.s des programmes dimmersion.

Spécialisation:	42 cr
Concentration:	36 cr
Double spécialisation ou double concentration:	30 cr

Minor in French

Students who are doing a minor are required to complete 24 credit hours in French with a minimum of 12 credit hours at the advanced level, 3 of which will be in literature or linguistics. A grade of C or better is required in all courses. The program to be followed will depend on the background of the student. Students who have completed grade 12 French second language will normally take FR 1034 / FR 1044 / FR 2034 / FR 2054 and 12 additional credit hours of advanced level courses, 3 of which will be in literature or linguistics.Students from immersion programs will take FR 1184 / FR 1194 / FR 2154 / FR 2164 , and 12 credit hours of advanced level courses, 3 of which will be in literature or linguistics. (FR 3034 is excluded).Francophones will take FR 1124 or FR 2154 , followed by either FR 2164 , FR 2174 or FR 2184 , and 18 credit hours of advanced level courses, 3 of which will be in literature or linguistics. (FR 3034 and FR 4034 are excluded). At the advanced level, students can choose from language, literature, and linguistics courses.

Certificate of Proficiency in French

Students who are not majoring or honouring in French and who are not native speakers of French but who would like to have official recognition of their competence in French as a second language may apply for admission to this program. It is administered for the University by the Department of French on the Fredericton campus and by theDepartment of Humanities and Languages on the Saint John campus.

The goal of the program is to enable students to acquire a functional command of French by upgrading the four basic language skills over a four-year period. The program normally consists of 12 ch of French courses at the Introductory and Intermediate levels, followed by 12 ch at the Advanced level. These will normally be FR 3200 and FR 4200 (Saint John); FR 3034 , FR 3054 , FR 4034 , FR 4054 (Fredericton). In all of these courses the student is to attain a mark of C or higher, and the certificate is awarded on the basis of a comprehensive examination upon termination of the last course in the sequence. Students who have received advanced standing for Introductory level French need take only three full-year courses (18 ch) to qualify for the comprehensive examination. A maximum of six credit hours may be transferred from another program.

Students interested in being considered for the certificate must seek the approval of the appropriate academic unit, and should register for the program at the beginning of the sequence, or at their earliest convenience. The normal rules governing acceptance to the courses apply; they will be found in the section of the Calendar dealing with the two administrative units concerned. In order to be admitted to the program, students must have Grade 12 French or its equivalent.

Full-time students may take these courses as part of their undergraduate program. Persons not working towards a degree may enrol for the courses as part-time students.

Students must sit the comprehensive examination within two years of completing the course requirements. Students who fail the comprehensive examination on their first attempt will be allowed to sit again in the following session.

The Certificate of Proficiency in French will be awarded by the University through the Registrar's Office. The student's transcript will bear a separate entry showing that the certificate has been awarded and recording the grades obtained in the four's areas of language competence (speaking, listening comprehension, reading comprehension, and writing).

Speaking:	
A:	the candidate participates with ease in conversation
B:	the candidate can participate adequately in conversation albeit with a certain degree of hesitancy
C:	the candidate can make himself or herself understood in conversation
Listening Comprehension:	
A:	can understand lectures in a job-related context, and radio and TV news and programs
B:	can understand lectures on non-technical subjects and group conversations
C:	can understand what is said to him or her in individual conversation with one other person
Reading Comprehension:	
A:	can understand the main ideas in books, magazines and newspapers without the aid of a dictionary
B:	can read printed material of personal interest with occasional help from a dictionary
C:	can read, with the aid of a dictionary, standard texts written without stylistic difficulties on subjects within his or her interest.
Writing:	
A:	can write papers, essays, etc., which are acceptable in form and format
B:	can write résumés, letters, short compositions which are structurally acceptable but which would need some revision
C:	can write sentences and short paragraphs which are grammatically acceptable

Full details are contained in a brochure obtainable from the Department of French on the Fredericton campus and the Department of Humanities and Languages on the Saint John campus.

HISTORY

DEPARTMENT OF HISTORY

General Office:	Tilley Hall, Room 120
Mailing Address:	Department of History, University of New Brunswick, P.O. Box 4400, Fredericton, N.B., Canada, E3B 5A3
Phone:	(506) 453-4621
Fax:	(506) 453-5068
Email:	history@unb.ca
Website:	http://www.unbf.ca/arts/History/

FACULTY

· Brown, Jeffrey S., BA (St John Fisher, NY), MA (SUNY- Brockport), MA (York), PhD (Rochester), Assoc Prof and Chair- 2002
· Campbell, Gail, BA, MA (UWO), PhD (Clark), Prof - 1989
· Charters, David, BA, MA (UNB), PhD (Lond), Prof - 1988
· Churchill, Wendy, BA (Memorial), MA, PhD (McMaster), Assoc Prof - 2006
· Frank, David, BA (Tor), MA, PhD (Dal), Prof - 1980
· Kealey, Gregory S. BA, (Tor) MA, PhD, (Rochester) FRSC, FRHistS, Prof, Vice President (Research) and Provost - 2001
· Kealey, Linda, BA, BLS, MA, PhD (Tor), FRHistS, Prof - 2002
· Kennedy, Sean, BA (Memorial), MA, PhD (York), Assoc Prof - 1999
· Mancke, Elizabeth, BA (Colorado), MA (UBC), MA, PhD (Johns Hopkins), Canada Research Chair, Prof - 2012
· Milner, J. Marc, BA, MA, PhD (UNB), Prof - 1986
· Morton, Erin, BA (Mount Allison), MA, PhD (Queen's), Asst Prof-2009
· Mullally, Sasha, BA, MA (Ottawa), PhD (Tor), Assoc Prof-2009
· Parenteau, William M., BA, MA (Maine), PhD (UNB), Prof - 2000
· Tracy, Nicholas, BA, BAHist (Sask), MPhil, PhD (Southhampton), Adjunct Prof - 2002
· Waite, Gary K., BTh (Ont. Bible Col), BA, MA, PhD (Wat), Prof - 1987

General Information
Course Numbering
1000-level courses :Courses at this level are suitable for students in their first or second year of University (i.e. in their first 60 ch) and are open to Arts students and non-Arts students. Subject to general regulations, these courses may also be taken for credit by students in

the upper years of their program. They are general-interest courses, designed to introduce students to specific topics, and to develop their skills in critical thinking and effective writing. Please note: students who are interested in pursuing a Major, a Minor, or Honours in History, including students in their first year, are encouraged to begin their studies in the discipline with a 2000-level Foundation course, as discussed below.

2000-level courses All history courses at this level are Foundation Courses, which are the recommended entry point into History for both first- and second-year students who are considering completing a Major, a Minor, or Honours in this discipline. These courses feature weekly discussion groups, which are limited in size, and give students the opportunity to develop communication skills and critical thinking. These courses also provide students with experience in analyzing primary sources, assessing different historical interpretations of key problems, and writing research essays. Students planning to minor, major, or double-major in History or to do Honours are required to complete at least 6 ch at this level, and are strongly advised to complete at least 12 ch. Subject to general regulations, these courses may also be taken for credit by students in the upper years of their program. Courses taken at other institutions and presented to satisfy the Foundation course requirement must be approved by the Director of Majors or Honours.

Note: The Foundation Course requirement must be met by the completion of a full 6ch concentration in a given field: Canadian, Medieval, Early Modern European, Modern European or American History. Students who complete HIST 2300 (Introduction to Canadian History) automatically meet the requirement. Those who wish to present other fields as their Foundation Course requirement must complete the paired 3 ch Foundation Courses in that field: HIST 2013 and HIST 2014 for Medieval History; HIST 2023 and HIST 2024 for Early Modern European History; HIST 2103 and HIST 2104 for Modern European History; HIST 2403 and HIST 2404 for American History.

3000-level courses :These courses are suitable for students who have completed at least 60 ch, both Arts and non-Arts students, and for History majors and non-majors.

4000-level courses: These courses are suitable for students who have completed at least 60 ch, both Arts and non-Arts students, and for History majors and non-majors. Students should normally have completed at least 6 ch in History before enrolling in a 4000-level course. The 4000-level courses employ the tutorial system and may have enrolment restrictions.

5000-level courses These courses employ the seminar format and are normally open only to History Honours students, who must register for them in conjunction with the departmental Director of Honours. Students not enrolled in the History Honours program require permission of the Director of Honours and the course instructor before registering.

Courses for Credit from Cognate Disciplines
The following courses may be counted for advanced credit in the Department of History up to a maximum of 12 ch.

Classics
CLAS 3003 Ancient History: The Greeks from the Bronze Age to the Persian War
CLAS 3013 Ancient History: Greece in the Classical Age
CLAS 3033 Ancient History: The Rise of the Romans
CLAS 3043 Ancient History: The Roman Empire
CLAS 3053 The Roman Army
CLAS 3073 Ancient History: Jewish Civilization from the Babylonian Exile to the Great Revolt
CLAS 3463 History of Modern Greece
CLAS 3803 The World of Jesus
CLAS 3813 The Early Church
CLAS 4063 Caesar Augustus

Education
ED 5074 History and Philosophy of Education

German
GER 3061 From People to Nation: German Culture before 1900
GER 3071 Germany Today: German culture from 1900 to the Present

Political Science
POLS 3242 Canadian-American Relations
POLS 3247 Trudeau's Canada
POLS 3251 Canadian Federalism
POLS 3441 Women in Political History
POLS 3446 Subjects, Citizens, Individuals: Politics of the Early Modern World
POLS 4416 Canadian Political Thought
POLS 4495 Gender and War: Historical and Contemporary Perspectives

History at St. Thomas University
UNB students are advised that upper-level history courses offered at St. Thomas University, which are not offered at UNB, may be taken for credit by UNB students. Please see the St. Thomas University Calendar for course descriptions.

Note on Grading

The Department of History requires a C grade on individual courses to fulfil prerequisite and Major requirements. All full year History courses carry a 6 ch rating. Term courses carry a 3 ch rating.

Honours, Majors and Minors

Honours Program

Admission to the Honours Program in History is open to qualified students who have completed 60 ch of courses toward the B.A. degree and who have satisfied the Arts Faculty general requirements for the first and second year. Normally students will have completed 12 ch in History courses at the 1000- or 2000-level, including at least 6 ch in Foundation Courses as listed below. Students should apply for admission to the History Honours Program during their fourth term.

Each students program of study must be approved by the departmental Director of Honours. The Director of Honours acts as advisor to the Honours students in the selection of courses.

Students holding a BA degree with a single or double Major in History may convert that degree to the equivalent of BA Honours by satisfying the Departments requirements for Honours.

· **Single Honours**

Single Honours students normally take 42 ch of upper-level History courses. A minimum of 27 ch of these must be at the 5000-level and must include History 5900 (6 ch). The 5000-level seminars must be chosen from at least two fields of History. Students are encouraged to take 18 ch of courses in other disciplines that complement their studies in History.

· **Joint Honours**

A student reading for Honours in History jointly with another subject must take at least 24 ch of advanced level History courses of which 12 ch must be seminars.

Majors Program

The Director of the Majors Program in History is the advisor of all students in the Majors, Double Majors, and Minors programs in History. In selecting courses, students should consult with the Director, who must approve all Majors, Double Majors, and Minor programs. A student transferring from another faculty into Arts and intending to Major in History, or changing from another Major into History, may do so only with the permission of the Dean of Arts and the Department of History.

A Major in History requires the completion of 42ch of History courses, with a grade of C or better in each. The specific requirements are as follows:

i. At least 6 ch must be in Foundation Courses (12 ch of Foundation Courses is recommended).
ii. No more than 18 ch at the 1000- or 2000 - level, and at least 24 ch at the 3000- or 4000- level.
iii. At least 6 of the 42 ch of history courses must deal with history before 1800.

The departmental Director of Majors must approve the program of every Majors student.

Double Majors

A Double Major in History requires the completion of 36 ch of History courses, with a mark of C or better in each. At least 6 ch must be in Foundation courses. At least 24 ch of History courses must be completed at the 3000- and 4000-level. Pre-1800 course coverage is not required of Double Majors. The departmental Director of Majors must approve the courses for the History component of the Double Major.

Minor Program

A Minor in History requires the completion of 12 ch of History at the 1000- or 2000-level, at least 6ch of which must be in Foundation Courses. This must be followed by an additional 12 ch at the 3000- or 4000-level. A total of at least 24 ch of History courses must be completed. A grade of C or better in each individual course is required for the Minor. The departmental Director of Majors must approve the courses for the Minor.

INTERNATIONAL DEVELOPMENT STUDIES

Mailing Address:	International Development Studies Program c/o Faculty of Arts University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453 - 4975
Email:	IDS@unb.ca
Website:	http://www.unbf.ca/arts/IDS/Dev/

FACULTY

Coordinator: Koumari Mitra, Professor and Chair (Anthropology)

Susan Blair, Associate Professor (Anthropology)
Christiane Paponnet-Cantat, Professor (Anthropology)
Evelyn Plaice, Associate Professor (Anthropology)
Alekhya Das, Part-time Instructor (Anthropology)
Sophie Lavoie, Assistant Professor (Culture and Language)
Weiqiu Yu, Professor and Associate Dean of Arts (Economics) Constantine E. Passaris, Professor and Chair (Economics)   Ted McDonald, Professor (Economics)
Guna Kulasegaram, Part-time Instructor (International Development Studies)
Thom Workman, Professor (Political Science)
Carolyn Bassett, Associate Professor (Political Science)
Miron Rezun, Professor (Political Science)
Gary Bowden, Associate Professor (Sociology)
Nancy Nason-Clark, Professor and Chair (Sociology)
Jacqueline Low, Associate Professor, (Sociology)
Vanda Rideout, Associate Professor, (Sociology)
Lucia O'Sullivan, Professor and Canada Research Chair (Psychology)

General Information
The IDS Program is administered by the IDS Coordinator and includes faculty members from the various Faculty of Arts departments. Students can do a Minor, Majors or Honours. Majors or Honours must be combined with any other discipline or program in the Faculty of Arts. A Minor in International Development Studies may be taken by any UNB student. For information on the Minor, Double Major and Joint Honours, see the BA General Regulations. Admission into the Major or Honours program is open to any student who has successfully completed 60 credit hours towards the BA degree. Students considering International Development Studies as part of a major or honours program should consult with the Coordinator r of International Development Studies at UNB. Inquiries about the International Development Studies Program should be directed to Dr. Koumari Mitra, Coordinator of International Development Studies, Faculty of Arts UNBF. 458-7997. E-mail kmitra@unb.ca

Program of Study
A grade of C or better on each individual course is required for Minor, Majors and Honours.

Minors
For a minor in International Development Studies a students must complete IDS 2001 (3ch), IDS 3002 (3ch), and 18 ch in relevant advanced level courses.

Majors
For Majors in Internatianal Development Studies IDS 2001 and IDS 3002 as well as 24 ch in relevant advanced-level courses must be completed.

Honours
For Honours in International Development Studies IDS 2001 (3ch), IDS 3002 (3ch), IDS 4900 (6ch), as well as 24ch in relevant advanced-level courses must be completed

1. Required Courses
IDS 2001 Introduction to International Development
IDS 3002 Seminar in International Development Studies

2. Thesis
In addition to IDS 2001 and IDS 3002, Honours students must also complete an honours thesis: (IDS 4900: Honours Thesis in International Development Studies).After acceptance into the Honours program, the student must identify a thesis supervisor and develop a thesis proposal. A copy of the thesis proposal must be provided to the Coordinator.Upon completion, a copy of the thesis is to be submitted to the Coordinator by the supervisor along with a recommended grade.

3. Elective Courses
Courses must be chosen from the list provided annually by the Coordinator. Other pertinent courses from the UNB and STU calendars may be taken after consultation with coordinator.

LAW IN SOCIETY

Mailing Address:	Law in Society Program, c/o Department of Sociology University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4849
Email:	socio@unb.ca
Website:	http://www.unb.ca/fredericton/arts/idp/lawinsociety
	http://www.unb.ca/fredericton/idp/lawinsociety/

FACULTY

Co-ordinator / Advisor:

Dr. Dale Balluci (Soci) BA (Guelph), MA (Wind), PhD (Alta)

Consulting Committee:

· Dr. Daniel Ahern (Phil) BA (STU), MA (UNB), PhD (McM)
· Dr. David Bedford (Pols) BA (Cdia), MA, PhD (York)
· Professor Dorothy Duplessis (Admin) BComm, LLB, MBA (Dal), LLM (Lond)
· Dr. William Kerr (Clas) BA (Tor), BA (Oxon), MA, PhD (Prin)
· Dr. Linda Neilson (Soc) BA, LLB (UNB), PhD-Law (Lond)
· Dr. Ted McDonald, Econ BA (St. F.X), MCom, PhD (Melbourne)

General Information

Law in Society is an interdepartmental and inter-faculty program involving the Faculties of Administration and of Law, the Muriel McQueen Fergusson Centre for Family Violence Research and, in the Faculty of Arts, the departments of Anthropology, Classics and Ancient History, Economics, History, Philosophy, Political Science, Psychology, and Sociology.

Based on the premise that law and the character and quality of society are interrelated, the program offers a critical academic examination of the role of law in society and of society in law. Students will study these issues from at least three disciplinary perspectives and may include in their studies examinations of the philosophic, historic, economic, political, and social foundations of law. All of the courses explore one common theme: the connections between law and the social order.

Eligibility

Admission to the Law in Society program is open to students who have successfully completed sixty credit hours toward a degree in the Faculty of Arts or the Faculty of Business Administration. Students must obtain the approval of the department (Arts) or faculty (Administration) in which they major and then apply through the Department of Philosophy for admission to the Law in Society program. Students should apply during the registration period or immediately thereafter. With permission of the Co-ordinator, students may count for credit in a LWSO Program courses taken before they enter the program. A grade of C or better is required for credit in the Law in Society program. Although not a requirement, students are encouraged to complete PHIL 1101 Critical Thinking before entry into the program.

Programs of Study

Double Major

The Law in Society Double Major consists of 30ch chosen from core and elective courses, as listed below. Of these, 12ch shall be chosen from at least 3 disciplines among the core courses. Additional core courses may be counted as electives. At least 24ch shall be upper level courses (3000 level or above). A grade of C or better is required for credit in the Law in Society program.

Joint Honours

Students intending to complete a Joint Honours must apply in writing through the Department of Philosophy for admission. Normally, students wishing to complete a joint honours will apply before the start of their 3rd year and have a GPA of at least 3.3 or B+. A Joint Honours consists of 36ch including completion of the requirements for a Double Major and completion of LWSO 5001 .

Minor

The Law in Society Minor consists of 24ch chosen from core and elective courses as listed below. Of these, 12ch shall be chosen from at least 3 disciplines among the core courses. At least 18ch shall be upper level courses (3000 level or above). A grade of C or better is required for credit in the Law in Society program.

Core and Elective Courses

Program Courses		
LWSO 5001	Honours Seminar in Law in Society	3ch
Core Courses		
ADM 3123	Business Law I (UNBSJ: BA 2703)	3ch
ADM 4826	Employment Law	3ch
ANTH 3284	Legal Anthropology	3ch
CLAS 3923	Roman Law	3ch
ECON 3845	Introduction to Law and Economics	3ch
HIST 4851	Law and War	3ch
HIST 4852	International Governance	3ch
LWSO 4003	Law and Society	3ch
PHIL 2204	Introduction to Contemporary Issues in the Philosophy of Law	3ch
PHIL 3331	Michel Foucalt's Discipline and Punish: The Birth of the Prison	3ch
POLS 1503	Law, Power, and Politics	3ch
POLS 2202	Canadian Politics	3ch
POLS 3251	Canadian Federalism	3ch
POLS 3257	Law and Politics in Canada	3ch
POLS 3282	The Canadian Political System	3ch
POLS 3633	International Public Law	3ch
PSYC 3263	Psychology of Criminal Behaviour (UNBSJ ONLY)	3ch
PSYC 3343	The Psychology of Crime	3ch
SOCI 3603	Criminology (UNBSJ: SOCI 3610)	3ch
SOCI 3613	Theories and Perspectives in Criminology (UNBSJ: SOCI 3610)	3ch
SOCI 3636	Restorative Justice	3ch
SOCI 4336	Families, Law and Social Policy	3ch
SOCI 4337	Legal Responses to Family Violence	3ch
SOCI 4355	Sociology of Law (UNBSJ: SOCI 4613)	3ch
Elective Courses		
ADM 3124	Aboriginal Business Law	3ch
ADM 3875	Labour Relations	3ch
ADM 4125	Business Law II	3ch
ADM 4718	Technology, Security, and Risk	3ch
ADM 4827	Workplace Health and Safety	3ch
ADM 4878	Negotiation and Dispute Resolution	3ch
ANTH 2144	Organising Society	3ch
ANTH 3523	Forensic Anthropology: Identifying the Missing and the Murdered	3ch
ANTH 3662	Canada's First Nations	3ch
ANTH 4204	Gender, Kinship, and Marriage	3ch
ANTH 4244	Ethnopolitics and Identity	3ch
ECON 3905	Contemporary Issues in the Canadian Economy	3ch
ECON 5835	Industrial Organization: Policy	3ch

FVI 2003	Violence and Society	3ch
FVI 3005	Family and Criminal Legal Systems	3ch
GER 3054	Crimes and Misdemeanours	3ch
GWS 1003	Introduction to Gender and Women's Studies I	
GWS 2003	Introduction to Gender and Women's Studies II	
GWS 4004	Seminar in Women's Studies	
HIST 3015	Racism in the West from Antiquity to the Enlightenment	3ch
HIST 3016	Racism in the West from the Enlightenment to Today	3ch
HIST 3331	The Canadian Worker to 1914	3ch
HIST 3332	The Canadian Worker since 1914	3ch
HIST 3355	Nature, Culture, and the Canadian Environment	3ch
HIST 3374	Native People and the State: From the Indian Act to Royal Commission on Aboriginal People	3ch
HIST 3375	Removal, Allotment, Termination, Selt-Determination	3ch
HIST 3378	First Nations and Canadian Settler Society	3ch
HIST 3379	First Nations and Canadian Settler Society II	3ch
HIST 3408	American Radicalism and Reform	3ch
HIST 3413	African America	3ch
HIST 3414	Imperial America	3ch
HIST 3418	North American Slavery	3ch
HIST 3812	War and Diplomacy in the Middle East, 1914-84	3ch
HIST 4001	Heretics and Witches in Europe, 1350-1650	3ch
HIST 4003	Women in the Early Modern Atlantic World	3ch
HIST 4013	The Holocaust: Victims, Perpatrators, Bystanders	3ch
HIST 4341	History of the Atlantic Provinces to Confederation	3ch
HIST 4342	History of the Atlantic Provinces after Confederation	3ch
HIST 4351	New Brunswick, 1784-1860	3ch
HIST 4352	New Brunswick, 1860 to the Present	3ch
HIST 4808	History of the Canadian Forces, 1953 to the Present	3ch
HIST 4841	The Spy in History: Intelligence in War and Diplomacy	3ch
HIST 5312	Native Peoples and Canadian and American Policy, 1824-1982	3 ch
PHIL 1101	Criticak Thinking	3ch
PHIL 3101	Introduction to Symbolic Logic	3ch
PHIL 3205	Contemporary Ethical Theory	3ch
PHIL 3302	Later Greek Philosophy	3ch
PHIL 3315	20th Century Women Philosophers	3ch
PHIL 3316	Michel Foucalt on Sexuality and the Self	3ch
PHIL 3601	Liberalism and Its Critics	3ch
POLS 2503	Women and Politics	3ch
POLS 3103	Rights in Conflict in North America	3ch
POLS 3211	Canadian Governance in the Global Era	3ch
POLS 3247	Trudeau's Canada	3ch
POLS 3292	Self-Government and Aborginal Community	3ch
POLS 3343	The European Union in Transition	3ch
POLS 3415	Liberalism	3ch
POLS 3614	Ethics and International Politics	3ch
POLS 3633	International Public Law	3ch
POLS 3713	The Global Economy: Production, Profits, Power and People	3ch
PSYC 3743	Drugs and Behaviour (UNSJ: PSYC 2752) (UNBF: formerly PSYC 3023)	3ch
SOCI 1563	Violence and Society	3ch
SOCI 2603	Sociology of Deviance (UNBSJ: SOCI 2603)	3ch
SOCI 2613	Delinquency	3ch
SOCI 3623	White Collar Crime	3ch
SOCI 3634	Violence Against Women	3ch
SOCI 3635	Conflict Resolution	3ch

SOCI 3900	Sociology of Policing	3ch
SOCI 4313	Violence Against Women	3ch
SOCI 4603	Penology and Corrections (UNBSJ Only)	3ch
SOCI 4610	Crime and Social Control	3ch
SOCI 4623	Human Rights: Comparative Perspectives	3ch
WLCS 3054	Crimes and Misdemeanors	3ch

PHILOSOPHY

DEPARTMENT OF PHILOSOPHY

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FACULTY
· Ahern, Daniel, BA (STU)), MA (UNB), PhD (Guelph-McM), Assoc Prof - 1999
· Frooman, Jeffrey, BS, BA (Illinois), MBA (Michigan), MA, PhD (Pittsburg), Assoc. Prof - 2000
· Larmer, Robert A., BA (Car), MA, PhD (Ott), Prof – 1986
· Weed, Jennifer Hart, B.Sc (UWO), PhD (SLU), Asst Prof -2008
· Weed, Ronald, BA (BC), MA (UT), MTS (Regis), PhD (SLU), Asst Prof - 2008

General Information

Prerequisites

Any course in Philosophy may be taken in any year, provided that the prerequisites for the course have been met, and subject to the regulations of the student's degree program. The following list gives the general prerequisites for Philosophy courses at each level:

1000 Courses:	General introductory courses.
2000 Courses:	Courses in specific areas of the subject. They are usually taken by people who have already done some philosophy. They have no formal prerequisites, and are often taken by students beginning the subject who have some special interest or other reason for taking them. They may be taken by first year students.
3000 Courses:	Generally open to students in the second year of their studies or above or others with the permission of the instructor.
4000 Courses:	6 ch in Philosophy, or the permission of the instructor, is prerequisite.

Minors, Majors and Honours

Minors

The following Minors programs in Philosophy may be taken by students in any degree program. A grade of C or better is required in each course.

1. A Minor in Philosophy will consist of two 1000 level courses and any other 18 ch in Philosophy

2. A Minor in Ethics will consist of two 1000 level courses and 18 credit hours from PHIL 2203, PHIL 2204, PHIL 2206, PHIL 3202, PHIL 3203, PHIL 3221-29, PHIL 3231-39

3. A Minor in History of Philosophy will consist of PHIL 1301, PHIL 1302, and 18 ch chosen from PHIL 3301, PHIL 3302, PHIL 3303, PHIL 3304, PHIL 3306, PHIL 3311, PHIL 3312, PHIL 3313, PHIL 3314, PHIL 3315, PHIL 3316, PHIL 3317, PHIL 3318, PHIL 3321-29, PHIL 3331, PHIL 4301, PHIL 4311. Certain courses in the Department of Classics and Ancient History and in the Department of of Philsophy at STU may also be included with the approval of this Department.

Minor in Ancient Philosophy

Students may minor in Ancient Philosophy by completing 24 ch of courses offered by the Department of Classics & Ancient History and the Department of Philosophy. For Classics (CLAS) departmental course descriptions, please consult that department's calendar listing.

Students are required to complete 24ch as follows:

a. 6 ch of introductory Philosophy chosen from PHIL 1101, PHIL 1201, PHIL 1301, PHIL 1302, PHIL 2204.

b . 6 ch of ancient language: GRK 1203/1213, or LAT 1103/1113 or any other 6ch of Greek and/or Lation

c. 6ch of Advanced philosophy courses, including at least one of PHIL 3301, PHIL 3302, PHIL 3305, PHIL 3306, PHIL 3311.

d. 6ch of advanced classics (CLAS) courses, including at least one of CLAS 3703, CLAS 3723, and CLAS 3733.

MAJORS

Students in the BA degree program who wish to take a Major in Philosophy, either singly or with some other subject, should consult with the Major/Honour advisor of the Philosophy Department.

- **Single Major:** A Major in Philosophy will consist of PHIL 1301 , PHIL 1302 , at least one of PHIL 1101 or PHIL 3101 , and 27 credit hours of advanced courses (3000 and above). At least one course from each of the three streams of ethics, history of philosophy and metaphysics/epistemology must be taken while attaining a minimum grade of C in all philosophy courses.

- **Double Major:** as for Single Major.

Students qualifying for a degree other than the BA, who meet the above requirements for a Major in Philosophy may request the Registrar to note this fact on their transcript.

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Honours

Students in the BA degree program who wish to take Honours in Philosophy must consult with the Major/Honours advisor of the Philosophy Department.

- **Single Honours:** Students taking Honours in Philosophy must complete at least 48 credit hours in Philosophy. The student's program must include PHIL 1301 and PHIL 1302 , at least one of PHIL 1101 or PHIL 3101 (Honours students are strongly encouraged to take 3101), and 36 credit hours in advanced courses in Philosophy. At least one course from each of the four streams of logic, ethics, history of philosophy and metaphysics/epistemology must be taken. With the approval of the Department, up to 12 ch in related courses in other departments may be counted as credit hours in Philosophy. Students must obtain a grade of B in all courses counting as fulfilling their Honours requirements in Philosophy.

- **Joint Honours:** : PHIL 1301 and PHIL 1302 and 24 credit hours in advanced courses in Philosophy. At least one course from each of the four streams of logic, ethics, history of philosophy and metaphysics/epistemology must be taken. With the approval of the Department, up to 12 ch in related courses in other departments may be counted as credit

  hours in Philosophy.

a.Courses in logic	
PHIL 1101	Critical Thinking
PHIL 3101	Introduction to Symbolic Logic
b.Courses in ethics or Social Philosophy	
PHIL 1201	Ethics of Life and Death
PHIL 2201	Autonomy, Value and Well Being: An Introduction to Ethical Theory
PHIL 2203	Business Ethics
PHIL 2207	Ethics for Engineering (online only)
PHIL 3203	Health Care Ethics
PHIL 3205	Contemporary Ethical Theory
PHIL 3206	Environmental Ethics
PHIL 3251	Advanced Business Ethics
c. Courses in the History of Philosophy	
PHIL 1301	Introduction to the History of Philosophy I
PHIL 1302	Introduction to the History of Philosophy II
PHIL 3301	Early Greek Philosophy
PHIL 3302	Later Greek Philosophy
PHIL 3303	Modern Philosophy I
PHIL 3304	Modern Philosophy II
PHIL 3305	Capitalism Vs. Communism
PHIL 3306	Introduction to the 19th and 20th Century Existential Philsophy
PHIL 3308	Plato's Republic
PHIL 3311	Nietzsche's Critique of Socrates
PHIL 3312	Infinity: Emmanuel Levinas' Encounter with the Other
PHIL 3313	Reason Vs. Fait h: The Philosophy of Kiierkegaard
PHIL 3314	Nietzsche's Faith and Critique of Christianity
PHIL 3315	20th Century Women Philosophers
PHIL 3316	Michel Foucal's Genealogy of Sexuality
PHIL 3317	Jean-Paul Sartre's Philosophy of Freedom
PHIL 3318	Martin Heidegger's Destruction of Philosophy
PHIL 3331	Michel Foucault's Discipline and Punish: The Birth of the Prison
PHIL 4053	Introduction to Philosophy of Kant
PHIL 4311	Nietzsche's Zarathustra
d. Courses in Metaphysics and Epistemology	
PHIL 1401	God, Mind and Freedom
PHIL 3411-19	Selected Topics in Epistemology
PHIL 3421	Philosophy of Mind
PHIL 3422	Philosophy of Science
PHIL 3423	Knowledge and Reality
PHIL 3424	Language and the World
PHIL 3431	Philosophy of Religion
PHIL 4432	Science and God
PHIL 4433	The Concept of Mircale
PHIL 4434	Edmund Husserl's Pure Phenomenology
PHIL 4436	Models of Divine Agency
e. Courses in Aesthetics	
PHIL 1501	Monsters and Philosophy
f. Courses in Political Philosophy	
PHIL 3601	Liberalism and its Critics
PHIL 3602	The Philosophy of Richard Rorty

Honours students should also note the standards required for ranking Honours degree. These are stated in the regulations for the Bachelor of Arts degree

Credit Courses for Cognate Disciplines

The Department of Philosophy will accept as credit courses in ancient philosophy, CLAS 3703 , CLAS 3723 , CLAS 3733 . It will also accept for philosophy credit courses, KIN 3093 , KIN 4192 , KIN 4193 , POLS 3410 , POLS 3483 .

Certificate in Ethics

The Certificate in Ethics will provide students with the opportunity to gain a university-level credential in theoretical and applied ethics.

1. Required Courses:

The Certificate will require the successful completion (with a grade of B- or higher) of six (6) courses, totalling eighteen credit hours, which shall include the following:

a. three (3) core courses, including PHIL 1101 Critical Thinking, a 2000-level course in Ethical Theory, and a breadth requirement drawn from a Certificate area of concentration in applied ethics that is NOT being pursued by the student,

b. three (3) elective courses in the student's area of concentration, including one (1) 3000-level course,

(For a list of possible courses see below)

c. with the added proviso that students cannot take more than two (2) elective courses from the student's own home department.

The coursework shall be approved by the Department of Philosophy.

To be awarded the Certificate, a minimum of nine (9) hours must be completed at UNB. Subject to approval by the Dean of Arts, a maximum of nine (9) credit hours (or the equivalent) of comparable coursework may be transferred from another recognized post-secondary institution. Credit will not **normally** be awarded for those courses completed more than five years prior to student's return to university study, in accordance with the norms already in place by the Registrar's office .

2. Possible Courses

ADM 3875	Labour Relations
ANTH 4024	Anthropology and Ethics
ECON 3202	Introduction to Public Finance
ENGG 4013	Law and Ethics for Engineers
ENR 1001	Resource Management Issues,Ethics and Communications I
ENR 1002	Resource Management Issues,Ethics and Communications II
ENR 2021	Natural Resource Management Institutions Policy and Government
ENVS 2023	Understanding Environmental Issues
FOR 2933	Bioethics in Forestry
FOR 2946	Bioethics, Emotional Intelligence and the Nature of Spirituality
KIN 3093	Introduction to the Ethics of Sport & Recreation
KIN 4093	Seminar on Health Care Issues
KIN 4192	Professionalism and Ethics in the Research Environment
NURS 3834	Reflective Ethical Practice
NURS 4118	Professional Ethics
PHIL 1201	Ethics of Life and Death
PHIL 2201	Autonomy, Value and Well Being: An Introduction to Ethical Theory
PHIL 2203	Business Ethics
PHIL 2206	Environmental Issues
PHIL 3203	Health Care Ethics
PHIL 3211-19	Selected Topics in Ethical Theory
PHIL 3221-29	Selected Topics in Environmental Philosophy
PHIL 3251	Advanced Business Ethics
POLS 1403	Contemporary Political Ideas & Ideologies
POLS 1503	Law, Power and Politics
POLS 1603	Politics of Globalization
POLS 2503	Women & Politics

POLS 3103	Right in Conflict in North America
POLS 3715	Critique of Alienation in Social & Political Thought
POLS 3415	Liberalism
POLS 3433	Feminist Issues in Political Thought
POLS 3463	Eros & Leadership
SOCS 3004	Theoretical Foundations of Sociology
SOC 4623	Human Rights
SOC 2365	Sociology of Death and Dying
SOC 4273	Disability and Social Policy
SOC 3263	White Collar Crime
SOC 3371	The Institution of Health Care
SOC 3553	Sociology and the Environment
SOC 4513	Inequality and Social Justice
SOC 3636	Restorative Justice
SOC 3635	Conflict Resolution

Graduate Study in Philosophy at UNB

To be accepted as a candidate for the degree of MA in Philosophy, applicants will normally be expected to have a letter grade average of at least B in a minimum of 42 credit hours in Philosophy (or equivalent, e.g. a 70% average in seven full courses in Philosophy). Applicants with an average of less than B or fewer than 42 credit hours in Philosophy may be admitted conditionally as graduate students for a qualifying year. Further details may be found in the Calendar of the School of Graduate Studies.

POLITICAL SCIENCE

DEPARTMENT OF POLITICAL SCIENCE

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FACULTY
· Bassett, Carolyn, BA (Trent), MA (Car), PhD (York), Assoc Prof - 2008
· Bedford, David W., CEGEP Dip (Sir G Wms), BA (C'dia), MA, PhD (York), Prof - 1989
· Howe, Paul, BA (Tor), MSc (London School of Economics & Pol. Sc.), PhD (UBC), Prof & Chair - 2001
· Rezun, Miron, BA (York), MA (Tor), MA, PhD (Geneva), Prof - 1987
· Workman, W. Thom, BA(Car), MA, PhD (York), Prof - 1994
· Wright, Donald, BA (MTA), MA (Mc.G.), PhD (Ottawa), Assoc Prof 2005
· Wright, Joanne, BA (MTA), MA (UNB), PhD (York), Prof - 2005

GENERAL INFORMATION

1000-level courses introduce the discipline.
2000-level courses are Foundation courses, which introduce the main sub-fields.
3000-level courses are Advanced courses on specialized topics.
4000-level courses are Honours Seminars, open to senior students. The course are grouped in the sub-fields, which are intended to guide stundets in developing a coherent program of study, but students may choose according to their interests and course availability as long as they meet program requirements.

Minor, Majors and Honours

MINOR
A Minor in Political Science consists of 24 credits in Political Science courses, of which at least 6 credits must be in Introductory level courses (1000 or 2000 level) and 12 credits in Advanced Level courses (3000 or 4000 level).

Minor in Public Policy
This is a joint Minor offered by the Departments of Economics and Political Science. The Minor is open to all students including those majoring in Economics and Political Science.

Students may minor in Public Policy by completing 24ch of courses offered by the Department of Economics and the Department of Political Science. Students are required to complete 24ch as follows:

a. 6ch of economics (ECON) courses chosen from: ECON 1001 or ECON 1013 , ECON 1002 or ECON 1023 , ECON 3505 , ECON 3705 , ECON 3905 .

b. 6ch of introductory political science (POLS) courses chosen from: POLS 1103 , POLS1203 , POLS 2202 , POLS 2503 .

c. 6ch of advanced economics (ECON) courses from: ECON 3055 , ECON 3203 , ECON 3504 , ECON 3702 , ECON 3755 , ECON 3775 , ECON 3801 , ECON 3815 , ECON 3845 , ECON 3865 .

d. 6 ch of advanced political science (POLS) courses from: POLS 3103 , POLS 3213 , POLS 3241 , POLS 3251 , POLS 3257 , POLS 3282 , POLS 3284, POLS 3292 , POLS 3391 , POLS 3461 , POLS 3647, POLS 4724.

MAJORS PROGRAMS
Note: These regulations apply to students who began their program at UNB in Fall 2014 or after. For regulations pertaining to students who entered before that date, please consult an earlier calendar or the Department.

Single Major:
A student doing a single Major in Political Science shall complete a total of 42 ch in Political Science, 24 ch of which must be in advanced level courses. The student's program must include:

- POLS 2202 Canadian Politics

- 6.0 additional credit hours selected from Foundation Courses offered at the 2000 level

- POLS 3410 Survey of Political Thought

Double Major:
A student doing a Double Major in Political Science with another discipline shall complete a total of 30 ch in Political Science, 24 ch of which must be in advanced level courses. A student's program must include:

- POLS 2202 Canadian Politics

- 3.0 additional credit hours selected from Foundation Courses offered at the 2000 level

- POLS 3410 Survey of Political Thought

HONOURS PROGRAMS
In order to be eligible for entry into Honours, students must have:

1. a GPA of 3.0 in Political Science courses

2. a cumulative GPA of 2.5

3. 60 ch of course work completed

4. 12 ch of course work in Political Science completed

Students wishing to read for Honours in Political Science should notify the Departmental Coordinator of Honours and Majors on registration day or immediately thereafter. Approval by the Coordinator, in consultation with the Department, of the programs of successful applicants is required.

Students considering entry to the program are encouraged to contact the Coordinator of Honours and Majors in the term prior to their desired term of entry for further information.

Honours (Single)
A student reading for Honours in Political Science must complete at least 48 ch in Political Science, 30 ch of which must be in advanced level courses. The student's program must include:

- POLS 2202 Canadian Politics

- 6.0 additional credit hours selected from Foundation Courses offered at the 2000 level

- POLS 3410 Survey of Political Thought

- POLS 3533 Research Methods in Political Science

- POLS 4000 Directed Reading and Research in Political Science

- 6 ch at the 4000-level (in addition to POLS 4000)

Joint Honours
A student reading for Joint Honours in Political Science and another discipline must complete at least 36 ch in Political Science, 24 ch of which must be in advanced level courses. The student's program must include:

- POLS 2202 Canadian Politics

- 3.0 additional credit hours selected from Foundation Courses offered at the 2000 level

- POLS 3410 Survey of Political Thought

- POLS 3533 Research Methods in Political Science

- POLS 4000 Directed Reading and Research in Political Science

COURSE CREDIT:
Students may count courses towards the fulfilment of their program requirements in a Single Major, Double Major or Honours in Political Science only if they receive a grade of C or better. Students must achieve a grade of B- or better in POLS 4000 to receive an Honours degree.

SUB-FIELDS IN POLITICAL SCIENCE

Foundation courses, which are marked with an asterisk*, introduce students to the different sub-fileds in the program.

CANADIAN POLITICS	
POLS 1203	Political Issues that Divide Canadians
POLS 2202*	Canadian Politics
POLS 3203	Issues in Canadian Public Policy
POLS 3211	Canadian Governance in the Global Era
POLS 3212	Topics in Provincial Public Administration
POLS 3213	Capitalism, Canada and Class
POLS 3227	Poverty, Governance, and Citizenship in Canada
POLS 3237	The Politics of Memory in Canada and the United States
POLS 3241	Canadian Foreign Policy
POLS 3242	Canadian-American Relations
POLS 3247	Trudeau's Canada
POLS 3251	Canadian Federalism
POLS 3257	Law and Politics in Canada
POLS 3263	Canadian Provincial Politics
POLS 3267	Quebec Politics and Government
POLS 3271	Community and Culture in Canadian Politics
POLS 3282	The Canadian Political System
POLS 3284	The Concentration of Power in Canadian Politics
POLS 3292	Self-Government and Aboriginal Community
POLS 3647	Democratic Disengagement
POLS 4416	Canadian Political Thought
POLS 5345	Natural Resources, Industrialization and the Environment in Atlantic Canada
POLITICAL THEORY	
POLS 1403	Contemporary Political Ideas and Ideologies
POLS 3410	Survey of Political Thought
POLS 3413	Modern Theories of the State
POLS 3415	Liberalism
POLS 3423	The Politics of Repression
POLS 3433	Late Modern Political Thought
POLS 3441	Women Political Thinkers
POLS 3443	Feminist Issues in Political Thought
POLS 3446	Subjects, Citizens, Individuals: Politics of the Early Modern
POLS 3473	Marxism and Anarchism: Alternative Political Communities
POLS 3475	The Political Left
POLS 3714	Imperialism and Crisis
POLS 4416	Canadian Political Thought
POLS 4463	Eros and Leadership: The Philosophy of the Good Ruler Through the Ages
POLS 4483	Hegel and Marx

POLS 4495	Gender and War: Historical and Contemporary Perspectives
POLS 4496	Thucydides: War and Empire

Women and Politics

POLS 2503*	Women and Politics
POLS 3441	Women Political Thinkers
POLS 3443	Feminist Issues in Political Thought
POLS 3635	Critical Conflict Studies
POLS 3712	Globalization and Everyday Life
POLS 4495	Gender and War: Historical and Contemporary Perspectives
POLS 4722	Women, Gender and Development

Politics of the Industrialized World

POLS 1103	North American Politics
POLS 1503	Law, Power, Politics
POLS 2603*	Comparative Politics of the Industrialized World
POLS 3011	European Imperialism, 1815-1914
POLS 3012	European Imperialism 1914-1975
POLS 3101	American Politics
POLS 3103	Rights in Conflict in North America POLS
POLS 3104	African American Politics
POLS 3237	The Politics of Memory in Canada and the United States
POLS 3312	Political Sociology
POLS 3323	Cities in the Urban Century
POLS 3343	The European Union in Transition
POLS 3363	Contemporary Germany
POLS 3413	Modern Theories of the State
POLS 3461	Public Policy Analysis
POLS 3647	Democratic Disengagement
POLS 3714	Imperialism and Crisis
POLS 3715	Work in the World Economy
POLS 3717	The Politics of Nationalism
POLS 3391	Governance
POLS 3392	Comparative Public Administration
POLS 3831	Contemporary China
POLS 4724	Topics in Environmental History and Politics

POLITICS OF THE DEVELOPING WORLD

POLS 1603	Politics of Globalization
POLS 2303*	Politics of the Developing World
POLS 3011	European Imperialism, 1815-1914
POLS 3012	European Imperialism, 1914-1975
POLS 3323	Cities in the 'Urban Century'
POLS 3374	An Introduction to the Politics & Society of the Middle East
POLS 3614	Ethics and International Politics
POLS 3635	Critical Conflict Studies
POLS 3643	United Nations
POLS 3637	Capitalism and War
POLS 3711	Political Economy of Development in Africa
POLS 3712	Globalization and Everyday Life
POLS 3713	The Global Economy: Production, Profits, Power and People
POLS 3714	Imperialism and War
POLS 3715	Work in the World Economy
POLS 3717	Politics of Nationalism
POLS 3721	Beverages and International Development in Historical Perspective
POLS 3725	The Political Economy of Latin American Society
POLS 3831	Contemporary China
POLS 4722	Women, Gender and Development

INTERNATIONAL POLITICS

POLS 1603	Politics of Globalization
POLS 2703*	Introduction to International Relations
POLS 3011	European Imperialism, 1815-1914
POLS 3012	European Imperialism, 1914-1975
POLS 3112	Russian Foreign Policy
POLS 3241	Canadian Foreign Policy
POLS 3242	Canadian-American Relations
POLS 3343	European Union in Transition
POLS 3614	Ethics and International Politics
POLS 3615	International Relations Theory
POLS 3633	International Public Law
POLS 3635	Critical Conflict Studies
POLS 3643	United Nations
POLS 3637	Capitalism and War
POLS 3713	The Global Economy: Production, Profits, Power and People
POLS 3714	Imperialism and War
POLS 3731	Governments and their Spies
POLS 3831	Contemporary China
POLS 4495	Gender and War: Historical and Contemporary Perspectives
POLS 4496	Thucydides: War and Empire
POLS 4703	Seminar in Contemporary Issues in World Politics

POLITICAL ECONOMY

POLS 1603	Politics of Globalization
POLS 2013*	Introduction to Political Economy
POLS 3213	Capitalism, Canada, and Class
POLS 3323	Cities in the Urban Century
POLS 3635	Critical Conflict Studies
POLS 3637	Capitalism and War
POLS 3711	Political Economy of Development in Africa
POLS 3712	Globalization and Everyday Life
POLS 3713	The Global Economy: Production, Profits, Power and People
POLS 3714	Imperialism and Crisis
POLS 3715	Work and the World Economy
POLS 3721	Beverages and International Development in Historical
POLS 3725	The Political Economy of Latin American Society
POLS 3831	Contemporary China
POLS 5354	Natural Resources, Industrialization and Environment in Canada

PSYCHOLOGY

DEPARTMENT OF PSYCHOLOGY

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FACULTY

· Byers, E. Sandra, BA (Roch), MA, PhD (W Virginia), Prof & Chair - 1978
· D'Entremont, Barbara, BSc, MSc (Dal), PhD (Qu), Prof -2000
· Hamilton, Ryan, BA, MSES, PhD (UNB), Asst Prof - 2013
· Harker, Troy, BSc, MSc (Lethbridge), PhD (Dal), Asst Prof - 2011
· LaChapelle, Diane, BSC (McM), MA, PhD (Regina) - Assoc Prof - 2002
· O'Sullivan, Lucia, BA, MA (UNB), PhD (Bowl) Prof - 2006
· Perunovic, W. Q. Elaine, BA, PhD (Wat.) Assoc Prof - 2007
· Piercey, Darren, H.B.Sc (Toronto), PhD (Alberta), Assoc Prof - 2001
· Poulin, Carmen, BA (UNB), MA, PhD (Qu), Prof - 1991
· Ronis, Scott, BA (Brandeis) MA, PhD (Missouri), Assoc Prof- 2009
· Sears, Heather, BSc (Acad.), MA, PhD (Victoria), Assoc Prof - 1995
· Stevanovski, Biljana, BA (McM), MA, PhD (Wat), Assoc Prof - 2007
· Voyer, Daniel, BSc, MSc (Montr.), PhD (Wat.), Prof - 2000

General Information

The Department of Psychology offers several undergraduate programs through the Faculty of Arts and the Faculty of Science. Arts students may complete Minors, Majors, Double Majors, Honours, Joint Honours and Specialization in Neuroscience programs. Science students may complete Minors, Majors or Honours in Psychology. Some students may complete degrees in a combined (BASc) program or earn both Arts (BA) and Science (BSc) degrees in a concurrent program. Students in the concurrent program may declare the Major or apply for admission to Honours in Psychology in either Faculty but not both. Students in the combined program may declare the Major (following the Double Major regulations) in Psychology in either Faculty but not both.

Psychology courses generally follow the course numbering system described on page H.1 of the UNB Undergraduate Calendar. The second digit in each course number indicates Teaching Areas within the discipline of psychology. The Areas and the specific course numbers of the courses belonging to each Area are as follows:

0	General	1013 , 1023 , 3033 , 3043 , 3053 , 3063 , 4003 , 4053 ;
1	Research	2113 , 3113 , 3123 , 3151 , 3152 , 4103 , 4110 ;
2	Developmental	2203 , 3213 , 3215, 3233 , 3243 ,3253, 3263, 3273, 4203 , 4223 ;
3	Clinical	2313 , 3313 , 3315, 3323, 3343 , 3353 , 3373 , 3383 ,4303;
4	Personality and Social	2403 , 3403 , 3415 , 3423 , 3433 ,3443 , 3453, 4403 ;
5	Memory, Learning and Cognition	2603 , 3613 , 3623 , 3633 , 3643 ,3663, 4603;
6	Biological	2703 , 3713 , 3723 , 3733 , 3743 , 3745 , 3753 , 3773 , 3783 , 4713 , 4743 , 4773 .

The third digit in each course number designates the course within the Teaching Area. Terminal digits of 3 or 5 indicate the course could be offered in any term. Please note that no more than three of PSYC 3033 ,PSYC 3043 , PSYC 3053 , and PSYC 3063 may be counted toward a Major or Honours in Psychology.

Statement on Web Courses

The Department of Psychology offers some online Web Courses to students through the College of Extended Learning. The Department of Psychology has approved these courses as equivalent to regular courses. In the Undergraduate Timetable, the section number for all Web Courses is listed as Open Access Learning.

In exceptional cases Full-time students may be given permission to enroll in Web Courses as part of their regular course load. Current regulations require Web courses taken by Full-time students during the Winter and Fall terms to be approved by the Dean of the faculty offering the course. Web Courses must be on the list of courses approved by the Department as equivalent to existing courses and must include a proctored final exam.

The following Web Courses have been approved by the Department of Psychology as equivalent to regular courses:

PSYC 1013	Introductory Psychology on the WEB- I	3 ch (online)
PSYC 1023	Introductory Psychology on the WEB- II	3 ch (online)
PSYC 2203	Foundations of Developmental Psychology	3ch (online)
PSYC 2313	Foundations of Clinical Psychology	3ch (online)
PSYC 2403	Foundations in Social Psychology	3ch (online)
PSYC 2603	Foundations of Learning, Memory and Cognition	3ch (online)
PSYC 2703	Foundations of Biological Psychology	3ch (online)
PSYC 4054	History of Psychology on the WEB	3ch (online)

Minor, Majors and Honours

Minimum Academic Standards

A grade of C or better must be attained in each of the courses taken to meet the minimum requirements of any of the programs listed below. Students are advised to carefully plan their selection and sequencing of Foundation courses as each course is a prerequisite for higher level courses within the same Teaching Area.

Minor

A Minor will consist of 24ch in Psychology courses and will include the following:

· PSYC 1013 , PSYC 1023 PSCY 2103/PSYC 2123,
· two Foundation courses (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603, PSYC 2613 and PSYC 2703), and
· three advanced level (3xxx or 4xxx) Psychology courses.

MAJORS

Students wishing to Major in Psychology will normally declare their major during their second year after they have seen their Department advisor.

Single Major:

A Single Major will consist of 48ch in Psychology courses and will include the following:

· Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
· Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
· four Foundation courses 12ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 , PSYC 2613 and PSYC 2703)
· seven advanced level Psychology courses 21ch (3xxx or 4xxx level) and
· History of Psychology 3ch (PSYC 4053)

Double Major:

A Double Major will consist of 42ch in Psychology courses and will include the following:

· Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
· Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
· four Foundation courses 12ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 , PSYC 2613, and PSYC 2703)
· five advanced level Psychology courses 15ch (3xxx or 4xxx level)
· History of Psychology 3ch (PSYC 4053)

HONOURS

Students wishing to Honour in Psychology will normally apply to the Department in their third year. The Honours Program is designed to provide broad exposure to the discipline and develop research skills appropriate for students wishing to pursue graduate studies in Psychology.

Honours (Single):

A Single Honours will consist of 57ch in Psychology courses and will include the following:

- Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
- Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
- four Foundation courses 12ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 , PSYC 2613 and PSYC 2703)
  - seven advanced level Psychology courses 21ch (3xxx or 4xxx level)
    - Students must take one or both Basic Research Seminars (PSYC 3151 , 3152) in their third year. Students must also take at least one Topical Seminar (PSYC 4003 , PSYC 4103 , PSYC 4203 , PSYC 4223 , PSYC 4303, PSYC 4403, PSYC 4603 , PSYC 4713 , PSYC 4743 , or PSYC 4773).
- Advanced Statistics 3ch (PSYC 3113)
- full year Honours Thesis 6ch (PSYC 4110) , and
- History of Psychology 3ch (PSYC 4053)

The Honours Thesis: The Honours Thesis will consist of an independent research project, completed in the fourth year, supervised by a Psychology faculty member and discussed in the Honours Thesis Research Seminar. Students must take one or both Basic Research Seminars (PSYC 3151 , PSYC 3152) in their third year. Applicants to the Honours Program should apply by submitting the Honours Program Application Form, normally in the third year of their program, to the Honours Research Coordinator, and are encouraged to approach individual faculty members to find a supervisor. Only students with a cumulative grade point average of at least 3.6 in Psychology courses will be considered for the Honours Program.

Joint Honours :

A Joint Honours will consist of 48ch in Psychology courses and will include the following:

· Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
  · Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
  · four Foundation courses 12ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 , PSYC 2613 and PSYC 2703)
  · four advanced level Psychology courses 12ch (3xxx or 4xxx level)
    · Students must take one or both Basic Research Seminars (PSYC 3151 , PSYC 3152) in their third year. Students must also take at least one Topical Seminar (PSYC 4003 , PSYC 4103 , PSYC 4203 , PSYC 4223, PSYC 4303 , PSYC 4313 , PSYC 4403,PSYC 4603 , PSYC 4713 , PSYC 4743 , or PSYC 4773).
  · Advanced Statistics 3ch (PSYC 3113)
  · full year Honours Thesis 6ch (PSYC 4110), and
  · History of Psychology 3ch (PSYC 4053)

The Joint Honours Thesis: The Joint Honours Thesis is the same as the Honours Thesis described in the preceding section (The Honours Thesis).

Specialization in Neuroscience

MAJOR

A Major in Psychology with Specialization in Neuroscience will consist of 48ch in Psychology and 24ch in Biology. The Psychology courses will include the following:

- Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
- Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
- Foundations of Biological Psychology 3ch (PSYC 2703)
- three Foundation courses 9ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 and PSYC 2613)
- three advanced level Area 7 courses 9ch (selected from PSYC 3713 , PSYC 3723 ,PSYC 3733, PSYC 3743, PSYC 3745 , PSYC 3753 , PSYC 3773 , PSYC 3783 , P SYC 4713 , PSYC 4743 and PSYC 4773)
- four advanced level Psychology courses 12ch (3xxx or 4xxx level), an
  · History of Psychology 3ch (PSYC 4053)

The Biology courses will consist of the following: Introductory Biology 6ch (BIOL 1001 or BIOL 1551 and BIOL 1012 or BIOL 1552) and a minimum of any six additional courses in Biology 18ch.

HONOURS

The Honours in Psychology with Specialization in Neuroscience will consist of 57ch in Psychology and 24ch in Biology. The Psychology courses will include the following:

- Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
- Research Methods 6ch (PSYC 2103/PSYC 2123 and PSYC 2113)
- Foundations of Biological Psychology 3ch (PSYC 2703)
- three Foundation courses 9ch (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 and PSYC 2613)
- three advanced level Area 7 courses 9ch (selected from PSYC 3713 , PSYC 3723, PSYC 3733, PSYC 3743, PSYC 3745, PSYC 3753 ,PSYC 3773 , PSYC 3783 , PSYC 4713 , PSYC 4743 and PSYC 4773)
- four advanced level Psychology courses 12ch (3xxx or 4xxx level)
  · Students must take one or both Basic Research Seminars (PSYC 3151 , PSYC 3152) in their third year. Students must also take at least one Topical Seminar (PSYC 4003 , PSYC 4103 , PSYC 4203 , PSYC 4303 , PSYC 4313 , PSYC 4403, PSYC 4603 , PSYC 4713 , PSYC 4743 , or PSYC 4773).
- Advanced Statistics 3ch (PSYC 3113)
- full year Honours Thesis 6ch (PSYC 4110), and
- History of Psychology 3ch (PSYC 4053)

The Biology courses will consist of the following: Introductory Biology 6ch (BIOL 1001 or BIOL 1551 and BIOL 1012 or BIOL 1552) and a minimum of any six additional courses in Biology 18ch. The Honours Thesis is the same as the Honours Thesis described in the above section (The Honours Thesis) except that normally the research topic will be on a topic represented by Teaching Areas 6 or 7.

Majors and Honours in Psychology (Science)

Science students choosing the Psychology Option must follow the regulations provided under the Bachelor of Science in Section G of this Calendar.

SOCIOLOGY

DEPARTMENT OF SOCIOLOGY

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FACULTY

· Ballucci, Dale, BA (Guelph), MA (Wind), PhD (Alta), Adjunct - 2011

· Bowden, Gary, BA (W. Wash), MA, PhD (Calg), Assoc Prof - 1990
· Gill, Carmen, BA, MA, PhD (Qc), Prof & Dir MMF Ctr for Family Violence Study – 2004
· Haan, Michael, BA (Dordt), MA (Wind), PhD (Tor), Assoc Prof&CRC-2010
· Harrison, Deborah, BA (Qu), MA, PhD (York), Adjunct Prof - 1995
· Kufeldt, Kathleen, BSW, MSW, PhD (Calg), Adjunct - 1997
· Low, Jacqueline, BA, MA (Conc.), PhD (McM.), Prof - 2001
  Miedema, Baukje, BA, MA, PhD (UNB), Adjunct -2011
· Nason-Clark, Nancy BSc (Houghton Col. NY), MA (Wat), PhD (Lond), Prof and Chair - 1984
· Neilson, Linda, BA, LL.B (UNB), PhD (Lond), Prof - 1993
· ODonnell, Susan, BA (Ott), MA (Cardiff), Adjunct Prof - 2004
· Reddick, Andy, BA (Queen's, Carleton), MA, PhD (Carl), Adjunct Prof - 2012
· Rehorick, David A., BA, MA, PhD (Alta), Prof Emeritus - 1974
· Rideout, Vanda, BA (Qu), MA, PhD (Car), Prof - 1998
· Thériault, Luc, BA (Qc), M.Sc, (Montr), PhD (Tor), Prof - 2004
 · Torri, Maria Costanza, BA (University of Ancona, Italy), MA (IAMM-CIHEAM, France), PhD (Paris 1-Pantheon-Sorbonne), Asst Prof-2011
· Tramonte, Lucia, BA, MA, PhD (UNIMI), Assoc Prof - 2009
· van den Hoonaard, Will C., BA (UNB), MA (Mem), PhD (Manc), Prof Emeritus- 1979

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General Information

First-Level Courses

First-year students in the Faculty of Arts interested in Sociology will normally take any 6 ch of Level 1 Sociology courses. First- and Second-year students enrolled in other Faculties and/or planning to transfer to another university will normally take SOCI 1503 but may, with approval of their Faculty, substitute for SOCI 1503 another Level 1 Sociology course and/or take an additional 3 ch of Level 1 courses.

After completion of 60 ch of their program, students may not enrol in Level 1 Sociology courses but may enrol in Level 3 or 4 Sociology courses without having taken Level 1 Sociology courses. After completion of 30 credit hours of their program, students may enroll in Level 2 courses without having taken Level 1 Sociology courses. Students must satisfy the prerequisites (if any) of advanced-level Sociology courses.

Minimum Academic Standards

A grade of C or better must be attained in each of the courses taken to meet the minimum requirements of any of the programs listed below.

Upper Level Courses

Teaching methods and approaches are not tied to level but will vary from year to year depending on class size and the preference of the instructor for lecture, seminar or other formats.

Minor, Majors, and Honours Programs

Minor

The Minor in Sociology consists of 24 ch in Sociology, approved by the Director of Undergraduate Studies. 12 ch must be advanced-level courses.

Majors and Honours

Students intending to Major or Honour in Sociology should complete at least 12 ch of Sociology courses prior to entering their third year.

Majors

1. Single Majors must complete a minimum of 39 ch of Sociology, of which 24 ch must be advanced-level courses. Double Majors must complete a minimum of 30 ch of Sociology of which 15 ch must be advanced-level courses. Permission may be obtained to count an advanced-level course in a related subject as one of the Sociology options. Both Single and Double Majors must have their program approved by Sociologys Director of Undergraduate Studies.

2. The following courses are compulsory for Single and Double Majors: 6 ch of Level 1 Sociology courses, SOCI 3004 , SOCI 3014 and SOCI 3103 .

Honours

1. A minimum of 48 ch in Sociology is required for Single Honours. At least 36 ch must be advanced-level Sociology courses of which at least 6 ch must consist of Level 4 Sociology courses. A minimum of 42 ch of Sociology is required for Joint Honours. At least 27 ch must be advanced-level courses of which 3 ch must consist of Level 4 Sociology Courses. Students seeking admission to a Single or a Joint Honours program are directed to the General Regulations of the Arts Degree, BA (Honours), and must make written application to the Director of Undergraduate Studies. Both Single Honours and Joint Honours must have their program approved by Sociology's Director of Undergraduate Studies.

2. Compulsory courses for both Single and Joint Honours are 6 ch of Level 1 Sociology courses, SOCI 3004 , SOCI 3014 , SOCI 3100 , SOCI 3123 , SOCI 5000 and SOCI 5200 . For Single Honours 6 ch of Level 4 Sociology courses and for Joint Honours 3 ch of Level 4 Sociology courses are required. SOCI 3004 , SOCI 3014 and SOCI 3100 , are prerequisites for Level 5 courses.

3. An Honours Essay is required in the final year. The paper will be completed as SOCI 5200 .

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GENDER AND WOMEN'S STUDIES

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Co-ordinator: Dr. Wendy J. Robbins (English)
· Carolyn Bassett, PhD, Political Society
· Anne Brown, PhD, French
· Christa Canitz, PhD, English
· Wendy Churchill, PhD, History
· Lynda Eyre, PhD, Education
· Carmen Gill, PhD, MMFC/Sociology
· Anna Hamling, PhD, Culture and Language Studies
· Sophie Lavoie, PhD, Culture and Language Studies
· Randall Martin, PhD, English
· Koumari Mitra, PhD, Anthropology
· Sasha Mullally, PhD, History
· James Murray, PhD, Classics
· Nancy Nason-Clark, PhD, Sociology
· Linda Neilson, PhD, Sociology
· Carmen Poulin, PhD, Psychology
· Allan Reid, PhD, Culture and Language Studies
· Mary Rimmer, PhD, English
· Wendy J. Robbins, PhD, English
· Charlene Shannon, PhD, Kinesiology
· Gary Waite, PhD, History
· Edith Snook, PhD, English
· Maria Costanza Torri, PhD, Sociology
· Melanie Wiber, PhD, Anthropology
· Thom Workman, PhD, Political Science
· Joanne Wright, PhD, Political Science

General Information

The interdisciplinary Gender and Women's Studies Program offers students the opportunity to focus on the experiences and achievements of women, with a view to gaining a more complete and balanced understanding of women's and men's lives, both historically and in contemporary society.

Eligibility

Admission to the introductory Gender and Women's Studies courses, GWS 1003 and GWS 2003, is open to students in all Faculties and all years. Students in any Faculty may complete a Minor in Gender and Women's Studies. However, only students in Arts may take the Double Major or Joint Honours program; students will normally seek admission to the program from the Co-ordinator of Gender and Women's Studies after successfully completing 45 ch

Programs of Study

Minor

A Minor consists of 24 ch of course work, selected in consultation with the Coordinator of Gender and Women's Studies. These include at least one of GWS 1003, Intorduciton to Gender and Women's Studies I and GWS 2003, Introduction to Gender and Women's Studies II; as well as GWS 4004 , Seminar in Gender and Women's Studies and an additional 18 ch at the upper level chosen from the list of core courses from the Co-ordinator.

Double Major

A Double Major consists of 30 ch of course work, selected in consultation with the Coordinator of Gender and Women's Studies. These include at least one of GWS 1003, Introduction to Gender and Women's Studies I and GWS 2003, Introduction to Women's Studies II, as well as GWS 4004, Seminar in Gender and Women's Studies and an additional 24 ch at the upper level.

Joint Honours

Joint Honours consists of 36 ch of course work, selected in consultation with the Coordinator of Gender and Women's Studies. These include at least one of GWS 1003, Introduction to Gender and Women's Studies I and GWS 2003, Introduction to Women's Studies II, as well as GWS 4004, Seminar in Gender and Women's Studies, and GWS 4900, Honours Thesis in Gender and Womens Studies, and an additional 24 ch at the upper level chosen from the list of core courses available from the Co-ordinator.

Students enrolled in a Joint Honours program must maintain an overall GPA of 2.5 and a GPA of 3.0 in the courses taken to fulfill the Gender and Women's Studies degree requirements.

Core Courses

ANTH 3114	Gender, Sex and Cultures
ANTH 3704	South Asia
ANTH 4204	Gender, Kinship and Marriage
ANTH 4502	Issues in Medical Anthropology
ANTH 4702	Gender and Health
CLAS 3903	Women in Ancient Greece
ED 5181	Feminist Theory and Education
ENGL 3883	Women's Writing in English
FR 3534	Ecrits de femmes
FR 3834	Écrivaines québécoises contemporaines
FVI 2001	Introduction to Family Violence Issues
FVI 3002	Social and Psychological Contexts of Abuse
HIST 3325	A History of Sexualities
HIST 3326	Gender, Health, and Medicine
HIST 4001	Heretic and Witches in Europe (1350-1650)
HIST 4242	Victorian Britain
HIST 4313	History of Women in Canadian Society
HIST 4323	The Family in North America
MAAC 3055	Gender, Women and Media
PHIL 3315	20th Century Women Philosophers
POLS 2503	Women and Politics
POLS 3441	Women Political Thinkers
POLS 3443	Feminist Issues in Political Thought
POLS 4722	Women, Gender, and Development
PSYC 3263	Psychology of Women
PSYC 3383	Women and Mental Health
PSYC 4223	Topical Seminar in Sex and Gender
RSS 4242	Gender, Sport and Leisure
SOCI 1543	Men and Women: Then and Now
SOCI 2303	Sociology of the Families
SOCI 2313	Sociology of Women I
SOCI 3335	Religion, Gender and Society
SOCI 3543	Sociology of Gender Relations
SOCI 3634	Violence Against Women
SOCI 4005	Feminist Theory
SOCI 4336	Families, Law, and Social Policy
SOCI 4337	Legal Responses to Family Violence
SOCI 4345	Sociology of Women II: Selected Topics

Arts 3000, Internship in Arts, when the placement in with an organization working on gender and women's issues, will count for credit in Gender and Women's Studies. In addition, some departments offer honours seminars that may be pertinent. Please consult the relevant department for more details. Please consult the Co-ordinator of Gender and Women's Studies for the most recent lists of core courses. Because Minors are subject to University-wide regulations, courses on gender and women offered in other Faculties, such as ED 5181 Feminist Theory and Education and NURS 4274 Iconography of the Nurse, may be counted as core courses for the Gender and Women's Studies Minor, although they may not be eligible for Arts Faculty credit. Arts students seeking credit for Gender and Women's Studies courses outside their Faculty must ensure that they have Arts Faculty approval before they register for such courses.

CONCURRENT DEGREE PROGRAMS
Concurrent Degree in Arts and Science (BA/BSc)
To be admitted to the Arts and Science program, students must meet the entrance requirements of both BA and BSc degrees given in the Admission Requirements Table under Admission Regulations.

The concurrent BA/BSc program is designed as a five year-program. To receive both degrees, students need a Major (or Honours) in an Arts discipline and a Major (or Honours) Science discipline - for example, BA (History) and BSc (Physics). Within Science, students can major or honour in one of Biology, Chemistry,Earth Sciences, Mathematics and Statistics, Physics,or in one of the Interdepartmental programs such as Biology-Chemistry. Students may also choose, as their Science subject, either economics, (unless already selected as an Arts program) or, Psychology (unless already selected as an Arts program). Within Arts, students can major or honour in one of the following areas: Anthropology, Archaeology, Classical Studies , Classics, Comparative Cultural Studies, Economics, Economic Studies English, French, History, Media Arts and Cultures , Philosophy, Political Science, Psychology or Sociology. In addition, interdisciplinary programs in International Development Studies, Law in Society, and Gender and Women's Studies are available as part of an Arts Double Major or Joint Honours; however, students are advised that completing a Double   Major or Joint Honours in Arts will require more credit hours than a Single Major or Honours.

This program is ideal for students with a strong interest in one of the Sciences and one of the Arts disciplines. It is also demanding and requires a serious commitment from the student from the outset throughout the degree. Its breadth makes it an excellent pre-professional program to prepare for studies in dentistry, medicine, veterinary medicine, optometry and physiotherapy.

Students who enter the concurrent BA/BSc program may opt to move into either the BA or the BSc program, at any stage. With the exception of labs, all courses taken during the first two years can be counted towards either a BA or a BSc (or both). Approved specialized Science labs count towards the BSc degree.

Students in the concurrent program can count many of their courses toward the requirements of both degrees, so it is important to select courses carefully from the outset. Students must seek advice and pre-approval from departmental/Faculty advisors of both Faculties at every level from pre-entry enquiries through to graduation.

PROGRAM OF STUDY (5 Years)
First Year

1. ARTS 1000 Development of Western Thought 6 ch
2. 6 term lecture courses in first- year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture courses and lab courses is dictated by the particular area of Science in which the student intends to major or honour, and thus, decisions about which lecture and lab coursesa student takes should be made in concultation with a Science Faculty advisor.
3. 6 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies),Languages (Ancient Greek, Chinese, French, German, Japanese, Modern Greek, Latin, Russian,Spanish,) or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology)

OR

1. ARTS 1100 Development of Western Thought (for Academic Success) 9 ch
2. 6 term lecture courses in first-year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture courses and lab courses is dictated by the particular area of Science in which the student intends to major or honour, and thus decisions about which lecture and lab courses a student takes should be made in consultation with a Science Faculty advisor.
3. 3 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies), Languages (Ancient Greek, Chinese, French, German, Japanese, Modern Greek, Latin, Russian, Spanish), or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology). The discipline should be different from any of the three taken under regulation 2, above, since first-year students may take no more than 6 ch in any one discipline.

Students will select their Science Major or Honours disciplines at this point.
Throughout the program, advice is available on the options and course requirements. Students should have written pre-approval from the appropriate Arts and Science advisors for all programs and course selection.
Second Year
1. Two additional term lecture courses in first- year Science. Whether these need to be accompanied by labs depends upon the area of Science the student has chosen to major or honours in, and as such, these courses should be chosen in consultationwiht a Science Faculty advisor
2. 12 ch (6 ch in each of 2 disciplines) chosen from Arts, including at least one discipline from a group (Humanities, Languages, Social ciences) not chosen in the first year.
3. At least 18 ch of Science courses (certain Science programs may require more than

Third Fourth and Fifth Years
The exact content of the years 3, 4 and 5 will depend upon the particular Arts and Science disciplines chosen. Students take advanced courses to gain a thorough understanding of their chosen disciplines and to prepare for an immediate career or further work ar graduate school. Students who elect to take Honours in Arts and/or Science may extend their program beyond the five years, depending on the subjects chosen.
1. Courses in Science will be chosen in consultation with, and pre-approved by, the student's Science advisor to meet the requirement of a Science Major degree.
2. A total of 54ch of courses in Arts will be chosen in consultation with, and pre-approved by, the student's Arts Major(s) advisor to meet the requirement of an Arts degree, 36 ch of which must be of upper-level courses.

Students should note that at least half the advanced-level credits counted towards a Major/Honours/Minor in an Arts subject must be from courses taken at the University of New Brunswick. The same regulation also applies to Science courses. Exceptions may be considered by the Dean of Arts and the Dean of Science, respectively. Student's should note that, in any given year, their course load may not be evenly balanced between Arts and Science courses. Students should plan to meet with advisors from both Faculties on an annual basis to ensure that the selected courses satisfy prerequisites for upper-level courses and take account of, courses offered in alternating years, and other program requirements.

Concurrent BA/BEd Degree Program

Admission to the Concurrent Bachelor of Arts/ Bachelor of Education program will be discontinued after September 2007. High School applicants or first-year students in a degree program interested in the BEd program at UNB should refer to the Faculty of Education Admission Advantage program in either the Admissions section of this calendar (Item J) or the Bachelor of Education section under Fredericton Degree Programs.

General

The BA or BA/BSc and BEd Concurrent Degree model is designed as a five year program to allow students to complete a degree program in Arts or Arts and Science and Education that prepares them to teach in a variety of learning environments.

Admissions Procedures

1. Students will apply for entry to the BA or BA/BSc degree program upon completion of the high school program.
2. Students may apply to the Faculty of Education Concurrent Program during their second term at UNB and, upon successful completion of all Year I requirements, may be admitted to the Concurrent Program.
3. Students may enter the Concurrent Program later in their program; however, late entry may require more than five years to complete both degrees.

CONCURRENT PROGRAM REQUIREMENTS -Total 168 ch

1. 60 ch approved by the Faculty of Education.
2. 120 ch approved by the Faculty of Arts which include all of the Arts or Arts and Science core requirements. 12 ch in Core Studies from Education may be counted toward this requirement, as elective courses in the BA degree.
3. Under Arts Regulations, students may take a maximum of 6 ch of approved education courses in Year II.
4. A student cannot get a BEd Degree by itself in this program; if a student withdraws from the Concurrent Program back into the BA Degree, a maximum of 12 ch of education courses may be transferred for Arts credit.

Concurrent Degree in Arts and Computer Science
Many career opportunities demand a combination of in-depth scientific training with the understanding of people and the sophisticated analytic and critical skills acquired in an Arts degree. The Faculties of Arts and Computer Science at UNB in Fredericton are cooperating to make it possible for a student to graduate with both a BA and a BCS in five years.

Several specializations are available in Computer Science, including Hardware Systems, Software Systems, Information Systems Theory and Computation, Multimedia Systems, and Geographic Information Systems. All Arts students concentrate on a Major or Honours program in their third, fourth, and fifth years chosen from any of the following disciplines: Anthropology, Archeology, Classical Studies, Classics , Economis, Economics Studies, English, French, German, German Studies, History, Media Arts & Cultures, Philosophy, Political Science, Psychology, Sociology, Spanish, or World Literature and Culture Studies. In addition, interdisciplinary programs in International Development Studies, Law in Society, and Women's Studies, are available as part of an Arts Double Major or Joint Honours; however, students are advised that completing a Double Major or Joint Honours in Arts will require more credit hours than a Single Major or Honours.

This program is ideal for students with an interest in Computer Science and one of the Arts disciplines. It is also a demanding program that requires a serious commitment from the student from the outset and throughout the degree.

The concurrent program is designed so that if a student decides to opt for either degree alone part way through the program, the adjustments can be made easily.Students in the concurrent program are able to count many of their courses toward the requirements of both degrees, so it is important to select courses carefully from the outset. Advice is available from both Faculties at every level from pre-entry inquiries through to graduation. To complete the concurrent degree, students must satisfy both the BA and BCS degree requirements. Completing these requirements will involve completing at least 162 credit hours of courses.

APPLICATION AND ADMISSION
Students wishing to pursue the concurrent program should apply for admission to the Faculty of Arts at UNB's Fredericton campus, specifying on the application form an interest in the concurrent program in Arts and Computer Science. Further information on the program is available from the offices of the Dean of Arts and the Dean of the Faculty of Computer Science.

FACULTY AFFILIATION
Students in the concurrent program will be registered as BA/BCS students. They will be assigned to academic advisors in the Faculty of Computer Science and in the Faculty of Arts.

PROGRAM OF STUDY
First Year
1.ARTS 1000
2. MATH 1003 and 1013 (or enriched MATH 1053 and 1063)
3. CS 1073 and 1083
4. ECON 1013 and ECON 1023 (or ECON 1014 and ECON 1024)
5. 6 ch in either one Humanities discipline or one Language

OR

1. ARTS 1100
2. MATH 1003 and 1013 (or enriched MATH 1053 and 1063)
3. CS 1073 and 1083
4. ECON 1013 and ECON 1023 or ECON 1014 and ECON 1024
5. 3 ch in either one Humanities discipline or one Languages

Students wishing to take an additional Social Science will select the course from the First Year Arts listings in Social Sciences.

Second Year
1. CS1303 , 2043 , 2253
2. INFO 1103
3. MATH 2213 or MATH 1503
4. A2 term courses toward the BCS Breadth Course Requirement, selected from Arts , Business Administration, Engineering , or Science   5.9 ch of appropriate Arts courses

Third Year
1. CS 2333 , 2383 , 3413 , 3583
2. 18 ch of appropriate Arts courses

Fourth Year
1.CS 3383 , 3997
2. STAT 3083, or STAT 2953
3. An approved third-year Math course
4. 18 ch of appropriate Arts courses

Fifth Year
1. CS 3873 , three CS/INFO/SWE electives at the 3000 level or above (with at least one of these at the 400 level)
2. 18 ch of appropriate Arts courses

CERTIFICATE PROGRAMS
Certificate in Family Violence Issues
The UNB Certificate in Family Violence Issues is an 8-course program offered by the Muriel McQueen Fergusson Centre for Family ViolenceResearch in the Faculty of Arts and the College of Extended Learning.The program is aimed primarily at individuals who encounter family violence issues through their work and who are seeking to broaden theirknowledge in this field. It would normally be followed on a part-time basis, but is also available to qualified full-time students. The primary goals of the certificate program are to sensitize participants to family violence issues; to help them develop competencies in recognizing family violence and in assisting survivors; and to promote multi- disciplinary approaches to solving this complex social problem. Uponcompletion of the program, participants will:

a. recognize signs of family violence and be able to identify and assess family violence situations
b. demonstrate knowledge of the central issues related to family violence
c. question societal beliefs and attitudes that can perpetuate violence
d. exhibit increased competencies in assisting survivors of family violence
e. exhibit increased competencies in determining and using culturally appropriate approaches
f. demonstrate increased awareness of the need for multi-disciplinary approaches to dealing with family violence situations

To be eligible for admission to the Certificate in Family Violence Issues program, applicants must **meet at least one** of the following criteria:

1. be currently enrolled with good academic standing in a UNB degree program or have graduated from a bachelors degree program.
2. have completed a minimum of 30 credit hours with good academic standing in an undergraduate degree program.
3. have completed one year of post secondary education with good academic standing in a related field of study.
4. be a mature applicant who has been or is working in an area where s/he encounters family violence issues. (Other mature applicants who wish to broaden their knowledge in this field may be invited to apply for admission following an interview with the Director of the Muriel McQueen Fergusson Centre.)

Application packages should be submitted to the Admissions Office at UNB and must contain:

1. A UNB application form plus the $45 application fee
2. official high school or post secondary transcripts
3. resume and two letters of reference
4. a statement of interest in the form of a 500-750 word essay summarizing the applicants reasons for applying to the program as well as indicating what he or she hopes to gain from the program. The statement should highlight any particular strength or work experience related to the interest in family violence issues.

Application deadlines are March 31st for those intending to begin the program in September, October 31st for those intending to start in January, and February 28th for those intending to start in May. The number of candidates accepted into the program is at the discretion of the Centre, and may vary from year to year according to applicant qualifications and program resources. All application packages will be reviewed by the Director of the Muriel McQueen Fergusson Centre for a final admission decision.

Upon completion of all the requirements for the Certificate in Family Violence Issues, candidates must notify the Director of the Muriel McQueen Fergusson Centre, UNB, (or the Program Director, Part-time Degree Studies/Adult Learner Services) so that the Certificate can be awarded.

Certificate Requirements

Of the 24 credit hours required, 6 credit hours must come from introductory courses (namely FVI 2001 , 2002 , 2003) and FVI 4002 is a required course. The remaining 15 credit hours may be taken from any of the listed courses. Students who complete all 24 credit hours will be awarded the Certificate in Family Violence Issues.

Prerequisites for any course can be waived with the permission of the instructor. Enrolment in courses may be limited at the discretion of the instructor, with priority given to students registered in the Certificate Program.

A grade of C is required to meet the minimum requirements for a prerequisite.

Students who work full-time are strongly advised to take a minimum of two courses per term.

Program Structure

Required Courses: (two from the following three)		
FVI 2001	Introduction to Family ViolenceIssues	3ch
FVI 2002	Antecedents and Patterns of Family Violence	3ch

FVI 2003 or SOCI 1563	Violence in Society or Violence and Society	3ch
Required Course:		
FVI 4002	Multidisciplinary Approaches to Family Violence	3ch
Elective Courses		
FVI 3002	The Social and Psychological Contexts of Abuse	3ch
FVI 3003	Counseling Interventions in Response to Family Violence	3ch
FVI 3004	Inter-disciplinary Responses and Obligations	3ch
FVI 3005	Family and Criminal Legal Systems	3ch
FVI 3006	Understanding and Treating Woman Abuse Offenders	3ch
FVI 4001	Erosion of the Social Safety Net - Consequences for Family Violence Service-Providers	3ch
FVI 4005	Individual Studies	3ch
FVI 4006	Individual Studies	3ch
SOCI 3634	Violence Against Women	3ch
SOCI 4313	Violence and Power	3ch
SOCI 4336	Families, Law and Social Policy	

NOTE:

Students can obtain credit for either FV I 2003 or SOCI 1563 , but not both.

Certificate in Film Production

The Certificate in Film Production is designed to help students develop expertise in all the areas of film, including screenwriting, acting, directing, and producing as well as the technical aspects of film and digital video production.

Students participate fully in the production structure of film-making in a variety of positions, such as camera operator, cinematographer, director and screenwriter, in addition to gaining hands on experience in the post-production process of picture and sound editing.

The program also covers basic film studies, including the history of film, because students making films learn from watching other films and analyzing how they work.

The broad range of the program not only prepares students for a variety of positions, but also helps them in making informed choices in pursuing opportunities or specialized training.

The Certificate in Film Production can be taken as a stand-alone certificate program or in conjunction with a degree program, with the approval of the appropriate faculty.Students interested in majoring in Film Production should consider instead the Film Production option in the Media Arts & Culture program. Candidates for admission to the Certificate Program must meet the university's requirements for admission to the Bachelor of Arts or for admission as a mature student. Enrollment in the Certificate in Film Production is limited. The stand-alone certificate is a part-time program. Students with limited or no university background who are enrolled in the stand-alone certificate should bear in mind that some u pper-level courses have prerequisites that must be met, and where appropriate should consider taking advantage of the universitys writing and skills development programs.

Some courses for the Certificate in Film Production may be scheduled in late afternoon or evening time slots.

Program Structure

The Certificate in Film Production program consists of 30 credit hours. Of these, 21 credit hours are from required courses; the remainder is from electives. Normally, a grade of C or better is required for each course in the program.

Required Courses		
FILM 2022/ MAAC 2022	The Art of Film	(3 ch)
FILM 2909 / ENGL 2909	International Film History	(3 ch)
FILM 2998/ MAAC 2998	Digital Filmmaking I	(3 ch)
FILM 2999/ MAAC 2999	Digital Filmmaking II	(3 ch)

FILM 3903 / ENGL 3903	Film Theory	(3 ch)
FILM 4001/ MAAC 4001	Advanced Production	(3 ch)
At least one of FILM/ENGL 3183 Creative Writing: Screenwriting for Short Formats (3 ch) and FILM/ENGL 3186 Creative Writing: Feature Screenplay (3 ch). The other may be taken as one of the three electives.		
Electives (9 credit hours must be selected)		
ENGL 2263	Shakespeare and Film	(3 ch)
ENGL 3906-9	Film Genre	(3 ch)
ENGL 3916-9	National Cinemas	(3 ch)
FILM 3075/ MAAC 3075	Framing Reality: Theory and Practice of Documentary Media	(3 ch)
FILM 3082/ MAAC 3082	History of Canadian Cinema	(3 ch)
FILM 3981/ MAAC 3981	Screen Acting	(3 ch)
FILM 3998/ MAAC 3998	Film Production	(3 ch)
FILM 3999/ MAAC 3999	Video Production	(3 ch)
FILM 3066/ GER3066/WLCS 3066/MAAC 3066	Trauma and Seduction: Early German Cinema	(3 ch)
FILM 3072/GER 3072/WLCS 3072	(Re)constructing National Identity: Contemporary German Cinema	(3 ch)
HIST 1315	Canadian History on Film	(3 ch)
HIST 3415	America at the Movies	(3 ch)
HIST 3803	War through Film	(3 ch)
MAAC 3212	Lens Media I	(3 ch)
MAAC 3362	Sound Design	(3 ch)
SPAN/WLCS 3455	Latin America Cinema	(3 ch)
SPAN/WLCS 3456	The Cinema of Spain	(3 ch)
WLCS 4053	Culture and Film: The Cinema of Transitional Democracies	(3 ch)

Other film-related university courses may be approved as electives by the Film Production Certificate Advisor

Certificate of Proficiency in French

The certificate of Proficiency in French is awarded upon examination to students who have completed a program of 24 ch in French Language courses. Details can be found in the Bachelor of Arts Programs of Study Section under French.

ARTS AND LAW

Students may be admitted to the Faculty of Law after they have successfully completed three years of the BA program. For further information regarding admission to the Faculty of Law, please consult the Faculty of Law Calendar or visit the Faculty of Law website at http://law.unb.ca/.

Students accepted into the Law program must actually complete the major, double-major, honours or joint honours courses required by their discipline(s), as time permits. Only approved LAW courses will count as upper level electives for the BA, and students may count a maximum of 12 ch towards the BA.

Students will normally graduate with both the BA and LLB. at the same time.

BACHELOR OF ARTS AND SCIENCE

The Faculties of Arts and Science at UNB in Fredericton are co-operating to make it possible for a student to combine Arts and Science in this four-year degree program.

This Joint allows students
· to experience academic work in both Faculties before committing themselves to a specialization;
· to gain a broader and more systematic exposure to disciplines outside that specialization; and
· to prepare for subsequent degree programs that permit or encourage a broader distribution of courses; such programs include the General Science Program and various pre-professional programs leading to study in dentistry, medicine, veterinary medicine, optometry, and physiotherapy.

To be admitted to the Joint Arts and Science program, students must meet the entrance requirements for the BAS as outlined in the Admission Requirements Table under Admission Regulations.

To earn a BAS degree, students must complete the requirements of a Supplementary Major in an Arts subject and a Specialization in a Science subject. The requirements for a Supplementary Major are the same as those for one subject taken as part of a Double Major.

Within Science, students can specialize in one of the following subjects: Biology, Chemistry, Geology, Mathematics and Statistics, Physics, Economics (unless already selected as an Arts program), Psychology (unless already selected as an Arts program). Within Arts, students can select a Supplementary Major in one of the following areas: Anthropology, Archaeology, Classical Studies, Classics, Economics, Economic Studies, English, French, German, German Studies, History, International Development Studies, Law in Society, Media Arts & Cultures, Philosophy, Political Science, Psychology, Sociology, Spanish, Women's Studies. World Literature and Culture Studies.

Program of Study

First Year

1. ARTS 1000 Development of Western Thought
2. 6 term lecture courses in first-year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture courses and labs is dictated by the particular area of Science in which the student intends to specialize, and thus, decisions about which lecture and lab courses a student takes should be made in consultation with a Science Faculty advisor.
3. 6 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies),Languages (Ancient Greek, Chinese, French, German, Japanese, Latin, Modern Greek, Russian, Spanish), or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology)

OR
1. ARTS 1100 Development of Western Thought (for Academic Success)
2. 6 term lecture courses in first-year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture and lab courses is dictated by the particular area of Science in which the student intends to specialize, and thus decisions about which lecture and lab courses a students takes should be made in consultation with a Science Faculty advisor.
3. 3 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies), Languages (Ancient Greek, Chinese, French, German, Japanese, Modern Greek, Latin, Russian, Spanish), or Social Sciences (Anthropology, Archeaology, Economics, Political Science, Psychology, Sociology). The discipline should be different from any of the three taken under regulation 2, abovem since first-year students may take no more than 6 ch in any one discipline.

Second Year

1. Two additional term lecture courses in first-year Science. Whether these need be accompanied by labs depends upon the area of Science the student has chosen to specialize in, and as such, these courses should be chosen in consultation with a Sicence Faculty advisor.
2. 12 ch (6 ch in each of 2 disciplines) chosen from Arts, including at least one discipline from a group (Humanities, Languages, Social Sciences) not chosen in the first year.
3. At least 18 ch of Science courses chosen in consultation with and pre-approved by the Science Faculty advisor.

Students will normally select a Supplementary Major in Arts and a Specialization in Science at this time, and should discuss the options with their Arts and Science advisors.

Third and Fourth Years

The exact content of years 3, and 4 will depend upon the particular Arts and Science areas chosen. Students take advanced courses to give them a thorough understanding of their chosen subjects and prepare them
for an immediate career or further work at graduate school. Students who elect to take a Single Major or Honours in Arts and/or Science may extend their program beyond the four years, depending on the subjects chosen.

1. A minimum of 36 ch total in Science chosen in consultation with, and pre-approved by, the student's Science advisor. At least half of these courses
must be at the (3000 and 4000 level).

2. 36 ch total chosen in consultation with, and pre-approved by, the student's Arts Major advisor, 18 ch of which must be at the 3000 or 4000 level.

Students should note that at least half the advanced-level credits counted towards the BAS degree must be from courses taken at the University of New Brunswick. Exceptions may be considered by the Deans of Arts and Science. Students should also not that, in any given year, a their course load may not be evenly balanced between Arts and Science coursese. Students should plan to meet with advisors, from both Faculties on on annual basis to ensure that the selected courses satisfy pre-requisites for upper-level courses and take account of courses offered in alternating years, and other program requirements.

Students who enter the BAS program may opt to move into either the BA program, the BSc program, or the concurrent BA/BSc program at any stage. With the exception of laboratory courses, all courses taken during the first two years can be counted towards either a BA or a BSc degree (or both). Approved specialized Science laboratory courses will count towards the BSc degree or the Concurrent Degree in Arts and Science.

Instead of graduating with a BAS at the end of the four-year program, students may continue for a fifth year to earn both a BA and a BSc, two degrees, with a Major(s) (or Honours) in an Arts discipline and a Major (or Honours) in a Science discipline - for example, BA (History) and BSc (Physics). See the following section for the five-year concurrent degree program in Arts and Science.

For further details on subjects in Arts, see the Bachelor of Arts portion of the Fredericton Programs section of this Calendar.

BACHELOR OF APPLIED ARTS (CRAFT AND DESIGN)

General Information

This four-year articulated degree program offers a unique combination of academic and practical study offering the advanced reasoning, research and writing skills of a traditional liberal arts education at UNB along with the hands-on experience of studio art courses offered by the New Brunswick College of Craft and Design, one of Canada's most respected fine craft and design schools.

Eligibility

Admission to the Bachelor of Applied Arts (BAA) program is a two-step process through the University of New Brunswick. Applicants must meet the admission requirements for the BA degree and will follow the normal admission procedures of the University of New Brunswick. Students must indicate on both admission forms which institution they wish to attend first. Deadline to apply is March 31. Prospective applicants and students wishing to transfer into the program with advanced credit should contact the office of the Dean of Arts at UNB or the BAA program advisors at the New Brunswick College of Craft and Design.

Program of Study

The BAA is a four year degree program, two years of which are taken at the New Brunswick College of Craft and Design (NBCCD) and the two years (or 60ch) at the Univeristiy of New Brunswick Fredericton (UNBF). The two required years at NBCCD will generally consist of the Foundation of Visual Arts Ceritification and the first yearof the Diploma in Fine Craft. Students may either start at either institution, attend each school in alternate years, or may complete the requirements of one before moving on to the other.

Year 1 at UNB

The first year consists of 24 ch at the first-year level and 6 ch at either the first-year or second-year level. Students may be advised to take certain courses that relate to their interest in craft and design, to their future career plans, and/or to upper-level courses they plan to take in Year 2 at UNB.

Courses are required as follows:

• ARTS 1000 (6 ch)
• 6 ch in each of three disciplines chosen from the four groups of disciplines (A, B, C, D) listed below (18 ch).
• The remaining 6 ch may be taken in any Arts or Science discipline, or taken as 3 ch in each of two disciplines, including those already being taken this year; the course(s) in this category may be at either the first-year or second-year level. In addition to disciplines listed in groups A-D, students may take courses in Drama, Film, Music, Gender and Women's Studies, or International Development Studies to meet this requirement (6 ch).

OR

• ARTS 1100 (6 ch)
• 6 ch in each of three disciplines chosen from the four groups of disciplines (A, B, C, D) listed below (18 ch).
• The remaining 3 ch may be taken in any Arts or Science discipline; the course(s) in this category may be at either the first-year or second-year level. In addition to disciplines listed in groups A-D, students may take courses in Drama, Film, Music, Gender and Women's Studies, or International Development Studies to meet this requirement (3 ch).

A(Languages)[1]	B(Humanities)	C (Social Sciences)	D (Sciences)[2]
Chinese	Classics	Anthropology	Astronomy
French	English	Archaeology	Biology
German	History	Economics	Chemistry
Greek (Ancient)	Media Arts & Cultures	Political Science	Computer Science
Greek (Modern)	Philosophy	Psychology	Earth Sciences
Japanese	World Literature & Culture Studies	Sociology	Mathematics
Latin			Physics
Russian			Statistics
Spanish			

Notes:

1. Other languages such as Arabic, Maliseet, and Mi'kmaq (when available) may be taken to satisfy the requirements of Group A.

2. Lower-level laboratory courses taken in other Faculties will not be counted in the credit hour total but will be counted in the calculation of the Grade Point Average (GPA) for the BA program.

Year 2 at UNB:

The second year at UNB consists of 30 ch of lecture courses or seminars of which at least 24 ch must be chosen from the 3000-4000 level in consultation with the program advisor. Normally, students may not take independent study, reading, or thesis courses. The course selection should support the student's interest in craft and design. Courses required are as follows:

· 12 ch in Cultural Studies and Art History
· 6 ch in humanities, social sciences, fine arts (critical or theoretical), or interdisciplinary studies
· 6 ch in skill development: math, language, multimedia, science, English(creative or expository writing)
· 6 ch optional from any of the above or others as approved

Year 1 and Year 2 at NBCCD:

BAA students must take two complete years of study at NBCCD. For their first year, students normally take the Foundation Visual Arts Certificate. For their second year, they take the first year of a Diploma program in a studio of their choice. Below is the typical list of courses for these programs:

Year 1 at NBCCD:
1. **Fall semester**

· The Creative Process
· Drawing From Observation
· 2D Design
· Communications and Student Success
· History of Visual Culture: Pre-History-1600
· History Tutorial
· Media Explorations: 2 from Ceramics, Photography, Fashion Design, Jewellery and Metal Arts, Textiles/Fibre Arts, Integrated Media, Graphic Design,

2. **Winter semester**
· Colour Study
· Drawing from Observation: Form and Expression
· 3-D Design
· History of Visual Culture 1600 to the Present
· History Tutuorial
· Media Explorations: 4 from Ceramics, Photography, Fashion Design, Jewellery and Metal Arts, Textiles/Fibre Arts, Integrated Media, Graphic Design.

Year 2 at NBCCD:

1. **Fall semester**
· Communication (or Studio Historyfor Photography Students)
· Drawing
· Drawing 3
· 15 hours per week of classes in chosen studio (Ceramics, Photography, Fashion Design, Jewellery and Metal Arts, Textiles/Fibre Arts, Integrated Media, Graphic Designs)

2. **Winter semester**
· Studio History
· Design
· · 15 hours per week of classes in same chosen studio as in Fall Semester

BACHELOR OF BUSINESS ADMINISTRATION

Faculty of Business Administration

General Office:	Singer Hall, Room 255
Mailing Address:	Faculty of Administration , University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4869
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Email:	fba@unb.ca
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FACULTY

Dean: Robert D. Austin, BS, BA, PhD

Associate Dean (Research): Devashis Mitra, BA, PhD, CA, FCA

Associate Dean (External Programs): Joseph Y. Abekah, BScAdmin, MSc, MAc, PhD

Associate Dean (Undergraduate Programs): Joanne I. Hinton, Bsc, CMA

· Abekah, Joseph Y., BScAdmin (Ghana), MSc (Boston), MAc (BGSU), PhD (Neb.-Lincoln), Prof and Assoc Dean (External) - 1991
· Angeles, Rebecca, BA (Philippines), MBA (South Dakota). PhD (Memphis), Prof - 2003
· Austin, Robert D., BS, BA (Swarthmore Col.), MS (Northwestern), PhD (Carnegie Mellon), - 2011
· Betts, Norman M., BBA (UNB), PhD (Qu),FCA, Assoc Prof - 1992
· Coleman, Daniel F., BA, PhD (SUNY-Buffalo), Prof - 1986
· Du, Donglei, BSc (Fudan), MSc (Shandong), PhD (Chinese Acad of Sci)PhD (Texas), Assoc Prof - 2003
· Dunnett, A. Jane, BSc, MBA (UNB), PhD (Qu.), Assoc Prof - 2000
· DuPlessis, Dorothy R., BComm, LLB, MBA (Dal), LLM (Lond), Prof - 1982
· Eiselt, Horst A., BA (Hannover), MBA, PhD (Georgia Augusta), Prof - 1986
· Flint, Douglas H., BA (S. Fraser), MSc (McM.), MASc (Wat.), PhD (Tor), Assoc Prof - 2001
· Frooman, Jeffrey, BS, BA (Ill-Urbana), MBA (Mich), MA, PhD. (Pitts), Assoc Prof (Cross-Appt, Arts) - 2007
· Grant, E. Stephen, BBA (UNB), MBA (Maine-Orono), PhD (Memphis), Prof - 1993
· Haley, Lynn M., B.Sc, MBA (UNB), Sr Instructor - 2005
· Hinton, Joanne I. BSc (Guelph), CMA, Sr Teaching Assoc and Assoc Dean (Programs) - 1999
· Leonard, R. Glenn, BBA, MA, PhD (UNB), CA, Asst Prof 2006
· Lynch, Eamonn, BComm (Victoria), MSc (Leth), MBA (McG.), DipUT (UNB), Instructor - 2005
· Maher, Elin E., BBA (UWO), MBA (Maine-Orono), CA, Prof - 1988
· Maher, Robert C., BSc (UNB), MBA (McG.), CA, FCA, Prof - 1988
· McNally, Jeffery J., BA (Mt.A), MA (UWO), Asst Prof-2010
· Mitra, Devashis, BA (Delhi), CA, PhD (Mass-Amherst), Prof - 1991
· Nasierowski, Wojciech, MScEng (Ind Eng), BAEngME (Warsaw Univ. of Tech), PhD (Warsaw - Mgmt. Inst. for Organization Develop), DSc (Poland), Prof - 1991
· Otuteye, Eben, BA (Ghana), MA (UNB), PhD (Qu), Prof - 1987
· Post, Patricia, BA, MEd, PhD (UNB), Sr Teaching Assoc - 2003
· Rahim, M. Abdur, BSc, MSc (Dacca), DS (Rome), MSc (Ott), PhD (Windsor), Prof - 1983
· Rashid, Muhammad, MA (York), PhD (Qu), Prof - 1985
· Roy, Judy A., BPR (Mt.St.Vin.), MBA, DipUT, PhD (UNB), Sr Teach Assoc - 1993
· Sharma, Basu D., BA, MA (Tribhuvan) AM, PhD (Ill-Urbana), Prof - 1985
· Sheppard, Reginald, G., BEd, BSc, BA (MUN), MEd, MBA (UNB), PhD (Bath, UK), Asst Prof - 1999
· Shiller, Iona, BA, MS, (Kyiv National), MA. PhD (Manit) Assoc Prof-2005
·Srinivason, Gopalan, BComm (Madurai), MComm (S Venkat), Fellow (IIM Ahmedabad), CGA, Prof - 1987

· Whalen, Hugh J., BSc, BBA (UNB), PhD (Minn), CA, Sr. Teaching Assoc - 1992
· Wielemaker, Martin, MSc (Tech. Univ. Delft), PhD (Erasmus), Assoc Prof. - 2002
· Zuluaga, Luis, BS, MS (U. of Los Andes (Colombia)), MS, PhD (Carnegie Mellon), Assoc. Prof. - 2004

General Information

Through the cooperation of New Brunswick business firms and professional associations, the Department of Business Administration was created in the Faculty of Arts during 1951 to service the needs of Canadian business for men and women with specialized training in the field of management. A School of Administration superseded the Department in 1975 and the Faculty of Administration was established during 1980. The Faculty's operations since 1987 have been based in Ethel Francis Singer Hall, a building named in memory of the first Jewish woman (BA35, MA 38) to graduate from the University of New Brunswick.

The four-year program leads to the degrees of Bachelor of Business Administration (BBA) or Honours BBA. The course of studies is designed to ensure that students receive a broad-based education, by requiring a variety of courses from across the University, as well as courses from the functional areas within the Faculty of Business Administration. Students will be made aware of the economic and environmental context within which modern business operates, as well as learning about administrative principles and practices.

Administration courses include accounting, electronic business, finance, general management, human resource management, law, management information systems, marketing, operations management, organizational behaviour, and quantitative analysis. Lectures, class discussions, laboratory work, essays, and case studies are used depending upon the requirements of the subject.

1. Business Administration and Accounting

Candidates who are considering entering the accounting profession are invited to discuss the matter with members of the Faculty. A student may also write to:
CPA New Brunswick
860 Main St., Suite 602, Moncton N.B., E1C 1G2

2. Business Administration and Law

BBA students who have completed three years of the BBA program may be admitted to the Faculty of Law and may qualify for the BBA degree by successfully completing the first year of the Law program. In order to qualify for the BBA, the students must have credit for all of the REQUIRED courses specified for the BBA degree, with the exception of ADM 3123 . Students must apply to and be accepted by the Faculty of Law.

3. Graduate Study in Business Administration

The Faculty of Business Administration offers an MBA (Master of Business Administration) degree program. Information regarding the program may be obtained from the School of Graduate Studies.

Most universities in Canada and in the United States which offer graduate programs in Business Administration (MBA, MPA, etc.) require applicants to submit the results of the Graduate Management Admission Test. Students who think they might wish to enter a graduate program in Business Administration should arrange to write this test in their senior year. Application forms (which must be sent to Princeton, N.J.) are available from the Faculty and should be mailed at least a month in advance of the test date. Educational Testing Service charges a fee for this test.

An undergraduate degree in business administration is not required for admission into the MBA program.

4. Graduates of a Community College or Equivalent System

Graduates of the New Brunswick Community College in a two year Business Technology program with a 75% average or equivalent standing over the normal two years (or equivalent standing from comparable institutions), will be granted 30 ch toward the BBA degree and will be required to successfully complete at least another 90 ch in order to qualify for the BBA. Students who have partially completed such programs may be granted credits toward the BBA. Entering students will be advised of their status, as provided for in the General Regulations of the University.

5. University Regulations

Any point covered in the following regulations will be governed by the General University Regulations in Section B of this Calendar. Questions concerning the regulations should be directed to the Registrar in writing.

Conditions Regarding Admission to the BBA Program

All admissions are on a competitive basis and are subject to availability of space. Satisfaction of minimum requirements does not guarantee admission.

A student who is not registered in the BBA program may not take more than 24 ch of ADM courses without approval from the Faculty of Business Administration.

Transfer Students

1. A student's scholastic record normally must satisfy the general admission requirements of the Faculty of Business Administration specified in Section B.1.

2. A minimum cumulative GPA of 2.0 normally is required for a student to be considered for transfer into one of the Faculty's programs.

3. A student normally will not be allowed to transfer into the Faculty mid-way through the academic year.

4. Application is by special form available from the Registrar's Office and must be submitted to the Registrars Office by 31 March.

5. Upon admission, transfer students must take ADM 1113 during their first term of studies.

6. BBA for Students with Another Bachelor's Degree

(See also REQUIREMENTS FOR A SECOND UNDERGRADUATE BACHELOR'S DEGREE, Section B of this Calendar.)

Students who obtained a G.P.A. of 3.0 or better in their undergraduate degree program should consider applying for the MBA program (see Section 3).

A. Graduates of UNB and of Other Universities

Graduates of UNB are required to complete successfully a minimum of 30 additional ch and to have credit for all the required courses (or their equivalent) in the BBA program. In addition, students must maintain a session grade point average of at least 2.0 (sees section 8 on Degree Standing on Graduation below).

Graduates of other recognized universities must also have credit for all of the courses specifically required for the BBA but must, in addition, have successfully completed a minimum of 60 ch for the BBA degree or 63 ch for the Honours BBA degree at UNB.
In addition, students must maintain a session grade point average of at least 2.0 (see BBA Regulations 7D, 7E and 8.)

B. Degree Standing on Graduation

Students taking the BBA program as a second degree may graduate with First, Second, or Third Division standing but not with Distinction.

i. Students who have a UNB undergraduate degree and are thus required to take a minimum of 30 additional ch (and to have credit for all the required courses in the BBA program) will have their division standing calculated on the basis of all the courses they take while registered for the BBA degree, plus all of the required courses for the BBA for which they received grades from UNB in their other undergraduate degree at UNB.

ii. Students whose first undergraduate degree is from another university are required to complete at least 60 additional ch and to have credit for all required courses in the BBA program. Their division standing will be calculated on all of the courses they have taken while registered at UNB.

7. BBA Regulations

A student who had been registered in the BBA program and who withdrew while on probation or who was required to withdraw from the program will not be eligible to re-enter the program without the approval of the Faculty of Business Administration.

The regulations in respect to the BBA degree are expressed in terms of letter grades, credit hours and grade point averages. These are referred to below.

A. Letter Grades

A candidate's final standing in a course is indicated by one of the letter grades stated in Section B (Grading System and Classification) of this Calendar. A grade of C or better meets the prerequisite standards for Business Administration courses.

B. Credit Hours

The number of credit hours assigned each course is stated in Section F of this Calendar. Due to differences in the methods used by the various Faculties in the calculation of credit hours, students who elect to register for courses taught outside of the Faculty of Business Administration should note the following:

i. For purposes of the BBA degree, any course taught outside of the Faculty of Business Administration, which has a course number ending in zero and which is taught over the full academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught, up to a maximum of 6.

ii. For purposes of the BBA degree, any course taught outside of the Faculty of Business Administration, which has a course number ending in other than zero and which is offered in one term of the academic year, will receive the number of credit hours normally assigned by the Faculty in which the course is taught up to a maximum of 3.

C. Grade Point Averages

i. The method of calculating grade point averages is explained in Section B (Grading System and Classification) of this Calendar.

ii. Students registered in the BBA program must maintain an assessment grade point average of at least 2.0 throughout the program. (See Section B of this Calendar for further details of G.P.A., standing and promotion requirements).

iii. To earn a degree, a student must have successfully completed at least 120 ch (see Section 10) in approved courses. A grade of at least C must be attained in all the courses specifically required for the degree.

iv. Laboratory courses normally will not be counted in the ch total or in the calculation of the grade point average.

D. Credits Required at UNB

At least 60 ch for the BBA degree must be taken at UNB and must normally include all the required courses in the BBA degree program. (Under extraordinary conditions, a student may be permitted to take some of those courses elsewhere with the prior consent of the Faculty of Business Administration and the Registrar.)

E. Changes in Degree Requirements

Improvements in the BBA program may lead to changes in the requirements for the degree. The University reserves the right to require candidates already enrolled to meet the revised requirements where practicable.

F. Majors and Concentrations

i. A student qualifying for the BBA degree who has met the requirements for a Single or Double Major in the Bachelor of Arts program may apply to the Registrar to have noted on the student's transcript that the Major requirement in the external discipline has been met.

Students are advised that Major programs must be approved by the relevant Department in the Faculty of Arts. Many Business Administration students choose to do a Major in Economics from the Faculty of Arts. The major consists of a minimum of 30 ch in Economics of which 24 must be in advanced courses. Business students should not be because the Economics Department does not offer its own statistics and quantitative methods courses, that ADM 2623 and ADM 2624 are treated as credits for advanced Economics courses. Required courses include ECON 3013, ECON 3023 and ADM 2623.

ii. BBA students may concentrate in a particular area of Business Administration (Accounting,Management, Entrepreneurship, Finance, Human Resource Management, International Business, Logistics, or Marketing) by selecting appropriate optional courses, and meeting additional credit hour
requirements. See Section 11.

iii. Students may select a Joint Honours in Finance and Economics by selecting appropriate optional courses. See Section 12.

iv. Students who elect to seek the Honours BBA degree must complete a major in an area of Business Administration. A Major requires the successful completion of at least 24 ch of advanced level courses designated by the Faculty of Business Administration. See Sections 9, 10, and 12.

8. Degree Standing on Graduation

In order to qualify for a degree, a student in the regular degree program must have successfully completed at least 120 ch of approved course work including a grade of at least C in all the courses required for the BBA degree in accord with Sections 9B and 10. A student must complete at least 126 ch of approved course work including a grade of C in all the courses required for the Honours BBA degree and must meet the conditions specified in Sections 9, 10 and 12.
At graduation all successful candidates for the degree of Bachelor of Business Administration shall be listed in alphabetical order within the appropriate degree category as stated below:

A. Distinction

A student who attains a cumulative grade point average of at least 3.8 over the final 60 ch of course work and no grade less than C over the final 90 ch of course work shall graduate with Distinction.

B. First Division

A student who attains a cumulative grade point average of at least 3.5 over all courses attempted in the program at the University shall graduate in First Division.

C. Second Division

Division A student who attains a cumulative grade point average of at least 2.5 but less than 3.5 over all courses attempted in the program at the University shall graduate in Second Division.

D. Third Division

A student who attains a cumulative grade point average of less than 2.5 over all courses attempted in the program at the University shall graduate in the Third Division.

At graduation all successful candidates for the degree of Honours Bachelor of Business Administration shall be listed in alphabetical order within the appropriate degree category as stated below:

A. First Class Honours A student who attains a cumulative grade point average of at least 3.6 over the courses of a major subject (see Section 12).

B. Honours A student who attains a cumulative grade point average of at least 3.0 over the courses of a major subject (see Section 12).

Averages in an Honours subject are calculated on the basis of the minimum number of credit hours required for the major subject and credit hours successfully completed above this minimum are treated as non-required courses.

9. Business Administration Curriculum

A. General Information

1. *Choice of program:* For Upper level students, two program paths are available: BBA and Honours BBA. Upon the successful completion of 60 ch, students must declare their intent to follow one or the other of these two paths. Their decisions must be made in consultation with the academic advisors of the Faculty of Business Administration. The Honours degree is designed for candidates with a high level of ability who wish to undertake intensive study of an area within business administration. Students who satisfy the requirements for an Honours degree will have that designation included on their final transcript.

2. *Approval of courses*: Students are expected to consult with the academic advisors of the Faculty of Business Administration in the development of their program of study. Students must follow the course sequence outlined in this Calendar and complete prerequisites prior to enrolment in intermediate- or upper-level courses. Approvals for any exceptions to this policy will occur only under extraordinary conditions.

3. The normal course load for all BBA students is 30 ch in each of the first two years of the program. Students who take the BBA degree complete 30 ch in each of the last two years. Students who take the Honours BBA degree must complete a further 6 ch in the last two years.

4. A full-time student is one whose work load consists of a minimum of 12 ch in each term (or 24 ch for two terms in the regular session). Students may enroll for a maximum of 36 ch in any year of the program provided they obtained at last a 2.5 grade point average on at least 30 ch in the immediate preceding year at university. Students who do not obtain at least a 2.5 grade point average on at least 30 ch in the immediate preceding year at university are advised to take no more than 30 ch of course work. Students should take no more than 12 ch per term of course work in a year following placement on academic probation, or upon re-entering university after being required to withdraw. Part-time students are subject to the maximum course loads permitted in Extension, Intersession, or Summer Session.

5. Candidates must obtain a grade of at least C in the courses required for the BBA degree. This includes all required Business Administration courses, all first or second year electives from Groups A, B, and C (see Section 10). As outlined below, students who seek to complete a concentration or Major within Business Administration must also obtain a minimum cumulative GPA on the courses designated for the concentration or major (see Section 11).

6. At least 39 ch of electives must be chosen from courses beyond the introductory level. These normally include courses for which there are prerequisites. Prerequisites include both specific courses and/or specific credit hour specifications.

7. At least 12 of the 39 ch in 9.A.7 must be courses beyond the introductory level from within a single faculty other than the Faculty of Business Administration. Students should select those electives in consultation with the academic advisors of the Faculty Business of Administration. The courses should constitute a logical and coherent set of studies.

8. It is the responsibility of a student to ascertain that elective courses are acceptable for BBA or Honours BBA degree credit. Service courses offered by other faculties are not acceptable for degree credit. In addition, various courses (such as those in statistical methods) duplicate some of the material in required Business Administration courses and will not be accepted for credit. The following courses are not allowed for BBA or Honours BBA credit: CE 3933 , CE 3963 , CE 3973 , CE 5623 , ED 3113 , ENGG 4013 , FE 3233 , FE 3603 , FE 5252 , FOR 3006 , ME 3232 , PSYC 2113 , PSYC 2123 , SOCI 3123 , and the following STAT courses: 2043 , 2253 , 2263 , 2264 , 2283 , 2293 , 2593 .

B. BBA Degree

1. Students taking a BBA must complete at least 120 credit hours (ch) of approved course work and maintain an assessment year grade point average of at least 2.0 in order to qualify for the BBA degree.

2. Not more than 15 ch of electives in a specific area of Business Administration (Accounting, Finance, Marketing, etc.) may be counted for degree credit.

3. Not more than 30 ch of Business Administration electives may be counted for degree credit.

4. Concentrations are offered in Accounting, Entrepreneurship, Finance, Human Resource Management, International Business, Logistics, and Marketing. (See Section 11).

C. Honours Degree

1. Students must apply for Honours after the completion of 60 ch. Students subsequently will be permitted to enter the Honours BBA only under exceptional circumstances. Entrance into the Honours BBA requires that a student shall have demonstrated a high level of ability in first- and second-level courses. The Faculty of Business Administration will normally refuse to admit to Honours students whose cumulative GPA is below 3.0 at the completion of 60 credit hours or whose grades in relevant courses are below B. Students should note that admission is competitive and meeting minimum requirements does not guarantee admission.

2. Students taking the Honours BBA path must complete at least 126 ch of approved course work, including at least 24 ch in courses for a designated major within Business Administration. (See Section 12).

3. Students must maintain an assessment year grade point average of at least 3.0 in order to qualify for the Honours BBA. Students also must achieve a cumulative GPA of 3.0 or above on the courses designated for a major.

4. Honours candidates who are able to fulfill the requirements laid down for a Major, in a discipline outside the Faculty of Business Administration, may, if they choose, register for a supplementary Major. Their transcripts will record that they have fulfilled the requirement for a Major in that subject. Registration for the supplementary Major shall normally be completed no later than the completion of 90 ch.

5. Not more than 36 ch of Business Administration electives may be counted for degree credit.

6. Concentrations. Students completing an Honours BBA may also take a concentration in another area of Business Administration but may need additional Administration electives in order to complete the concentration (See Sections 11 and 12 below.)

10. Curriculum Requirements

Students are responsible for ensuring that they meet all the requirements specified for the degree. These include the minimum credit hour requirements, grades of at least C in the required courses and all first year elective requirements from Groups A. B, and C (see below). A cumulative GPA of 3.0 or above must be achieved on the courses designated for a concentration or a major. Students are advised to consult Section F of this calendar for detailed course descriptions including the number of credit hours assigned to each course.

Students will normally take their courses in the following sequence:

0 - 30 Credit Hours

A. 24 ch of required courses
- · ECON 1013 (first term)
- · ECON 1023 (second term)
- · MATH 1833 (first term; see Note (2) below)
- · MATH 1823 (second term; see Note (2) below)
- · ADM 1113 (first term; see Note (3) below)
- · ADM 1165 (first term)
- · ADM 1213 (second term)
- · ADM 1313 (second term)

6 ch of electives from the Breadth Group (see Note (1) below)

31 - 60 Credit Hours

A. 24 credit hours of required courses
- · ADM 2166 (either term; see Note (3) below)
- · ADM 2223 (either term)
- · ADM 2413 (either term)
- · ADM 2513 (either term)
- · ADM 2623 (first term; see Note (3) below)
- · ADM 2624 (second term; see Note (3) below)
- · ADM 2815 (either term)
- · PHIL 2203 (either term); see Note (3) below)

B. 6 ch of electives from the Breadth Group (see Note (1) below)

61 - 90 Credit Hours (BBA)
61 - 90 Credit Hours (Honours BBA)

A. 9 ch of required courses

- · ADM 3123 (either term)
- · ADM 3573 (either term)
- · ADM 3713 (first term)

B. 3 ch of electives from the Breadth Group (see Note (1) below)

C. 18 ch of electives from Business Administration or other faculties (see 10.A.2 above).

91 - 120 Credit Hours (BBA)

91 - 126 Credit Hours (Honours BBA)

A. 3 ch of required courses

- · ADM 4143 (either term)

B. Candidates for a BBA must take 27 elective credits from Business Administration or from other faculties (see 9.A.7, 9.A.8, 9.B.2, 9.B.3). Students completing an Honours BBA must complete an additional 6 ch of Business Administration electives during their final year of studies (see 9.A.7, 9.A.8, 9.C.2, 9.C.5).

Notes:

1. Breadth Group: Students must take 15 ch of electives from the following list of courses

    1.   6 ch in group "A" of Psychology, Sociology, Anthropology, or Political Science

    2.   3 ch in group "B" of Classics, English. History and Philosophy

    3.   6 ch in group "C" of non-English language courses. Includes Chinese, French, German, Greek, Japanese, Latin, Russian, and Spanish. Normally a student will be expected to complete 6 ch in a single languages. Excludes cultural awareness courses or courses from those departments which are taught in English. Native speakers must choose courses in an alternate language.

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2. Students who plan to do more than the minimum requirements in Mathematics are advised to take MATH 1003 followed by MATH 1013 in their first year. These students should then take MATH 2003 to complete the Mathematics requirements for the BBA. (Note: Students cannot receive credit for both MATH 1833 and MATH 2003.) Students who wish to continue in Mathematics must then take MATH 2013 since it is a prerequisite for other Mathematics courses.

3. Course sequencing: BBA students are required to complete ADM 1113 and ADM 1165 during the first 15 ch. ADM 1213 and ADM 1313 during the first 30ch, and PHIL 2203, ADM 2623, and ADM 2166, must be completed during the first 75 ch.

11. Concentration Courses

Concentration courses are offered in Accounting, Entrepreneurship, Finance, Human Resources Management ,International Business, Logistics, and Marketing. Concentrations are completed by achieving a cumulative GPA of at least 3.0 for 12 ch of approved electives in the area of interest. Approved courses for each subject of concentration are as follows:

Students should note that at least half the credits counted towards a concentration must be from courses taken at the University of New Brunswick. Exceptions may be considered by the Dean of Business Administration.

Accounting

Students must take ADM 3215 , ADM 3216 , ADM 3225 , and at least one additional elective to earn a concentration in Accounting. Available electives in Accounting are: ADM 4215 , ADM 4216 , ADM 4218 , ADM 4245 , ADM 4275 , ECON 3204 , ECON 3205 .

Entrepreneurship

Students must take ADM 4175 , ADM 4435 , and 6 credit hours of electives to earn a concentration in Entrepreneurship. Available electives in Entrepreneurship are: ADM 4115 , ADM 4336 , ADM 4353 , ADM 4995 , TME 3313 .

Finance

Students must take ADM 3415 , 6 ch of approved Finance electives, and 3 ch of either approved Finance or non-Finance electives to receive a concentration. Available electives for the Finance concentration are: ADM 3435 , ADM 3445 , ADM 4437, ADM 4415 , ADM 4416 , ADM 4421 , ADM 4425 , ADM 4426, ADM 4435 , ADM 4445 , ADM 4450 (SIF), ADM4455 , ADM 3628. **Note:**Only one of either ADM 4495 or ADM 4496 will count towards the Finance concentration. A list of permissible non-Finance electives is available from the Faculty of Business Administration.

Human Resources Management

Students must take four HRM electives to receive a concentration. Available electives in HRM are: ADM 3875 , ADM 4815 , ADM 4825 , ADM 4827 , ADM 4828 , ADM 4835 , ADM 4845, ADM 4856, ADM 4857 , ADM 4878 .

International Business

Students must take ADM 3155 and three electives to earn a concentration. Available electives are: ADM 4355 , ADM 4455 , ADM 4856 , ECON 3401 .

Logisitics

Students must take ADM 4615, ADM 4635, ADM 4656, and 3 credit hours of electives to earn a concentration. Available electives are: ADM 3685, ADM 4675, ADM 4677, ADM 4686, and ADM 4634.

Marketing

Students must take ADM 3315 , ADM 3345 , ADM 4325 , and a Marketing elective to receive a concentration. Available electives are: ADM 3316, ADM 4315 , ADM 4316 , ADM 4326 , ADM 4335 , ADM 4336 , ADM 4345, ADM 4346 ADM 4353 , ADM 4355 , ADM 4396 .

12. Major Courses

Honours BBA students must complete a major in a designated subject. A major is completed by achieving a cumulative average GPA of 3.0 for at least 24 ch of approved courses in the area of interest, with a minimum grade of 2.0 for any individual course. Students wishing to undertake a major must consult with advisers in the Faculty of Business Administration and should note that some electives may not be available in a session. Courses entailing internship or independent study require prior approval and are subject to faculty and placement availability.

Students should note that at least half the credits counted towards a BBA Honours program must be from courses taken at the University of New Brunswick. Exceptions may be considered by the Dean of Business Administration.

Approved courses for each major subject are as follows:

Accounting

18 ch comprised of: ADM 3215 , ADM 3216 , ADM 3225 , ADM 4215 , ADM 4216, and ADM 4275 .
At least 3 ch from: : ADM 3415 , ADM 3435 , ADM 3445 , ADM 4218 , ADM 4245, ADM 4295 , ADM 4296 , ADM 4415 , ADM 4416 , ADM 4425 , ADM 4426 , ADM 4445 , ADM 4455 , ADM 4475 , ECON 3204 ,ECON 3205.

Economics

21 ch comprised of: ECON 3013 , ECON 3023 , ECON 3665 , ECON 4013 , and ECON 4023 , ECON 4625 , and ECON 4665 .
An additional 3 ch of other Economics electives beyond the introductory-level.

Finance

6 ch comprised of ADM 3415 and ADM 4445 . 3 ch comprised of ADM 3628 or approved equivalent.
At least 15 ch from the following Groups A and B, with a minimum of 9 ch from Group A.

Group A: ADM 3435 , ADM 4416 , ADM 4421 , ADM 4425 , ADM 4426 , ADM 4455 , ADM 4450 , and ADM 4475 (or MATH 4853).

Group B: ADM 3445 , ADM 3626 , ADM 4218 , ADM 4415, ADM 4435 , ADM 4437 , ADM 4495 , ADM 4496 , ECON 3013 , ECON 3023 , ECON 3401 , ECOND 3205 , ECON 3665 , and MATH 3813 . **Note:** Group B may include another 3 ch advanced-level university course, subject to the prior approval of the Faculty of Business Administration.

Finance and Economics

6 ch comprised of ADM 3415 and ADM 4445
3 ch comprised of ADM 3628 or approved equivalent.
9 ch from: ADM 3435 , ADM 4416 , ADM 4425 , ADM 4426 , ADM 4421 , ADM 4450 , ADM 4455 , and ADM 4475 (or MATH 4853).
18 ch comprised of: ECON 3013 , ECON 3023 , ECON 3665 , ECON 4013, ECON 4023 , and ECON 4625.

Human Resources Management

3 ch comprised of ADM 3875 .
At least 21 ch of additional electives from: ADM 4525 , ADM 4526 , ADM 4815 , ADM 4825 , ADM 4826 , ADM 4827 , ADM 4828, ADM 4835 , ADM 4845 , ADM 4856 , ADM 4857 , ADM 4878 , ADM 4895 , ADM 4896 , ADM 4990 , ECON 3724 .

Marketing

9 ch comprised of: ADM 3315 , ADM 3345 , ADM 4325 .
At least 15 ch. of electives from: ADM 3155 , ADM 3316, ADM 4315 , ADM 4316 , ADM 4317, ADM 4326 , ADM 4335 , ADM 4336 , ADM 4345 , ADM 4346, ADM 4353 , ADM 4355 , ADM 4395 , ADM 4396 , ADM 4615 , ADM 4990 , RSS 4081 , SOCI 3252 , SOCI 3253 .

Certified Management Accounting Stream

ADM 1213, 2223, 1313, 2413, 2513, 2623, 2624, 2815, 3123, 3215, 3216, 3225, 3415, 3628, 3713, 4143, 4215, 4216, 4275, 4455, 4615, ECON 1013, 1023, 3204, 3205. This stream is described for information purposes. Completion of the CMA stream will not be noted on the degree or the transcript.

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13. Co-operative Education Option

The Faculty of Business Administration offers a Co-operative Education (Co-op) program that is available to academically qualified BBA students who have completed one year of study. Co-op is practical education which extends the learning process beyond the classroom into the workplace by alternating academic study terms with paid periods of career related work experience. The Co-op Program in Business Administration consists of eight study terms and three work terms of four months each. This program is normally completed in four calendar years, compared to four academic years for the regular BBA degree. The Co-op Program allows students to complete concentrations or majors per degree requirements (see Sections 9B, 9C, 11, 12), in addition to Co-op. Students normally apply for entry to the Co-op program during their second term of study. Later application and entry into the program may be possible.

a. Admission to the Co-op program is competitive. Students must achieve a GPA of at least 3.0 in the study term preceding their application for employment. Students are advised to contact the Faculty of Business Administration Co-op Coordinator for additional acceptance criteria.

b. Students must register for each work term in order that they be considered full-time students while working.

c. A work term fee will be charged for each 4 month work term registered.

d. A student's progress on work terms will normally be jointly monitored by the employer and through on-site visits by the Co-op Coordinator. As well, the employer will complete an evaluation of the student. The student must discuss these evaluations with the Coordinator upon returning to UNBF from the work term.

e. Students must have a minimum of 3 work terms, alternating with study terms, with satisfactory employer evaluations and work term reports to meet the requirements of the Co-op option. Upon graduation with the BBA degree, Co-op students meeting these requirements will have the designation Co-operative Education following the degree designation on their transcript.

f. Students will normally have at least one study term after their last work term.

g. Each successful work term will be noted on the students transcript

h. Upon successful completion of three work terms, students will be registered in ADM 4195 , Management Internship.

14. Minor in Business

The Minor in Business is designed for students from outside the Faculty of Business Administration interested in a coherent package of Business Administration courses.

The Minor in Business will consist of 24 credit hours of approved Business Administration courses. Students planning to minor in Business will be required to take ADM 1015 and 21 additional credit hours chosen in consultation, and in advance, with the Faculty of Business Administration. At least 12 of the 24 credit hours must be from the 3000 and 4000 level courses. A grade of C or better is required in each course used towards the Minor in Business.

Students should note that at least half the credits counted towards a Minor in Business must be from courses taken at the University of New Brunswick. Exceptions may be considered by the Dean of Business Administration.

15. ROYTEC Options

The UNB Faculty of Business Administration offers a BBA in participation with : the Royal Bank Institute of Business and Technology (ROYTEC) in Trinidad.Further information is available fro the Faculty of Business Administration.

16. Certificate Programs

The Faculty of Business Administration offers degree credit courses leading to Certificates in Business Administration, Public Administration, Applied Human Resources Management, and First Nations Business Administration. Students maytake these programs on a part-time or full-time basis.

These certificate programs are designed to provide individuals, especially working adults, with an opportunity to engage in systematic and coordinated study directed towards an academic goal. Participants enrolled in the certificate programs will have an opportunity to study the basic principles of administration and management; to improve their analytical skills; to increase their awareness of the various factors contributing to effective decision-making; and to understand the basic functions of organizations.

The certificate programs will be of particular interest to those men and women who are engaged in administration or are contemplating a career in administration or management and wish to expand their knowledge in the related subject areas. The courses in the certificate programs are presented at the undergraduate level of study and provide a framework for theoretical analysis of general principles of administration through lectures, discussions and individual study. By combining accumulated work experience and formal class-room learning, participants will be able to relate theory and practice as part of their continuing development.

All courses for the certificates are degree-credit courses. Individuals who successfully complete certificate courses and who are subsequently admitted to a degree program normally will receive credit towards a degree for those courses normally acceptable for credit in the particular degree program. Individuals admitted to a BBA degree program will normally be able to apply all certificate courses completed to their degree program.

GENERAL REGULATIONS

The following regulations apply to the certificate programs in business administration:

1. Certificate in Business Administration Level I
    Certificate in Business Administration Level II
    Certificate in Public Administration Level I
    Certificate in Public Administration Level II
    Certificate in Applied Human Resources Management
    First Nations Business Administration Certificate

2. A maximum of 12 credit hours or the equivalent normally may be transferred from another degree, certificate or similar program taken elsewhere.

3. Each student seek admission to a certificate program must receive the prior approval of the Faculty of Business Administration. The certificate programs are not necessarily designed for completion in one year. There may be variations with course offerings and prerequisites.

4. A certificate may be awarded to a student enrolled in a UNB degree program other than the BBA degree. Students who have withdrawn from an undergraduate degree program may apply for the appropriate certificate.

5. To earn a certificate, a student must have successfully completed the number of credit hours in approved courses specified for the certificate, and achieved a cumulative grade point average of at least 2.0.

6. There is no minimum age and there are no specific prerequisites for entrance into a Level I Certificate Program in Business Administration or in Public Administration. Successful completion of a Level I Certificate is the prerequisite for entrance into a Level II Certificate Program. Although there are no specific entrance requirements for this program, students are expected to undertake university-level study and assignments demanded in degree-credit courses. Some courses, such as Finance, Computer Science and Business Statistics, may require knowledge of high school mathematics.

7. The Certificate Program in Applied Human Resources Management requires approval for entrance from the Faculty of Business Administration and applicants must meet specific admission criteria (see below).

8. The normal pre-requisites for ADM 2623 will be waived for candidates in the certificate programs.

Business Administration Certificate Level I

Admission:

This program is open to all interested individuals but admission requires prior approval from the Faculty of Business Administration.

REQUIREMENTS:

A Business Administration Certificate Level I will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 36 credit hours required, and

b. successfully complete (with a C or better):

YEAR 1		
Fall Term		Ch
ADM 1113	Administration	3
ADM 1213	Financial Accounting	3
ADM 1313	Principles of Marketing	3
ADM 2413	Principles of Finance	3
ADM 2513	Organizational Behaviour	3
ADM 2623	Business Statistics	3
PHIL 2203	Ethical Issues in Business	3
ECON 1013	Principles of Microeconomics	3
ECON 1023	Principles of Macroeconomics	3
plus	Six credit hours in total chosen from Anthropology, Political Science, Psychology, or Sociology	6
	Three credit hours of electives from any faculty	3
Total Credit Hours		36

Business Administration Certificate Level II

Admission:

This program s is open to all interested individuals but requires successful completion of the Business Administration Certificate Level I. Approval for admission must also be received from the Faculty of Business Administration.

REQUIREMENTS:

A Business Administration Certificate Level II will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 66 credit hours required, and

b. successfully complete (with a C or better):

YEAR 1		
Fall Term		Ch
ADM 1113	Administration	3
ADM 1213	Financial Accounting	3
ADM 2223	Managerial Accounting	3
ADM 1313	Principles of Marketing	3
ADM 2413	Principles of Finance	3
ADM 2513	Organizational Behaviour	3
ADM 2623	Business Statistics	3
ADM 3123	Business Law I	3
ADM 2815	Human Resources Management	3
PHIL 2203	Ethical Issues in Business	3
ECON 1013	Principles of Microeconomics	3
ECON 1023	Principles of Macroeconomics	3
plus	Six credit hours in the Humanities or Languages	6
	Six credit hours in total chosen from Anthropology, Political Science, Psychology, or Sociology	6
	Eighteen credit hours of electives from any faculty including Business Administration	18
Total Credit Hours		66

Public Administration Certificate Level I

Admission:

This program is open to all interested individuals but admission requires prior approval from the Faculty of Business Administration.

REQUIREMENTS:

A Public Administration Certificate Level I will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 36 credit hours required, and

b. successfully complete (with a C or better):

YEAR 1		
Fall Term		Ch
ADM 1113	Administration	3
ADM 1313	Principles of Marketing	3
ADM 2513	Organizational Behaviour	3
ADM 3123	Business Law I	3
ECON 1013	Principles of Microeconomics	3
ECON 1023	Principles of Macroeconomics	3
POLS 2200	The Canadian Political Experience	6
plus	Six credit hours in total chosen from Anthropology, Political Science, Psychology, or Sociology	6
	Six credit hours of electives from any faculty	6
Total Credit Hours		36

Public Administration Certificate Level II

Admission:

This program s is open to all interested individuals but requires successful completion of the Public Administration Certificate Level I. Approval for admission must also be received from the Faculty of Business Administration.

A Public Administration Certificate Level II will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 66 credit hours required, and

b. successfully complete (with a C or better):

YEAR 1		
Fall Term		Ch
ADM 1113	Administration	3
ADM 1213	Financial Accounting	3
ADM 2223	Managerial Accounting	3
ADM 1313	Principles of Marketing	3
ADM 2513	Organizational Behaviour	3
ADM 2623	Business Statistics	3
ADM 3123	Business Law I	3
PHIL 2203	Ethical Issues in Business	3
POLS 2200	The Canadian Political Experience	6
ECON 1013	Principles of Microeconomics	3
ECON 1023	Principles of Macroeconomics	3
plus	Three credit hours in Business Administration elective	3
	Six credit hours chosen from Economics	6
	Six credit hours chosen from Political Science	6
	Six credit hours chosen from Anthropology, Political Science, or Sociology	6
	Nine credit hours of electives from any Faculty (The courses offered by the Departments of Economics and Political Science are most appropriate to the study of public administration).	9
Total Credit Hours		66

Certificate in Applied Human Resources Management

Admission:

Admission requires prior approval from the Faculty of Business Administration and satisfaction of the following criteria.

1. 30 credit hours completed at a recognized post-secondary institution with a minimum cumulative grade point average of 2.7 Or

2. A minimum of two years relevant work experience, in the human resource field, to be approved on an individual basis by the Dean in consultation with the Human Resources Management faculty.

REQUIREMENTS:

A Certificate in Applied Human Resources Management will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 30 credit hours required, and

b. successfully complete (with a C or better):

		Ch
ADM 1113	Administration	3
ADM 2513	Organizational Behaviour	3
ADM 2815	Human Resources Management	3
ADM 3875	Labour Relations	3
ADM 4815	Training and Development	3
ADM 4825	Compensation Management	3
ADM 4857	Human Resources Selection Systems	3
plus	Nine credit hours of electives from ADM 4526, ADM4826 , ADM 4827,ADM 4828, ADM 4835 , ADM 4845 , ADM 4856 , ADM 4878 , ADM 4895, ECON 3724	9
Total Credit Hours		30

First Nations Business Administration Certificate

This Certificate gives Aboriginal students who are interested in learning about the business world an opportunity to learn about Business Administration, with the further possibility of earning a BBA degree. The program will be of interest to those individuals coming directly out of High School, as well as those who are currently working. Students must satisfy the admission requirements for the Certificate in Business Administration programs. Students not meeting these requirements may be eligible for UNB's Bridging Year Program, run by Micmac-Maliseet Institute in the Faculty of Education. Students successfully completing the First Nations Business Administration Certificate are eligible to continue in the BBA degree program. All courses successfully completed in the Certificate will count toward the BBA degree. For further information on the Bridging Year and the Micmac-Maliseet Institute, see Section D of this Calendar.

Admission:

Admission requires prior approval from the Faculty of Business Administration

REQUIREMENTS:

A First Nations Business Administration Certificate will be awarded to individuals who:

a. achieve a cumulative grade point average of at least 2.0 over the 66 credit hours required, and

b. successfully complete (with a C or better):

YEAR 1		
Fall Term		Ch
ABRG 1411	Introduction to Finite Mathematics	3
ABRG 4664	Aboriginal Entrepreneurship	3
ECON 1013	Principles of Microeconomics	3
ADM 1113	Administration	3
ENGL 1103	Fundamentals of Clear Writing	3
Winter Term		
ABRG 1412	Introduction to Calculus	3
ABRG 3363	Communications: Speaking Practice	3
ADM 1213	Financial Accounting	3
ECON 1023	Principles of Macroeconomics	3
ENGL 1104	Fundamentals of Effective Writing	3
SOCI 1503	Sociological Perspectives	3
YEAR 2		
Fall Term		
ADM 2223	Managerial Accounting	3
ADM 1313	Principles of Marketing	3
ADM 2623	Business Statistics	3
ADM 2815	Human Resources Management	3
PHIL 2203	Ethical Issues in Business	3
Winter Term		
ADM 2413	Principles of Finance	3
ADM 2513	Organizational Behaviour	3
ADM 3123	Business Law I	3
ADM 3713	MIS	3
Plus	6 credit hours in Aboriginal Business or other appropriate courses, selected in consultation with the Faculty of Business Administration	6
Total Credit Hours		66

BACHELOR OF COMPUTER SCIENCE

Faculty of Computer Science

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Mailing Address:	Faculty of Computer Science, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
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Faculty

Dean: Ali Akbar Ghorbani, BSc, MScCS, PhD
Acting Dean: Andrew McAllister, BA, MSc (CS), PhD
Assistant Dean (Teaching and Undergraduate Affairs): Michael Flemming, BSc, MMath, PhD
Assistant Dean (Research and Outreach): Patricia Evans, BscCS, MScCS, PhD
·Aubanel, Eric, BSc (Trent), PhD (Qu.), Assoc Prof - 2002
·Bhavsar, Virendrakumar C., BEng (Poona), MTech, PhD (IIT/B), Prof - 1983
·Bremner, David, BSc (Calg), MSc (S.Fraser), PhD (McG.), Prof (Cross Appt - Mathematics and Statistics) - 1999
·Cook, C. Paul, BSc (UBC), MScCS, PhD (Tor), Asst Prof - 2014
·Cooper, Rodney H., BMath, MMath (Wat), Prof (Cross Appt-Chem)- 1975
·Du, Weichang, BSc (Beijing), MSc, PhD (UVic), Prof – 1991
·Dueck, Gerhard, BSc, MSc, PhD (Manit), Prof - 1999
·Evans, Patricia, BScCS(Alta), MScCS, PhD (UVic), Prof and Assistant Dean (Research, Graduate Studies, Industry Outreach) - 1997
·Fleming, Michael, BSc (Mt.All.), MMath, PhD (Wat.), Prof and Assistant Dean (Teaching and Undergraduate Affairs)- 2003
·Ghorbani, Ali Akbar, BSc (Tehran), MScCS (GWU), PhD (UNB), Prof & Dean - 1999
·Hyslop, William F., BScE, MSc(CS) (UNB), PhD (Tor), Sr.Teaching Assoc - 1991
·Kent, Kenneth, BSc (MUN), MSc, PhD (UVic), Prof – 2002
·MacIsaac, Dawn, BPE (McM.), BEd (Qu.), BEng (McM.), MScE (UNB), PhD (UNB), Assoc Prof (Joint ECE) - 2002
·McAllister, Andrew, BA, MSc(CS)(UNB), PhD (Sask), Prof and Acting Dean (Teaching and Undergraduate Affairs) - 1994
·Pochec, Przemyslaw, BEng (Warsaw), MSc(CS), PhD (UNB), Assoc Prof - 1989
·Song, Wei, BSc (HBU), MSc (BUPT), PhD (Wat), Assoc Prof - 2009
·Stakhanova, Natalia, BS, MS (Moscow), MS, PhD (Iowa St), Research Assoc - 2012, NBIF Chair in Cyber Security, 2014
·Webb, Hazel, BSc, MCS, PhD (UNB), Instructor - 2013
·Webber, Natalie, BCS, MCS (UNB), Sr. Teaching Associate - 2000
·Wightman, Richard, BScF, MScF (UNB), Sr. Teaching Associate - 2000
·Zhang, Huajie, BSc (China), MSc (China), PhD (WOnt), Assoc Prof - 2002

Adjunct Professors

·Boley, Harold, MSc, PhD (Hamburg), Adjunct Prof. - 2002
·Buffett, Scott, BCS, MCS, PhD (UNB), Adjunct Prof - 2005
·Herpers, Rainer, Dipl. Inform. (Aachen), PhD (Kiel), Adjunct Prof - 2008
·Hinkenjann, Andre, Dipl. Inform., PhD (Dortmund), Adjunct Prof - 2010
·Marsh, Stephen, BSc, PhD (Stir), Adjunct Prof - 2003McIver,
·McIver, Jr.,William, BA (Morehouse), MSc (Georgia Tech), PhD (Colorado), ·Adjunct Prof - 2005
·Munro, Ian, BA (UNB), MSc (Br Col), PhD (Tor), Adjunct Prof - 2005
·Pioneer, Paul, Dipl. (Dortmund, MS (Berkeley), PhD (Brandenburg Uni of Tech), Adjunct Prof - 2013
·Rice, Jacqueline, BSc, MSc, PhD (Victoria), Adjunct Prof - 2008
·Spencer, Bruce, BSc (Dal), MMath, PhD (Wat), Adjunct Prof. - 1990
·Yan, Yuhong, BE (Xi'an Jiaotong), MS (Science Academy of China), PhD (Tsinghua), Adjunct Prof - 2004
·Zhuge, Hai, PhD (Zhejiang), Adjunct Prof - 2010

*Adjunct professors are involved in the graduate programs and research of the Faculty and are not usually involved in the undergraduate curriculum.

General Information

The Faculty of Computer Science was established at UNB on May 1, 1990, thereby becoming the first such faculty in Canada. Computer Science at UNB was established as a Department in 1968 and offered only the graduate MCS degree. Subsequently, in 1973, Computer Science became a School, administratively affiliated with the Faculty of Engineering, and offered the undergraduate BCS degree, conferring its first such degree in 1974. The Ph.D. program was approved in 1987,with its first degree awarded in 1990.

The Faculty offers a four-year undergraduate program leading to the degree of Bachelor of Computer Science. Honours and Majors degree programs are also offered. The program of studies is designed to enlarge the student's view of the world as well as to provide the background and qualifications to pursue careers in the field of computing. It is based on a set of core subjects which are intended to develop problem solving ability and provide a basic understanding of concepts fundamental to information processing. Students, through a choice of electives, may deepen their knowledge in computing subjects or develop an understanding in some complementary discipline

The Faculty of Computer Science also offers the following degree programs:

·Bachelor of Information Systems
·Bachelor of Science in Software Engineering (offered jointly with the Faculty of Engineering).

Co-operative Education Program

1. The Faculty operates a full Co-operative Education (Co-op) Program that is available to academically qualified Computer Science students who have completed one year of study. Co-op is "hands-on" education, extending the learning process beyond the classroom into the workplace by alternating academic study terms with paid periods of career related work experience. This allows students to put classroom knowledge to practical and profitable use in the Canadian workplace. At UNB the Co-op Program in Computer Science consists of eight study terms and four to six work terms of four months each. This program is normally completed in five years, compared to the regular four year program, and allows students to obtain a Majors or Honours designation in addition to Co-op. Students normally apply for this program during their second term of study and enter the program at the end of their first year, although later application and entry into the program is possible.

2. Co-op is a designated option within the BCS, BA/BCS, BCS/BSc, BISys, BScSwE, and BCS/BScE (GGE) programs in the Faculty of Computer Science.

3.To be eligible for a co-op work term, students with fewer than 70 credit hours completed must normally have achieved a minimum of a 2.7 GPA in the study term preceding their application for employment. Students with 70 or more credit hours completed must normally have achieved a minimum of a 2.0 cumulative GPA or a minimum of a 2.7 GPA in the study term preceding their application for employment.

4. Students must register for each work term in order that they be considered as full-time students while working.

5.A work term fee will be charged for each 4 month work term registered.

6. The overall assessment of the work period is the responsibility of the Faculty of Computer Science. The work period assessment shall consist of two components: 1) student performance as evaluated by a coordinator, given input from the employer, and 2) a work report graded by a coordinator or a member of faculty.

7. Students must have a minimum of four work terms of four months each, alternating with study terms, with satisfactory employer evaluations and work term reports in order that the Co-op designation appear on their transcripts. Two back-to-back work terms are possible, giving periods of work up to eight months in duration.

8. A co-op student's first work term will normally be 4 months in duration. After the first 4-month work term, the student shall return to UNB to study for at least one term before going out for another work term.

9. A co-op student will normally complete at least one Summer study term during his or her degree program. This Summer study term will normally be completed before the student applies, for his or her third work term (i.e. Normally, no more than two 4-month work terms should be completed before the Summer study term.)

10. Students will normally have at least one study term after their last work term.

11. Each successful work term will be noted on the student's transcript.

12. Upon graduation with the BCS degree, Co-op students will have the designation "Co-operative Education" following the degree designation on their transcript.

13. Students must be registered as full-time students in order to be eligible to apply for Co-op jobs.

Professional Experience Program (PEP)

This program adds flexibility to the work experiences available our students by providing opportunities to work for employers who prefer the PEP model over the Co-op model. Moreover, many transfer students into Computer Science find it easier to fit a PEP with their academic program than a traditional sequence of Co-op work terms.

· **Program Description**

1. The PEP requires an extended period of continuous work experience, the duration of which may be 12 to 16 months.

2. A Co-op coordinator provides the necessary liaison and support activities for students in this program.

3. The overall assessment of the PEP experience is the responsibility of the Faculty of Computer Science. The work period assessment shall consist of two components: 1) student performance as evaluated by a coordinator, given input from the employer, and 2) a work report graded by a coordinator or a member of faculty.

4. While no specific course credit will be assigned to the PEP, a negotiated component of a PEP project may form an integral part of the student's senior project, based on a written proposal, progress reports, and faculty supervision in accordance with standard CS 4983 regulations.

· **Program Registration**

1. The PEP is a designated option within the BCS, BA/BCS, BCS/BSc, BISys, BScSwE, and BCS/BScE (GGE) degree programs in the Faculty of Computer Science.

2. The PEP will be open to all Faculty of Computer Science students with good academic standing, who will have completed between 80 and 120 credit hours at the beginning of the PEP work term, including having completed 50% of the required Computer Science courses, and having completed at most 2 Co-op work terms. To be considered in good academic standing for the purpose of PEP registration, a student must normally have achieved a minimum of a 2.0 cumulative GPA or a minimum of a 2.7 GPA in the study term preceding their application for employment.

3. Students may transfer from CS Co-op to PEP under the restrictions of not having completed more than 2 Co-op work terms. Students who have registered for a PEP normally will not be eligible to enter, or reenter, the CS Co-op program

4. Registration in this option is contingent upon receiving an offer of employment from an approved PEP employer and will depend on the number of PEP positions available. Each student normally will be allowed only one such PEP registration during his/her degree program.

5. Official University registration is required for each student in the PEP. This will enable PEP students to remain on the Registrar's list in good standing during the time encompassed by their off-campus PEP period.

6. Each student in this program will be charged a PEP fee.

7. A suitable notation will be placed on each student's transcript in recognition of this PEP option.

University Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar, and in particular the subsection headed "Grading System and Classification". Any point not covered in the following regulations will be governed by the General University Regulations.

Students applying for a second undergraduate bachelor's degree, transferring from other institutions, or changing degree programs are particularly advised to consult Section B of this Calendar. Questions concerning the application of regulations should be directed to the Registrar in writing.

General Regulations

1. To earn a BCS degree, a student must complete at least 40 courses, as specified

below. Completing these requirements will involve completing at least 132 credit hours worth

of courses.

2. Any course taken to satisfy any of the requirements for a BCS degree must be passed with a minimum grade of C.

3. Developments in the BCS program may lead to changes in the requirements for the degree. The University reserves the right to require candidates already enrolled to meet the revised requirements where practicable.

Curriculum

The basic curriculum for the BCS program and six areas of specialization are given below to assist the student in palnning a program of studies.

Students will typically take 5 or 6 courses per term to complete the program in 8 study terms. Students whose grade point average drops below 2.7(B-) should restrict their course load to 5 courses, or fewer.

Every student must complete at least 12 ch of courses with an extensive English writing component with a minimum grade of "C". These courses are indicated with a W in the Calendar. AESL 1011 and AESL 1012 , will not count for credit towards the BCS degree, nor will they count towards the writing component requirement.

CORE CURRICULUM (Required)
Computer Science Core Requirement

CS 1073	Intro to Computer Programming I (in Java)
CS 1083	Introduction to Computer Programming II (in Java)
INFO 1103	Data and Information Management
CS 1303	Discrete Structures
CS 2043	Software Engineering I
CS 2253	Machine Level Programming
CS 2333	Computability and Formal Languages
CS 2383	Data Structures and Algorithms
CS 3383	Algorithm and Design Analysis
CS 3413	Operating Systems I
CS 3853	Computer Architecture and Organization
CS 3873	Net-centric computing
CS 3997	Professional Practice

Technical Elective Requirement

In addition to the core courses listed above, students are required to select a total of 7 technical elective courses (worth a minimum of 3 ch each) as follows:

- For BCS (non-concurrent degree) students, 7 CS/INFO/SWE courses, at least 3 of which must have an extensive computer programming component (indicated with a [P] in the Calendar)

- For BCS concurrent degree students:

    3 CS/INFO/SWE courses at the 3rd year or above, at least 2 of which must have an extensive computer programming component (indicated with a [P] in the calendar; plus

    4 courses offered by either of the faculties associated with the student's concurrent degree program. Core courses required for the non-BCS degree are eligible to be counted among these 4 courses.

At least 4 of these 7 technical elective courses must be 3rd year or above, and at least 1 of the CS/INFO/SWE technical elective courses must be 4th year or above. Minor: Courses worth 3 credit hours or more will count as two

Mathematics and Statistics Core Requirement

1.	MATH 1003	Intro to Calculus I
2.	MATH 1013	Intro to Calculus II
3.	One of	
	MATH 1503	Introduction to Linear Algebra
	MATH 2213	Linear Algebra I
4.	One of	
	STAT 2593	Probability and Statistics for Engineers
	STAT 3083	Probability and Mathematical Statistics I
5.	One of:	
	CS 3113	Introduction to Numerical Methods
	MATH 2003	Intermediate Mathematics I
	MATH 2531	Multivariable Calculus for Engineers
	MATH 3033	Group Theory
	MATH 3063	Geometry
	MATH 3093	Elementary Number Theory
	MATH 3213	Linear Algebra II
	MATH 3333	Combinational Theory
	MATH 3343	Networks and Graphs
	MATH 3353	Computational Algebra
	MATH 3363	Finite Math
	MATH 3373	Introduction to Game Theory
	MATH 3383	Introduction to Mathematical Logic
	MATH 4063	Advanced Geometry (Exotic Spaces)
	STAT 3093	Probability and Mathematical Statistics II
	STAT 4333	Queuing Theory
	An approved MATH/STAT elective at the 2000 level or above, approved by the Assitant Deant (Undergraduate) in the Faculty of Computer Science	

Breadth Core Requirement

BCS students must complete at least 10 approved courses (minimum of 30 ch) from the Faculties of Arts, Business Administration, Engineering, and Science. MATH, STAT and SWE courses are not eligible for this requirement. Courses from the other faculties, as well as selected ECE courses, may be taken toward this requirement with prior approval from the Assistant Dean (Undergraduate).

At least 2 of these courses (minimum of 6 ch) must be at the 2000 level or above.

Notes:

- Courses worth 6 credit hours or more will count as two courses toward this requirement.

- AESL 2011 and AESL 2012 (or equivalent) count as first-year English.

- See the GENERAL NOTES section below for a list of courses that are not for BCS credit.

Free Electives

In addition to the courses taken to satisfy the core curriculum requirements, BCS students must complete at least 5 approved free electives (minimum of 15 ch). Students can choose combinations of electives to allow them to complete an area of specialization with the BCS degree (see below), to complete a Minor in another area, or simply to acquire more breadth in their studies. Note: Courses worth 6 credit hours or more will count as two courses toward this requirement.

GENERAL NOTES

1. Credit is not given toward the BCS degree for MATH 1823 , MATH 1833 , MATH 2623, MATH 2633, ADM 2623, PHIL 3101 , CHEM 1553 , BIOL 1621 , BIOL 1622.

2. UNIV 0101 (formerly UNIV 1001), AESL 1011 and AESL 1012 will not be counted for credit toward degree programs offered by the Faculty of Computer Science.

3. Credit will not be given for both CS 1303 and MATH 2203 .

4. ECE 2213 and ECE 3221 will not normally be counted for credit toward the BCS degree.

COMMON FIRST YEAR (5 courses each term)

CS 1073	Intro to Computer Programming I (in Java)
MATH 1003	Intro to Calculus I, or MATH 1053 Enriched Intro to Calculus I
MATH 1013	Intro to Calculus II, or MATH 1063 Enriched Intro to Calculus II
CS 1083	Introduction to Computer Programming II (in Java)
CS 1303	Discrete Structures
CS 1203	Overview of Computer Science
INFO 1103	Data and Information Management

Three term courses toward the Breadth Core Requirement, selected from Arts, Business Administration, Engineering, and Science.

First-year students who have a B average at the end of the first term are encouraged to take a 6th course in their second term, usually INFO 1103 .

Honours in Computer Science

The requirements for the Bachelor of Computer Science with Honours are the following:
1. The students BCS Technical Elective Requirement must be satisfied with 7 CS/INFO/SWE courses. At least 5 of these 7 courses must be 3rd year or above, and at least 2 of these 7 courses must be 4th year or above .

2. The student must have a cumulative grade point average of 3.0 or above

3. As one of the two required 4th year Technical Elective courses, the student must complete CS 4997 (Honours Thesis) with a grade of B or better .

Students satisfying the requirements for an Honours degree will receive a "First Class Honours" designation if their CGPA is 3.5 or above, and "Honours" if their CGPA is 3.0 or above and less than 3.5.

Students may elect to combine Honours with one of the Majors mentioned below, but an Honours designation can be obtained without completing one of the areas of specialization.

Areas of Specialization and Electives

To assist students in planning a program of studies, some recommended courses for areas of specialization, and elective groupings, are given at the end of this section. The suggested first year, and to some extent the second, are common to the six recommended areas. First and second year electives should be carefully chosen to include courses which are prerequisites to courses intended to be taken in the third and fourth years. Students are not bound in any way to follow an area of specialization, but each student must have their program approved by the faculty. Students are advised to check carefully on course prerequisites in preparing a program. For strong students, a more formal approach to each area is available in the form of the Honours or Majors designation. The six areas are:

Area One--Hardware Systems
Emphasizes digital systems logic, communications and organization.

Area Two--Software Systems
Emphasizes program design, applications and systems software.

Area Three--Information Systems
Emphasizes the data and information processing area of computer applications including database management systems.

Area Four--Theory and Computation
Emphasizes the theoretical basis for several important areas of computer science development.

Area Five--Multimedia Systems
Emphasizes the technical and creative aspects of multimedia systems development.

Area Six--Geographic Information Systems (GIS)
Emphasizes the application of computers to the storage, retrieval, and processing of geographically referenced information.

REQUIRED COURSES FOR AREAS OF SPECIALIZATION

Hardware Systems
ECE 1813, ECE 2701 , 3 from Group H (with at least 2 of these being CS courses)

Software Systems
4 courses from group F, plus 2 courses from Group F or G. Of these 6 courses, at least 3 must be at the 4000 level.

Information Systems
CS 3503, ADM 1213 , 2 of (INFO 2403 , INFO 3103 , INFO 3303 , or INFO 3403); and 2 courses from Group D.

Theory and Computation
CS 4935 , MATH 3343 , 2 from Group E (1 of which must be CS), 1 from Group A or E.

Multimedia Systems
CS 3025 , CS 3703 , CS 4735 , plus 3 approved courses from the Faculty of Arts. A list of preapproved Arts courses for the Multimedia Systems specialization can be obtained from the Faculty of Computer Science.

Geographic Information Systems
INFO 3303, CS 4735 , GGE 3423, GGE 4423 ; 2 from CS 3025 , INFO 3403, GGE 5413 , GGE 3342, GGE 3353, GGE 4313, GGE 5403, GGE 5322, GGE 5341, GGE 5402, INFO 3103 .

GROUPS:

Group A:	Approved non-core CS/INFO/SWE 3000, 4000, and 5000 level courses, excluding CS 3903 .

Group B:	Approved courses, at the 2000 level and above, taken from PHYS or ECE.
Group C:	Approved courses taken from MATH and STAT 3000 and 4000 level courses.
Group D:	ADM1313 , ADM2223 , ADM2413 , ADM2513 , ADM2624 , ADM2815 , ADM 3123 , ADM 3573.
Group E:	CS 4725 , CS 4905 , CS 4965 , MATH 3363 , MATH 3333 , MATH 3373, STAT 4333 . Other approved Math/CS courses.
Group F:	CS 3043, CS 3503, CS 3613, CS 4015, CS 4405, CS 4905, INFO 3103, SWE 4103, SWE 4203
Group G:	CS 2053, CS 3025, CS 4725, CS 4735, CS 4745, CS 4805.
Group H:	CS 4405, CS 4745, CS 4805, CS 4815, CS 4825, CS 4835, CS 5865, or ECE courses at the 3000 or 4000 level approved by the Assistant Dean (Undergraduate) in the Faculty of Computer Science.

Majors Degrees
Students in Computer Science may elect, to pursue a Majors degree program within one of the areas of specialization. Students who satisfy the requirements for a Major degree will have that designation included on their final transcript.

 Courses used to satisfy core may also be used to satisfy the requirements for a Majors degree, as well as, minors (as long as the home department agrees), certificates and diplomas.

A student may only graduate with one Major within the BCS program. The BCS program does not support double majors, but students in a concurrent program may graduate with a major in the BCS program and one in the other degree program.

Requirements for a Majors Degree:

1. Completion of all courses in an area of specialization.

2. A cumulative grade point average of 2.5 or above

Minor in Computer Science
Students who are not registered in a degree program in the Faculty of Computer Science may complete a Minor in Computer Science by completing 8 approved term courses from CS, INFO, or SWE, including CS 1073 , CS 1083 , CS 1303 (MATH 2203 may be used as an equivalent), CS 2043, CS 2253 , and CS 2383 . Of the remaining two courses, one must be at the second year level or above, with the second of those being at the third year level or above. Courses of 1 or 2 credit hours cannot be counted for credit towards the Minor. CS courses that are designated for non-CS students will not count towards the Minor. A grade of C or better is required in all courses offered for the Minor. Students working towards a Minor in Computer Science must make their intentions known to the Faculty of Computer Science.

Concurrent BA/BCS Degree Program
The Faculty of Computer Science, in cooperation with the Faculty of Arts, offers students the opportunity to obtain both a BCS degree and a BA degree by selecting a well-planned choice of courses. To complete the concurrent degree, students must satisfy both the BA and BCS degree requirements. Completing these requirements will involve completing at least 162 credit hours worth of courses over a five year period. In order to meet the requirements for this program, it is necessary for the student to obtain advice from both faculties. By completing this program, the student will meet the core requirements for the basic BCS degree; selection of a Majors/Honours program in CS or participation in the Co-op program will lengthen the student's program. For specific details on course planning, see the Faculty of Arts sections of the Calendar.

Admission requirements:
Students must satisfy the admission requirements for both the Bachelor of Computer Science and the Bachelor of Arts as given in Section B.

Co

Concurrent BCS/BSc Degree Program

Most scientific careers now require a thorough background in computing. Many careers in the computing field require primary knowledge in a scientific application area. The Faculty of Science and the Faculty of Computer Science offer students a program in which to pursue a science major and a complete computer science education. Students may enroll in a concurrent degree program in which at the end of 5 years of study a student will graduate with both a BSc with a major in Biology, Chemistry, Earth Sciences, Mathematics, or Physics, and a BCS. Selection of a Majors/Honours program in CS or participation in the Co-op program will lengthen the student's program. The program is designed so that if a student decides to opt for BCS alone, the adjustments can be easily made. Students in the concurrent degree program are able to count many of their courses toward the requirements of both degrees so it is important to select courses carefully from the outset, in consultation with an advisor.

Admission Requirements:
Students must satisfy the admission requirements for both the Bachelor of Computer Science and the Bachelor of Science in Engineering (Geodesy & Geomatics) as given in Section B.

Course Selections
Students should consult with their Faculty advisors in both the Faculty of Computer Science and the Department of Geodesy and Geomatics Engineering.

Concurrent BCS/BSc Degree Program
Most scientific careers now require a thorough background in computing. Many careers in the computing field require primary knowledge in a scientific application area. The Faculty of Science and the Faculty of Computer Science offer students a program in which to pursue a science major and a complete computer science education. Students may enroll in a concurrent degree program in which at the end of 5 years of study a student will graduate with both a BSc with a major in Biology, Chemistry, Earth Sciences, Mathematics, or Physics, and a BCS. Selection of a Majors/Honours program in CS or participation in the Co-op program will lengthen the student's program. The program is designed so that if a student decides to opt for BCS alone, the adjustments can be easily made. Students in the concurrent degree program are able to count many of their courses toward the requirements of both degrees so it is important to select courses carefully from the outset, in consultation with an advisor.

Admission requirements:
Students must satisfy the admission requirements for both the Bachelor of Computer Science and the Bachelor of Science as given in Section B.

Course Selections

While the first and second years given below are typical, the third, fourth and fifth year will depend on the CS and Science degree programs chosen (Major, Honours, etc.)

Year 1 CS 1073 , 1083 , two of (INFO 1103, CS 1203, or CS 1303), MATH 1003 , 1013 , (or 1053 , 1063) plus four term lecture courses in first year science, all four of which are accompanied by labs, chosen from Biology, Chemistry, Physics, and Earth Sciences. The particular sciences and labs chosen will depend on the intended Science program. MATH 2203 may be substituted for CS1303. Students planning to major or honour in Mathematics are strongly recommended to choose MATH 2203.

Year 2 One of (INFO 1103, CS 1203, or CS 1303), CS 2043, CS 2253 , MATH 2213 , one of (CS 2333 , INFO 1103, or CS 2383), MATH 2003 , plus 6 term courses in Science (minimum 18 ch) chosen in consultation and with the approval of the advisor in your chosen Science discipline.

Year 3,4,5 These must be arranged in consultation with your CS and Science advisors and will be different for each student.

Certificate in Software Development

General

This certificate program is designed to provide individuals, especially working adults, with an opportunity to acquire the formal background necessary to become effective participants in the Information Technology industry. This program is directed towards people who are not currently enrolled in an undergraduate degree program at UNB. It is expected that applicants will have good command of high school mathematics. If not, they will have to take MATH 0863 (pre-calculus math) before applying to the program. Credits earned in the certificate program may subsequently be recognized for credit in an undergraduate degree program.

The program consists of 6 core courses (listed below) and 4 elective courses chosen from:

- INFO 1103

- CS/INFO/SWE courses at the 2000 level or above that can be taken for credit by Bachelor of Computer Science students

This program is intended as a part-time program. The program can be completed in 16 months with effort. Sample schedules can be found below.

Core Courses	
CS 1073	Introduction to Computer Programming I (in Java)
CS 1083	Introduction to Computer Programming II (in Java)
CS 1303	Discrete Structures I
CS 2043	Software Engineering I
CS 2253	Machine Level Programming
CS 2383	Data Structures and Algorithms
Elective Courses: 4 courses chosen from:	
INFO 1103	Data and Information Management
CS/INFO/SWE courses at the 2000 level or above that can be taken for credit by Bachelor of Computer Science students	

Fastest Possible Completion Schedule (16 months):

Fall:	CS 1073 , CS 1303 .
Winter:	CS 1083 , one elective
Summer:	CS 2253, two electives
Fall:	CS 2043, CS 2383, one elective

Two courses per term (20 months):

Fall:	CS 1073 , CS 1303 .
Winter:	CS 1083 , one elective
Summer:	CS 2253, two electives
Fall:	CS 2043, CS 2383,
Winter:	Two electives

Work-Term Component

An optional four month work term for students in the Undergraduate Certificate in Software Development is available as specified by the following regulations:

1. The work term will be administered by the CS Co-op Program. A work term evaluation and work term report will be part of the experience.

2. Certificate students are eligible for at most one work term, available only between September and April.

3. Certificate students must have achieved a minimum of a 2.7 gpa on all courses taken relevant to the Certificate Program.

4. Students must have completed at least 8 ch in the Certificate Program before being eligible to apply for a work term.

5. Students may not have more than 28 ch completed towards the Certificate Program while on a work term.

6. There will be a work term fee associated with the work term experience. This fee will be the same as the work term fee for a Co-op work term.

Bachelor of Computer Science Entrance Program

Applicants who do not meet the current admission requirements for the BCS program but who offer an admission average of 60% may, at the discretion of the Faculty of Computer Science, be considered for admission to the Bachelor of Computer Science Entrance Program. Admission to the Entrance Program will be granted only to the extent that capacity allows. Students admitted to the Entrance Program will be individually counselled to select a reduced course load consisting of a maximum of 24 credit hours for the first year of study. The first year will normally include a special study skills course (UNIV 1001) and the long (8 month) version of MATH 1003. By the end of first year, Entrance Program students who achieve the following will be permitted to continue in the Bachelor of Computer Science program in their second year:

- A minimum grade of C in at least 20 credit hours worth of courses;

- A minimum grade point average of 2.00; and

- Successful completion of UNIV 1001 for credit.

Entrance Programs students who do not succeed in meeting these requirements will normally not be permitted to continue in any degree program offered by the Faculty of Computer Science.

EDUCATION
Faculty of Education

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Phone:	(506) 453-3508
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Website:	http://www.unbf.ca/education/

FACULTY

Dean: Ann Sherman, B.Sc.Ed, (St.F.X.), Grand Dip Ed, (U of A), M.Ed, (UNB), Ph.D. (Nottingham)

Associate Dean (Undergraduate Studies): Katherine Winslow, BSc (St. F.X.), MS (N. Dakota), PhD (Minn)

· Belczewski, Andrea, B.Sc. (UNB), Ph.D. (Queen's) Senior Teaching Associate, Bridging Year Coordinator - 2002
·Benjamin, Amanda, B.A.(York), M.A. (Concordia), Ph.D. (UNB), Assoc Prof. - 2009
·Blatherwick, Mary, B.A. (Ed), B.F.A. (NSCAD), M.A. (UBC), Ph.D. (Roehampton), Prof. - 2000
·Brien, Ken, BA (U.W.O.), B.Ed. (U.W.O.), M.Ed (U.N.B.), Ed.D. (Alberta), Assoc. Prof- 2005
·Dicks, Joseph B.A. B.Ed. (Nfld), M.Ed., Ph.D. (Ott), Prof. - 1998
·Domene, Jose, B.Sc. (Trent), M.A. (Trinity Western), Ph.D. (UBC), Assoc. Prof. -2009
·Eyre, Linda, Cert. of Ed. (Newcastle), B.A., MAHED (Mt.St.Vin), Ph.D. (UBC), Prof. & Asst. Dean , School of Graduate Studies (Interdisciplinary Studies) - 1992
·Hamm, Lyle, B.A. (Brandon U), B.Ed. (Alberta), M.Ed. (Lethbridge), Ph.D. (Calgary), Asst. Prof. - 2013
·Hirschkorn, Mark, BSc (U. Sask), B.Ed .(Lethbridge), M.Ed., Ph.D. (Alta), Assoc. Prof. - 2008
·Kristmanson. Paula Lee, B.Ed. (UNB), CFSL (Laval), M.Ed., Ph.D. (UNB), Assoc. Prof. - 2007
·Landine, Jeff, B.Ed. (UNB), B.Ed. (STU), M.Ed. (UNB), PhD. (OISE/U of T), Assoc. Prof. - 2010
·Grant McLoughlin, John, B. Math (Wat), M.Sc. Teaching (Tor), PhD (SUNY Buffalo), Prof. (Cross Appt. - Math & Stats)-2002
·Morrison, William, B.Ed., M.Ed., (UNB), PhD. (Alberta), Assoc. Prof. - 2002
·Myers, Sharon, B.Ed., B.A. (UPEI), M.Ed. (Ott), M.Ed., EdD (Harvard), Prof. - 1996
·Peterson, Patricia, B.Ed. (UNB), M.Ed. (U. of N.Tex.), Ph.D. (Boston U), Assoc. Prof. - 2008
·Plaice, Evelyn, B.A. (Oxf.), M.A. (Nfld), Ph.D. (Manc), Assoc. Prof. (Joint Anthropology) - 1999
·Randall, Lynn, B.P.E. (Brock), B.Ed., M.Ed. (UNB), Ph.D. (Ohio State), Assoc. Prof. - 2000
·Rose, Ellen, B.A., B.Ed. (Victoria), M.Ed., Ph.D. (UNB), Assoc. Prof. (Joint Arts) - 2001
· Rose, Sherry, B.Ed., M.Ed., Ph.D. (UNB), Asst. Prof - 2013
·Saul, Roger, B.A. (McGill), B.Ed., M.Ed., Ph.D. (York) - Asst. Prof. - 2014
·Sears, Alan, B.Ed., M.Ed. (UNB), Ph.D. (UBC), Prof. - 1988
·Sherman, Ann, B.Sc.Ed. (St.F.X.), Grand Dip Ed. (U of A), M.Ed. (UNB), Ph.D. (Nottingham) Professor and Dean - 2010
·Sloat, Elizabeth, B.Ed. (UNB), M.Ed., Ph.D. (McG), Prof. - 1999
·Wagner, David, B.R.S. (Mennonite Brethren), B.A. (Winn), B.Ed., M.Ed., Ph.D. (Alta), Prof. and Assoc. Dean (Grad Studies) - 2011
·White, Melissa, BOA (MSVU), M.A., Ph.D. (OISE), Asst. Prof. - 2011
·Whitty, Pam A. M., B.A. (McM), B.Ed., M.Ed. (UNB), EdD (Maine), Prof. – 1991
·Willms, Jon Douglas, B.Eng. (Royal Military College and Kingston), M.A. (UBC), M.Sc., Ph.D. (Stanford), Prof. - 1995
·Winslow, Katherine M., B.Sc. (St. F.X.), M.S. (N. Dakota), Ph.D. (Minn), Assoc. Prof. & Assoc. Dean (Undergraduate Studies) - 1987

Statement of Purpose

The Faculty of Education prepares students to assume leadership roles in education. Graduates are ready to begin a professional career and to broaden and deepen their professional expertise through continuing study. Through a sequence of educational experiences integrating theory and practice, the faculty and its partners in education provide opportunities for the academic and professional development of teachers, guidance personnel, and administrators at all levels in public school systems, community colleges, and other learning environments. Students acquire the knowledge, ethical standards, skills, dispositions, and flexibility needed to address current problems in education both creatively and effectively, and to think critically about professional practice. In all its work, the Faculty seeks to prepare educators who understand the past, delight in the challenges of the present, and look optimistically to the future.

Students have access to centres in the Faculty which provide teaching, research, and educational services to schools and communities. These include centres established for the study of First Nations education, early childhood, mathematics education, second language learning, and social studies education.

Degrees in Education

The BEd degree is awarded upon successful completion of 60 credit hours of study in Education, following another Bachelor's degree. There are three program streams that may be followed:

1. School Years Pattern (information follows)
2. Bachelor of Education for First Nations Students
3. Bachelor of Education in Adult Education

Please Note: In order to qualify for a level 5 New Brunswick teaching license, a minimum combined total of 168 credit hours is required between the two degreesStudents entering the school years pattern will be accepted into one of the following:

Program Option 1: Early Years/Elementary
Program Option 2: Secondary

Students must apply in writing to the Associate Dean for Undergraduate Studies to change programs.

General Information

All students wishing to follow degree credit programs in Education must obtain permission to enrol from the Admissions Office of the University. Students pursuing the School Years Pattern will only be able to commence study in the Faculty in late August. Please refer to Section B of this calendar for more information on Admission requirements.

Those wishing to follow a graduate studies program should write to the Dean of the School of Graduate Studies.

Students who have completed some education course work within their previous Bachelors program, may apply for substitution credit toward the Education program. Courses taken before admission will not necessarily be accepted for degree substitution.

Graduates of the BEd program are pursuing careers in education in many jurisdictions in Canada, the United States, and in other parts of the world. Students who successfully complete the school years requirements, are eligible to apply for a New Brunswick teacher's licence. This licence is recognized by other Canadian Provinces and most US states. Nevertheless, students should ensure that the specific programs they are following will qualify them for teacher certification in the province, state or country where they hope to work.

Note: The Province of New Brunswick Teacher Certification Regulations under the Education Act states that only Canadian citizens or those holding landed immigrant status or a work visa are eligible for teacher certification in the Province of New Brunswick.

PREREQUISITES TO THE PROGRAM

To be admitted to courses in French second language education, students must possess a high level of French competency. Students must provide evidence of this competency through a French oral proficiency certificate with a minimum level of "Advanced" from the New Brunswick Department of Post Secondary Education, Training and Labour.

The New Brunswick Department of Education requires that all BEd students entering schools (for practicum or individual course requirements), must provide evidence of a Police Background Check. Students are responsible, at their own expense, to provide evidence of the Police Background Check to the Faculty of Education upon acceptance into the program.

Elementary Program

Applicant must have completed an undergraduate degree with a minimum cumulative grade point average of 2.7**. Note: Admission to the Bachelor of Education is highly competitive. The minimum cgpa stated may not be sufficient to secure a place.** Students must have completed at least 30 credit hours (10 term courses) in teachable subjects. This must include a minimum of three credit hours of course work from the first category listed below and the remaining 27 credit hours from at least four different categories (including English).

1. English
2. Sciences
3. Humanities
4. Mathematics
5. Languages
6. The Arts
7. Health and Physical Education
8. Social Sciences

Teachable subjects (as defined by the New Brunswick department of Education) are: Biology, Business Administration, Canadian Studies, Chemistry, Classics, Commerce, Computer Science, Drama, Economics, English, Environmental Science, Family Studies, French, Geography, Graphic Arts and Design, Health, History, Home Economics, Information Technology, Languages, Mathematics, Music, Physical Education, Physics, Political Science, Technology Education, Theatre Arts, Visual Arts.

NOTE: Students entering this stream will be placed in an elementary school. Applicants should note that not all teachable subjects fall int o prerequisite categories.

In addition to the above, applicants must complete an application package that includes:
1. Statement of interest in teaching (one page)
2. List of activities relevant to teaching
3. Three references

Secondary Program

Applicant must have completed an undergraduate degree with a minimum cumulative grade point average of 2.7. **Note: Admission to the Bachelor of Education is highly competitive. The minimum cgpa (cumulative grade point average) stated may not be sufficient to secure a place.** Students must have completed at least 30 credit hours (10 term courses) in the first teachable area and 18 credit hours (6 term courses) in the second teachable area or they must have completed at least 24 credit hours (8 term courses) in each of two teachable areas. All applicants must have completed at least one term English course.

Teachable subjects are: Biology, Business Administration, Canadian Studies, Chemistry, Classics, Commerce, Computer Science, Drama, Economics, English, Environmental Science, Family Studies, French, Geography, Graphic Arts and Design, Health, History, Home Economics, Information Technology, Languages, Mathematics, Music, Physical Education, Physics, Political Science, Technology Education, Theatre Arts, Visual Arts.

Note: Students entering this stream will be placed in a secondary school which could either be middle school or high school. We are unable to offer programs in all teachable areas. Applicants should contact the Faculty for advice.

In addition to the above, applicants must complete an application package that includes:

1. Statement of interest in teaching (one page)
2. List of activities relevant to teaching
3. Three references

FACULTY OF EDUCATION ADMISSION ADVANTAGE

A number of students will be guaranteed admission to the Faculty of Education school years program:

1. after secondary school graduation provided they achieve a minimum graduation average of 80% and meet the teachable subject admission requirements for education within their first degree and meet progress criteria.

2. after first year in a program at UNB provided they achieve a cumulative grade point average of 3.3, meet the teachable subject admission requirements for education within their first degree and meet progress criteria.

The Faculty of Education Admission Advantage extends conditional offers of acceptance into the Bachelor of Education program to exceptional high school and first year UNB students. Faculty of Education Admission Advantage students apply to the Bachelor of Education program and to the University of New Brunswick during the final year of secondary school or apply to the Bachelor of Education program during the first year of their UNB program.

Secondary school students should complete these steps:

1. Apply to an undergraduate program at UNB, by the application deadline of March 31st.

2. Indicate interest in the Faculty of Education Admission Advantage by completing the Faculty of Education advance application at the same time.

First year UNB students should complete the Faculty of Education advance application.

The competitive application for the Faculty of Education Admission Advantage requires that the applicant presents all courses necessary for admission to their first program choice (e.g. Bachelor of Arts) with an admission average of 80% if applying out of high school or an assessment grade point average of 3.3 if applying after completing a typical first year of study (30-39 ch).

Progress Criteria

To progress into the Bachelor of Education program, Faculty of Education Admission Advantage students need to:

1. Enroll at the University of New Brunswick for their first degree.
2. Achieve a cumulative grade point average of 3.0 upon completion of that degree (degree must be completed within a five year period). Demonstrate continued involvement in leadership/achievement activities involving working with children, athletics, performing arts, student government, volunteer work, and community services. These activities will be reported annually to the Faculty of Education.
3. Complete final component of Faculty of Education application.

Securing Faculty of Education Admission Advantage status has the following benefits:

1. A place in the Bachelor of Education program, conditional upon meeting progress requirements.

A place in the Faculty of Education will be assured to those students who are awarded a Faculty of Education Admission Advantage, provided they meet the progress criteria listed above upon graduation from their first UNB degree program.

COSTS

In addition to those costs listed in Section C of this Calendar, students are responsible for all travel and accommodation costs related to the required practicum experiences throughout the entire BEd program.

University Regulations

Students are urged to read the General University Regulations, Section B of this Calendar, and in particular the subsection headed *Grading System and Classification.*

Any point not covered in the following regulations will be governed by the General University Regulations.

GENERAL REGULATIONS

Student Standing

Letter grades are assigned in accordance with University regulations.

a. A grade of C shall be the minimum acceptable grade in courses taken to meet requirements for the Bachelor of Education degree.

b. A BEd degree shall be awarded to a student who successfully completes the number of credit hours and approved courses indicated in the program outlined. In addition, students must successfully complete the practicum component required by the degree program.

Credit Hours

The Bachelor of Education degree is a 60 ch program to be completed over three academic terms, fall, winter, and spring/summer. All students must attend on a full time basis. The Faculty of Education will prepare a timetable for each student each term.

Standing and Promotion Requirements

Per University Regulations (see Section B of the Calendar).

Divisions and Distinctions

a. BEd degrees are awarded in divisions as stated in the University Regulations (Section B).

b. A student in the BEd program having a minimum cumulative grade point average of 3.8 in Faculty of Education courses, and no grade below C, and whose practicum is deemed satisfactory for this degree by the Dean of Education after consultation with the faculty members who supervised the student's practicum, shall be awarded the BEd degree with Distinction.

Repeating Courses

Per University Regulations (see Section B of the Calendar).

Field Experiences (Practicum)

The Faculty of Education may only place students in school settings within the New Brunswick public school system in cooperation with the New Brunswick public school system, and with the ongoing permission of a School District or School as appropriate. Such Schools and/or School Districts are not required to accept or maintain intern placements.

a.Practicum placements are evaluated on a pass/fail basis. If an intern is removed from his/her practicum by the Faculty of Education, or a School District and/or a School, or their practicum performance does not meet expectations a grade of NCR will be assigned.

b.In their field experiences students participate in teaching and learning activities in an educational setting approved by the Faculty. **Responsibility for arranging student teaching placements, throughout the province of New Brunswick, rests within the Faculty of Education.** Students must not attempt to arrange their own practicum school placements. The Faculty of Education will attempt to secure one practicum placement for each student.

c.Students are responsible for all travel and living expenses incurred during the practicum.

d.Students who have failed the practicum (that is, received a grade of NCR) are required to wait one academic term before applying to the Faculty of Education for an opportunity to make a further attempt at the practicum. Students, in so applying to the Field Services Committee of the Faculty of Education must establish that the factors causing the failure have changed and that there is reason to presume that a further attempt at the practicum would be successful. The request by a student to make a further attempt at the practicum must be submitted in writing and must satisfy the Dean of Education and the Field Services Committee on both of the above points. In all such cases, there is no obligation on the part of the Faculty of Education, through the Dean of Education and the Field Services Committee, to grant students a chance to make a further attempt at the practicum. In cases where the Dean of Education and the Field Services Committee deny a student a chance to make a further attempt at the practicum, the student will be required to withdraw from the Faculty of Education.

e.Students wishing to be placed in a French Immersion classroom for their practicum must meet the minimum Oral Proficiency requirements of the School District.

f.To teach a school subject in the advanced block of the practicum in middle school or high school a student must have a minimum of 9 credit hours of methods in the subject area.

g.Any appeal with regard to reciept of a grade of NCR on the practicum must follow the University appeal policiies. (See Section B, III, Item L: Review of Grades.)

h.Students who do not complete the practicum for reasons other than receiving a grade of NCR and/or being removed from a practicum by the Faculty of Education or a School District and/or a School in the New Brunswick public school system may be awarded a grade of incomplete for the practicum. In such cases, the Faculty of Education shall work with the student to attempt to arrange a subsequent placement for the student, recognizing always the limitation to practicum placements set out in this regulation.

Residency Requirements

Students in the BEd degree program must normally complete a minimum of 60 ch in Education, including Field Studies, from the University of New Brunswick.

Time Limit

Bachelor of Education: the maximum time permitted between the first registration and the completion of the BEd degree in accordance with the regulations in effect at the time of first registration shall normally be 4 years.

BEd in Adult Education: the maximum time permitted between the first registration and completion of the BEd in Adult Education in accordance with the regulations in effect at the time of the first registration shall normally be 8 consecutive calendar years.

Course Selection

Within the Bachelor of Education program, there are required courses and some elective space. Students should consult with Faculty of Education advisors when choosing electives.

Substitution Credits

Students may obtain substitution credit of up to 12 credit hours toward the BEd for education courses which have been taken at this or another institution, where the grade received is 'C' or higher, and which meet program requirements. In these cases, alternate education courses must be successfully completed to meet program requirements.

Re-registration

Students who have withdrawn from the Program must establish that the factors necessitating withdrawal have changed and that there is reason to assume that a further attempt would be successful. The request for re-registration must be submitted in writing and must satisfy the Dean of Education. In such cases there is no obligation on the part of the Faculty to place the student in a practicum.

The BEd Degree Program

The BEd degree is awarded upon successful completion of 60 credit hours of study in Education following another Bachelor's degree.

Students elect one of two distinct patterns in the BEd program: 1) School Years Education, or 2) Adult Education. The School Years pattern consists of the following:

Note: For details of the Adult Education pattern, see BEd. Adult Education

Core Studies: ED 5001 Teaching and Learning Theories I, ED 5002 Teaching and Learning Theories II, ED 5003 Teaching and Learning Theories III, ED 5070 Cultural Contexts of Education, ED 5035 Inclusionary Practices.

Practicum: ED 5050 The school-based experience component of the BEd. involves one day per week in schools during fall and winter semesters as well as a two-week, three-week and seven-week block practica at points through the fall and winter terms.

Pedagogical Studies: Listed in the Fredericton Courses Section of the Calendar. Courses about the teaching of school subjects, enabling students to specialize in particular subjects if desired; courses about particular learner levels; courses which focus on the integration of subject matter, methodologies , or educational concepts across the curriculum.

PROGRAM PATTERN	CORE STUDIES	EARLY YEARS/ELEMENTARY STREAM	SECONDARY STREAM	OUTCOME
School Years	ED 5001 Teaching and Learning Theories I (3ch) fall term ED 5002 Teaching and Learning Theories II (3 ch) winter term ED 5003 Teaching and Learning Theories III (3 ch) spring/summer ED 5035 Inclusionary Practices (3ch) 2 terms F/W ED 5050 Practicum (12ch) F/W ED 5074 History and Philosophy of Education (3 ch) fall term ED 5077 Legal and Social Contexts of Education (3 ch) winter term ED 5175 Classroom Assessment (3 ch) winter or spring/summer term or ED 4561 Évaluation et apprentissage (3ch) winter or spring summer	ED 5355 Literacy Learning in the Early Years (3ch) (fall term) ED 5424 Teaching Mathematics in the Elementary School (3ch) (fall term) ED 5478 Health and Physical Education in the Elementary School (3ch) ED 5209 Theories and Practices of Visual Arts Education (3ch) ED 5242 Music for Classroom Teacher or ED 5243 Music in the Elementary School (3ch) ED 5505 Teaching Science in the Elementary School (3 ch) plus ED 5621 Introduction to Social Studies in Elementary School (3ch) **OR** ED 4621 Learning to Learn about Teaching in Social Studies and Science (3ch) Electives Students select an additional 9 ch of education courses of their choice or 12 ch of education electives if students take ED 4621. Depending upon course offerings, it may be possible in some instances to complete a third concentration.	Students select two 9ch concentrations based upon program of study in first degree (Phys. Ed. students must successfully complete 12 ch for the first concentration). At least one concentration must be in a teachable subject. ELECTIVES Students select an additional 12 ch (9 ch if first concentration is Health and Phys. Ed.) of education courses of their choice. Depending upon course offerings, it may be possible in some instances to complete a third concentration.	Certification to teach in the public schools

PROGRAM OPTION 1:

The elementary stream is designed for prospective teachers who wish to be knowledgeable in teaching the broad range of subjects reflected in the elementary school curriculum. Students take the following courses in seven (7) subject areas and should consult with Faculty Advisors when a specific course is not listed.

1. Visual Education- ED 5209
2. Literacy ED 5355 or 4569 (fall term)
3. Mathematics Education - 5424 (fall term)
4. Music Education- ED 5242 or ED 5243
5. Health and Physical Education - ED 5478
6. Science –ED 5505
7. Social Studies – ED 5621

With the remaining 9 credit hours, students may **choose electives from the following focus areas.**

Focus Areas for Program Option 1

- Arts Education (Visual Arts/Music/Drama)
- Early Childhood Education
- First Nations Education
- Health and Physical Education
- Literacy/Drama Education
- Mathematics Education
- Music Education
- Second Language Education (ESL)
- Second Language Education (FSL)
- Science Education
- Social Studies Education (including geography)
- Special Education
- Technology Education

PROGRAM OPTION 2:

The secondary stream is designed for prospective teachers who wish to specialize in teaching one or more of the subjects reflected in the middle/secondary school curriculum. Normally, students choose at least 2 concentrations in the areas listed below. Each concentration must consist of 9 ch in the areas chosen (those in the Health and Physical Education concentration must complete 12 ch in that area). The first concentration MUST be in a teachable area.

Concentration Areas for Program Option 2

- Arts Education (Visual Arts/Music/Drama)
- Early Childhood Education
- First Nations Education
- Health and Physical Education
- Literacy/Drama Education
- Mathematics Education
- Music Education
- Second Language Education (ESL)
- Second Language Education (FSL)
- Science Education
- Social Studies Education (including geography)
- Special Education
- Technology Education

Concentration course requirements for Program Option 2

Arts Education:	Visual Education: ED 5209, ED 5154, ED 5213 Music: ED 5243, ED 4242, ED 5241 and ED 5242 (choose 9 ch) Drama: ED 5314; ED 5315.
First Nations Education:	Choose courses in consultation with Mi'kmac-Wolastogey Centre.
Health and Physical Education:	Health Education: ED 3063, ED 4451 Physical Education: ED 5488, ED 5492, and ED 5493. Choose all three Phys. Ed courses and one health education course.
Literacy/Drama Education:	ED 5353, ED 5354, plus one other approved literacy/drama education course.
Mathematics Education:	ED 5422, plus two other mathematics education courses.
Second Lanuage Education (FSL):	ED 3562, ED 4567, ED 4075 or ED 3568, ED 3569, ED 4075. For FSL certificate, consult the Faculty.
Second Language Education (ESL):	ED 3561, ED 4562, ED 4075 for CETSL, certificate, consult the Faculty.
Science Education:	ED 5511, ED 5513, and one other approved science education course.
Social Studies Education:	ED 5620, plus one other approved social studies education course.
Special Education:	3 of ED 4089, ED 5046, ED 5091, ED 5096
Technology: Education:	ED 3943, ED 4973, ED 5977

Pedagogical Studies Courses and Electives

Adult Education	
Note: Additional courses in Adult Education are listed throughout the following areas of study. Students pursuing the School Years pattern may take no more than one adult education course.	
ED 3110	Methods and Strategies in Adult Education: An Introduction
ED 3113	Communication Practices for Adult Education
ED 3115	Methods & Strategies in Adult Education
ED 4110	Methods and Strategies in Adult Education: Theory and Practice
ED 4113	Introduction to Distance Learning in Adult Education
ED 4115	Issues in Adult Literacy
Business/Information Technology	
ED 3862	Information Processing I
ED 4862	Information Processing II
ED 4863	Microcomputers in the Classroom
ED 4864	Software Analysis
Classroom Practices	
ED 4164	Techniques of Teaching
ED 4182	Applied Learning
ED 5053	Middle Level Education
ED 5164	Education with Technology in Adult Education
ED 5272	Changing Teaching Practice
ED 5273	Interdisciplinary Instruction
Critical Studies	
ED 5154	Power of Images
ED 5166	Cultural Studies of Critical Pedagogy
ED 5181	Feminist Theory and Education
ED 5684	The Anthropology of Knowledge

Curriculum Development	
ED 5161	Curriculum Theory

Early Childhood Education	
ED 5032	Inclusion From the Early Years
ED 5062	Cultural Construction of Childhood
ED 5102	Curriculum Evaluation in the Early Years
ED 5105	Connecting Home and Schooled Literacies
ED 5167	Interpreting Play for Curriculum Development
ED 5182	Problem Solving with Young Children
ED 5184	Parental Involvement in Schooling
ED 5362	Symbolic Representation of Childrens Play, Pictures and Print

First Nations Education	
ED 3022	First Nations Identity and Development in Education
ABRG 3688	Contemporary Canadian First Nations Children's Literature
ED 3022	First Nations Epistomology
ED 3043	First Nations Education
ED 4686	Teaching the First Nations Learner
ED 4688	Teaching First Nations Childrens Literature
ED 5162	Integrated Curriculum for the First Nations Learner
ED 5683	First Nations Education Seminar
ED 5684	The Anthropology of Knowledge
ED 5685	Teaching First Nations Language

Health Education	
ED 3063	Health Promotion in Schools
ED 4451	Health Education
ED 4791	Nutrition Concepts
ED 5451	Special Topics in Health Education

Inclusive Education	
ED 4089	Gifted Education: Introduction
ED 5046	Educating At-Risk Students
ED 5071	Education in International Contexts
ED 5078	Communication Disorders in the Classroom
ED 5091	Learning Disabilities: Introduction
ED 5096	Behavioural/Emotional Disorders: Introduction

Independent Studies	
ED 4191,5191	Independent Studies
ED 5013 , 5033 , 5043	Special Topics in Education

Literacy Education	
ED 3362	Access to Literacy
ED 4569	Enseignement des arts langagiers en français langue seconde à lélémentaire
ED 5105	Connecting Home and Schooled Literacies
ED 5313	Cultural Studies through Theatre
ED 5314	Drama Across the Curriculum
ED 5315	Dramatization of Literature
ED 5352	Teaching Writing
ED 5353	Teaching Secondary English I
ED 5354	Teaching Secondary English II
ED 5361	Challenging the Authority of Texts
ED 5362	Symbolic Representation in Children's Play, Pictures and Print
ED 5357	Poetry K-12
ED 5355	Literacy Learning in Early Years
ED 5356	Literacy Learning in Middle Years
ED 5358	Critical/Cultural Literacy
ED 5359	Cultivating Proficient Readers
ED 5684	The Anthropology of Literacy and Learning

Mathematics Education	
ED 3415	Developing Numeracy
ED 3416	Developing Geometrical Concepts

ED 5422	Teching High School Mathematics
ED 5423	Teaching Middle School Mathematics
ED 5424	Teaching Mathematics in the Elementary School
ED 5427	Trends in Mathematics Education
ED 5428	Mathematics Across the Curriculum
ED 5429	The Role of Language in the Teaching of Mathematics

Measurements and Evaluations	
ED 5171	Assessing Adult Learning
ED 5173	Educational Statistics
ED 5174	Introduction to Standardized Measurement and Evaluation
ED 5175	Classroom Assessment

Multimedia Studies	
ED 5698	Multimedia Studies in Education
ED 5699	Cultural Studies Through Multimedia

Music Education	
ED 5242	Music for Classroom Teacher
ED 5423	Music in Elementary School
ED 5242	Special Topics in Music Education
FNAT 2113	Introduction to Music

Physical Education	
ED 5478	Movement Education for the Elementary Teacher
ED 5492	Health and Physical Education in the Elementary School
ED 5488	Introuction to the Teaching of Secondary Physical Education
ED 5493	Teaching of Games for the Secondary Physical Education Teacher
ED 4494	Teaching Methods in Secondary Physical Education
ED 5494	Teaching Physical Education

School Counselling	
ED 5065	Personal Growth and Helping
ED 5141	Orientation to Counselling
ED 5142	Career Guidance
ED 5143	Group Theory and Skills

Science Education	
ED 3512	The Nature (s) of Science: Implacations for Teaching Science
ED 3513	Science Education Policy and Practice
ED 5505	Teaching Science in the Elementary School
ED 5511	Introduction to Science Education
ED 5515	Science Education and the Learner
ED 5513	Advanced Studies in Science Education I
ED 5512, ED 5514	Special Topics in Science Education I,II
ED 5521	Seience Education and Seminar Project

Second Language Education	
Note: All courses listed in this section with French titles/descriptions are offered in French. Students may be required to take a language proficiency test before permission is granted to enrol.	
ED 3561	Introduction to Second Language Education
ED 3562	Français langue seconde I - Secondaire
ED 4075	Reflection on Second Language Theory and Practice
ED 4561	Evaluation de la competence langagiere en francais
ED 4562	Advanced Studies in ESL Education
ED 4567	Français langue seconde II - Secondaire
ED 4568	Français langue seconde I Élémentaire
ED 4569	Français langue seconde II Élémentaire
ED 5566	Field Experience in TESL

Social Studies Education	
ED 3621	Introduction to the Social Studies
ED 3641	Geography in Education

ED 4621	Learning to Learn about teaching in Social Studies and Science
ED 4643	Geography of Canada
ED 5620	Introduction to Teaching Social Studies
ED 5621	Introduction to Social Studies in Elementary Education
ED 5622	Global Education
ED 5623	Teaching Canadian Studies
ED 5624	Exploring and Teaching about Worldviews
Technology Education	
ED 3943	Introduction to Technology
ED 4975	Technology Laboratory Organization and Management
ED 5975	Presentation Strategies in Technology Education
ED 5976	Instructional Technology Across the Curriculum
ED 5977	Program Development in Technology Education
ED 4973,5973	Special Topics in Technology Education
Visual Education	
ED 5154	Power of Images
ED 5209	Theories and Practices of Visual Arts Education
ED 5211	Integrated Learning Through Art
ED 5212	Curriculum Development in Art Education
ED 5213	Issues in Art Education

BEd for First Nations Students

The Mikmaq-Wolastogey Centre(see Section D) has administered the BEd for First Nations Students at UNB since 1977. Students enroll in the BEd following completion of another Bachelors degree.

For full details, including program content and admission requirements and procedures, consult the Mikmaq-Wolastogey Centre at UNB.

BEd in Adult Education (4-Year)

The BEd in Adult Education consists of a minimum of 120 ch of accumulated study. This program is open to individuals who qualify as mature students. The Program consists of three major elements, with credits normally assigned as follows:

Arts/Science Courses	30ch	
Education Courses:	48ch	Core Studies (9 or 12 ch) Field Studies (3 or 6 or 9 ch), Approved Courses (remaining ch)
Occupational/ Technical/ Academic Specialization Courses	42ch	Approved electives or credit for prior experience

At least half of the credits for the BEd degree must be UNB credits. Of the 120 ch required for the four year BEd in Adult Education a maximum of 42 ch is allowed for prior learning

BEd in Adult Education

The Adult Education pattern in the BEd degree is a 60 ch program that focuses on all aspects of teaching adult learners. In consultation with the Faculty of Education advisors, students choose appropriate courses according to the following requirements.

Core Studies	ED 3024 , ED 3110 or ED 3115 + ED 4042	Additional approved Adult Education options may be taken from human development and learning; exceptional learners, history, philosophy, and practice; social, cultural, and political contexts.
Field Studies	ED 3015 (3 ch) or ED 5010 (6 ch)	Approved practicum, Seminars, and independent study; site of practicum to be negotiated

Curriculum Studies	Remaining ch	Approved courses about the development and delivery of Adult Education programs in institutions of learning, workplaces and society; about adult learning and development; about the nature, scope, and field of Adult Education. Up to six (6) credit hours for prior learning may be granted in consultation with Faculty of Education advisors and in accordance with PLA regulations.
Outcome		Preparation for teaching adult learners in co-ordinating, developing, or managing programs of adult learning.

Core and Curriculum Studies

Inclusive Education		
Adult Education	ED 4032	Adult Learners with Exceptionalities
Field Studies		
Adult Education	ED 3015	Practicum in Adult Education
	ED 5010	Advanced Practicum in Adult Education
	ED 5011	Preparing for Prior Learning Assessment
History, Philosophy and Practice		
Adult Education:	ED 3011	Professional Ethics for Practitioners of Adult Education
	ED 4042	Introduction to Adult Education
Human Development and Learning		
Adult Education:	ED 3024	Understanding the Adult Learner
	ED 4102	Transition to Adulthood
	ED 5022	Transformative Learning
Independent Studies		
	ED 4191 , 5191	Independent Studies
	ED 5156	Special Topics in Education
Social, Cultural and Political Contexts of Education		
Adult Education:	ED 3114	Introduction to Workplace Learning
	ED 4012	Diversity and Inclusion in Adult Learning
	ED 4045	Issues in Training and Development
	ED 4061	Advising and Mentoring Adult Learners
	ED 5156	Trends and Issues in Training and Development
	ED 5157	Adult Education and Community Delveopment

Certificates and Diplomas

Bridging Year Program

The Faculty of Education offers a Bridging Year Program for First Nations students who are preparing for admission to a UNB degree program. Applications for the program are welcome from:

1. High School Graduates
2. Students with Grade 11 who have been out of school for at least 3 years.
3. Mature students as defined in the UNB Undergraduate Calendar.

Admissions are competitive. Satisfaction of the minimum criteria will not guarantee acceptance. The deadline for applications is March 31. Late applications can be considered only if spaces remain unfilled.

In their Bridging Year students register for four courses each term, at least one of which must be a university credit course (See Bridging Year courses in Section H of the Calendar). Course schedules are individually planned in consultation with the Faculty in which a student wishes to enroll the following year.

The maximum time permitted between the first registration and the completion of the Bridging Year in accordance with the regulations in effect at the time of first registration shall be two consecutive academic terms. Students who complete the Bridging Year with a minimum of 24 ch or the equivalent of 8 term courses and with a grade of CR in all BY courses and a GPA of 2.0 or higher in other courses will be guaranteed admission to the degree program for which the Bridging Year was designed. Students who do not succeed in meeting these requirements will not be permitted to continue in the Bridging Year program and will not be transferred to a degree program.

Certificate in Adult Education

The Faculty of Education offers degree credit courses leading to a Certificate in Adult Education. The certificate program is open to individuals who have met normal admission requirements for the BEd. The certificate requires a total of 36 ch. Consult the UNB Certificate Program Coordinator for a listing of appropriate courses.

Certificate in Teaching French as a Second Language (CTFSL)

Description

This certificate is designed to provide participants with the knowledge and skills necessary to become effective teachers of French as a Second Language (FSL). The CTFSL requires successful completion of:

1. ED 3562 , ED 4567 , ED 4075 (secondary stream) OR ED 4568 , ED 4569 , ED 4075 (elementary stream)
2. A practicum in an FSL context (at least 50%)
3. The New Brunswick Oral Proficiency Interview(Minimum of Advanced Plus for French immersion, and Advanced for all other FSL teaching contexts).

Eligibility

In order to be eligible to enrol in the CTFSL, candidates must be currently enrolled in a B.E.d program and be completing a conctration in FSL.

Certificate in Teaching English as a Second Language

Program Description

This Certificate Program is designed to provide participants with knowledge and skills necessary to become effective teachers of English as a second language (ESL). The CTESL requires successful completion of:

1. Three compulsory courses:

· ED 3561 - Introduction to Second Language Education
· ED 4075 - Bilingualism and Education
· ED 4562 - Advanced Studies in ESL Education

2. One approved course in the area of language education, cultural studies or literacy, and

3. Practicum in TESL (ED 5566 or equivalent)

Eligibility

In order to be eligible to enroll in the CTESL, candidates must either have completed an undergraduate degree or be currently enrolled in a BEd program.

Candidates whose first language is not English must also demonstrate a high level of English language proficiency as evidenced by:

1. A score of 600 or better on the TOEFL
2. And a score of 55 or better on the TSE (Test of Spoken English)
3. And a score of 5.5 or better on the TWE (Test of Written English)

Equivalent tests may be considered.

Practicum

Students pursuing the CTESL must successfully complete ED 5566 - Field Experience in TESL. This is a 3 credit hour practicum that involves approved short-term experience working in an ESL setting. Students enrolled in a BEd program may request that ED 5566 be waived if they have had equivalent practical experience in ESL education during their regular BEd teaching practicum. Recognition for any such equivalent experience must be approved in advance.

Note: Students wishing to obtain both the certificate in French Immersion Teaching and the Certificate in Teaching English as a second language must take 12 ch of different courses. In other words, the same courses may not be applied to both certificates.

The Faculty of Education places students in school settings at the discretion of the public school system. Although the Faculty cannot guarantee a placement in that system, it will makes its best effort to find an initial placement for any student eligible for the practicum (subject to approval by the University).

Diploma in Advanced Undergraduate Study (DAUS)

The DAUS is a 36 credit hour program designed for students with a

degree in Education who wish to gain additional teaching qualifications. Students may choose a general pattern (Professional Growth) or a specific area of specialization from the following:

1. Professional Growth

2.Early Childhood
3. Elementary Education
4. School Counselling and Special Education
5. Literacy Education
6. French Immersion Education
7. French Second Language Education
8. Mathematics Education
9. Science Education
10. Social Studies Education

Consult the Faculty for course requirements.

Regulations for DAUS Not Covered by General University Regulations

1. *Admission*
Students who hold a BEd degree or the equivalent (e.g.certified teachers with a BA or BT) are eligible for admission to the DAUS.

2. *Student Standing*

a. A grade of D shall meet the prerequisite requirements for DAUS course unless otherwise stated in the calendar.

b. In course offerings of other Faculties/Departments, students must meet the prerequisite requirements of that Faculty/ Department.

c. A grade of C shall be the minimum acceptable grade in courses for the DAUS.

d. No course can be credited without prior approval of a faculty advisor.

3. *Residency Requirements*
Students must normally complete a minimum of 24 credit hours of work for the DAUS on campus as full or part-time students.

4. *Transfer Credits*
Students may not transfer more than 12 credit hours of work from another university for credit toward the DAUS. No surplus credits from the BEd other than extra courses taken in the final year may be transferred in for credit. No courses taken prior to enrolment in the BEd may be transferred in for credit. When applying for the DAUS, students may transfer only 12 ch taken prior to admission to the program.

5. *Time Limit*
In accordance with the regulations in effect at the time of registration, the maximum time permitted between the first registration and completion of the DAUS will be six years.

BACHELOR OF GEOMATICS

The Department of Geodesy and Geomatics Engineering, in the Faculty of Engineering, offers a non-engineering baccalaureate degree, Bachelor of Geomatics.

NOTE: For Department information, see the Bachelor of Science in Engineering (Geomatics Engineering) program section.

Even though admission to the Geomatics degree may be granted after completion of the appropriate secondary school courses, it is preferred that applicants have successfully completed a programme of geomatics engineering technology (GET) or its equivalent. Usually at least two years in duration, the GET should have included or have been supplemented with courses in calculus, computer science, and probability and statistics at a level equivalent to first year university. Some advanced credit for those academic efforts, or for academic efforts at any other form of post-secondary education, may then be given.

The recommended first year calculus courses for students who have obtained a passing score on the Department of Mathematics and Statistics placement test (offered during the orientation session at the beginning of the fall term) are MATH 1003 and MATH 1013. Students with insufficient scores may be required to take remedial mathematics courses which may prolong their studies at UNB because of prerequisite sequencing.

The Bachelor of Geomatics cannot be done after having completed the Bachelor of Science in Engineering in Geomatics Engineering.

Curriculum

With a minimum of 120 credit hours (ch) in the Geomatics program, students are required to complete:

a. a core of mathematics, computer science, general science, and geomatics subjects; and
b. a minimum of 11 ch of approved technical electives, with at least 6 ch of GGE 5000 level courses.

Credit hours for courses are listed in the course descriptions portion of the calendar.

A minimum grade of C is required for all courses to be used as credit toward the degree.

Students who have previous post-secondary educational efforts are advised to write to the Chair of the Department for information on credits that may be awarded.

Students who wish to academically prepare to become professional land surveyors, but not professional engineers, should follow the Cadastral Surveying Option (See note below).
The program has been designed to be completed in 6 terms, with reasonable course loads. Students may proceed at a slower rate but all requirements must be completed within 8 consecutive years. Detailed program information is available from the Department.

Courses

Descriptions of courses offered by the various Departments are given in the "Fredericton Courses" Section of this Calendar.

CORE COURSES [all required]:	
CE 3963	Engineering Economy
CS 1003	Programming and Problems Solving for Engineers
ECON 1073	Economics for Engineers
ENGG 4013	Law and Ethics for Engineers
GGE 1001	Introduction to Geodesy & Geomatics
GGE 2012	Advanced Surveying
GGE 2013	Advanced Surveying Practicum
GGE 3423	Introduction to Geographic Information Systems
GGE 2501	Land Administration I
GGE 3022	Survey Design and Analysis
GGE 3023	Surveying Design Practicum
GGE 3042	Introduction to Global Navigation and Satellite Systems
GGE 3111	Introduction to Adjustment Calculus
GGE 3122	Advanced Adjustment Calculus
GGE 3202	Geodesy I
GGE 3342	Remote Sensing
GGE 3353	Ocean Mapping
GGE 3423	Introduction to Geographic Information Systems
GGE 4022	Precision Surveying
GGE 4211	Geodesy II
GGE 4313	Airborne Mapping Systems
GGE 4423	Advanced Geographic Information Systems
GGE 4512	Land Administration II
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
STAT 2593	Probability and Statistics for Engineers
TME 3313	Managing Engineering & Information Technology Projects
TECHNICAL ELECTIVES [at least 6 ch required]:	
GGE 5011	Oceanography, Tides and Water Levels
GGE 5012	Marine Geology and Geophysics
GGE 5041	Engineering Surveying
GGE 5042	Kinematic Positioning
GGE 5061	Mining Surveying
GGE 5093	Industrial Metrology
GGE 5131	Special Studies in Adjustments
GGE 5222	Gravity Field in Geomatics
GGE 5242	Global Navigation Satellite Systems for Geodesy
GGE 5322	Digital Image Processing
GGE 5341	Advanced Technologies in Remote Sensing
GGE 5402	Geographic Databases
GGE 5403	Geospatial Web
GGE 5405	Introduction to Big Data & Data Science
GGE 5415	Real-Time Mobility Data Analytics
GGE 5521	Survey Law
GGE 5532	Land Economy & Administration
GGE 5813	Urban Planning for Geomatics
GGE 5833	Land Use Planning for Geomatics
GGE 5842	Site Planning for Geomatics
GGE 5701	Special Studies in Geomatics I
GGE 5702	Special Studies in Geomatics II
GGE 5703	Special Studies in Geomatics III
Other technical electives may be done, with prior Departmental approval	

Cadastral Surveying Option within Geomatics

Students who complete the Bachelor of Geomatics at UNB with the four specified technical electives, CE 5313 or GGE 5813, CE 5342 or GGE 5842, GGE 5521 and GGE 5532, or two specified technical electives (GGE 5521 and GGE 5833) will have the following notation placed on their transcripts: "COMPLETED CADASTRAL SURVEYING OPTION". This option has been accredited by the Canadian Board of Examines for Professional Surveyors.

ENVIRONMENTAL STUDIES PROGRAMS

General Information

Environmental Studies interdisciplinary programs provide an academic framework for understanding the growing body of literature and scholarship on environmental problems. Students will learn about major environmental problems facing contemporary society, and acquire the interdisciplinary tools required to analyze, critique, and solve them. Both theoretical and applied approaches will be emphasized to varying degrees within the curriculum.

Eligibility

Environmental studies courses are open to any student in any faculty as electives contributing towards a Minor or a Secondary Major. There is no official admission to the Environmental Studies Minor or Secondary Major programs. Students may take the required credit hours at any time throughout their program, and will indicate their desire to be considered for either the Minor or Secondary Major when applying to graduate. It is advised that students contact the coordinator of the Environmental Studies program early on in their studies to ensure they will have all necessary credits. With the permission of the Coordinator of Environmental Studies, students may count the following for credit in the Minor and Secondary Major programs: (i) UNB course credits not on the list of Environmental Studies elective courses (provided below), but approved by the relevant Faculty at UNB and deemed relevant by the coordinator of the Environmental Studies program; and (ii) course credits from other universities which have been approved by the relevant Faculty at UNB and deemed relevant by the coordinator of the Environmental Studies program.

Note: Any course required by a student's primary major (as a core course) cannot be used as an Environmental Studies course elective. However, students can count approved elective courses towards one or more minors.Students should also be aware that some courses listed above have prerequisites.

Programs of Study

Environmental Studies Minor:

The Environmental Studies Minor consists of 24ch of core and elective courses, selected in consultation with the Coordinator of Environmental Studies. Students are required to take:

1. 6ch of core Environmental Studies (ENVS) courses.

2. 18ch of course work chosen from a list of approved elective courses (provided below). One elective course must be taken under each of three discipline headings specified in the list of elective courses.
   3. Additional courses may be approved for electives by the Coordinator of Environmental Studies.

Environmental Studies Secondary Major:

The Environmental Studies Secondary Major consists of 30ch of core and elective courses, selected in consultation with the Coordinator of Environmental Studies. Students are required to complete:

1. 6ch of core Environmental Studies (ENVS) courses.

2. 24 ch of course work chosen from a list of approved elective courses (provided below). A minimum of 18ch shall be upper level courses (i.e 3000 level courses courses and above), and at least one course from each of the three discipline headings specified in the list of elective courses must be taken. A grade of C or better in each course is required for credit in the Environmental Studies Secondary Major program.

Courses

Core Courses:		
ENVS 2003	Introduction to Environmental Studies	(3ch)
ENVS 4001	Environmental Impact Assessment and Management	(3ch)
Elective Courses:		
Science Group		
BIOL 2003	Ecology	
BIOL 3459	Economic Botany	
BIOL 4233	Conservation Biology	
BIOL 4352	Climate Change and Environmental Response	

BIOL 4773	Aquatic Ecology
BIOL 4863	Environmental Biology
ENR 2112	Environmental Physiology
ENR 3111	Estuary an Ocean Ecosystems
ENR 3532	Ecohydrology
ENR 4111	Fisheries and Aquatic Science Techniques
FOR 3445	Forest Ecology: Populations and Communities
FOR 3456 or FOR 4576	Forest Watershed and Forest Fire Management
FOR 4425	Conservation Genetics
FOR 4576	Forest Hydrology and Aquatic Habitats
ESCI 2602	Principles of Geochemistry
ESCI 3442	Environmental Geology
ESCI 3631	Geochemistry of Natural Waters
PHYS 2803	Physics and Society
PHYS 2902	Environmental Physics
Applied Science Group	
BIOL 4191	Wildlife Management
CE 3403	Introduction to Environmental Engineering
CE 3713	Hydraulics and Hydrology
CE 5153	Environmental Geotechnics
CE 5402	Environmental Planning for Capital Works
CE 5421	Water Quality Treatment
CHE 5313	Energy and the Environment
CHE 5314	Chemical Process Industries
CHE 5413	Air Pollution Control
ENR 2114	Water Sustainability, Practice and Technology
ENR 3201	Urban Water Resource Management
ENR 3112	Water Resources Management
ENVS 2023	Climate Change
FOR 2006	Management of Natural Systems
FOR 4545	Biodiversity and Ecosystem Management
FOR 4625	Integrated Management of Insects an Fungi
FOR 4656	Wildlife: Scale and Forest Landscapes
GE 5153	Waste Geotechnics
ESCI 4452	Environmental Impact Assessment
Social Sciences and Humanities Group	
ANTH 2114	Human Systems of Exchange: Nature and Culture
ANTH 4114	Culture and Environment
ECON 3755	Environmental Economics
ENR 2004	Social and Cultural Systems
ENVS 4002	Stakeholder Approaches to Environmental Problem Solving
FOR 2933	Bioethics in Forestry
FOR 5983	International Forestry Studies
GGE 5543	Marine Policy, Law, and Administration
HIST 3925	Technology and Society *
HIST 5342	Environmental History of North America
HIST 5345	Natural Resources, Industrialization, and the Environment in Atlantic Canada
PHIL 2206	Environmental Ethics
PHIL 3221-29	Selected Topics in Ethical Theory
POLS 1603	Politics of Globalization
SOCI 2534	Technology and Social Change*
SOCI 3553	Sociology and the Environment

Credit granted for only one of: SOCI 2534, HIST 2925, POLS 3453.

BACHELOR OF INFORMATION SYSTEMS

Faculty of Computer Science

Contact:	Faculty of Computer Science Computer Science Information Technology Centre, Room ITC314
Phone:	Faculty of Computer Science, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Fax:	(506) 453-4566
Email:	(506) 453-3566
Website:	http://www.cs.unb.ca/html/bisys.html

GENERAL INFORMATION

Information systems was established at UNB as a separate program in 2007. The BISys program is administered by the Faculty of Computer Science. The program educates professionals who apply information technology to solve problems with the business domain.

The BISys program is designed as a four-year program or five years of undertaken in conjunction with the Cooperative Education Program (Co-op) or professional Experience Program (PEP). Students entering the program are strongly encouraged to participate in either Co-op or PEP, as it is widely recognized that the experience gained is a valuable component of an Information Systems background. A description of the Co-op and PEP programs are found in Section G Undergraduate Degrees in the Computer Science section.

The Faculty of Computer Science also offers the following degree programs:

- Bachelor of Computer Science
- Bachelor of Science in Software Engineering (offered jointly with the Faculty of Engineering)

CURRICULUM

The program consists of 40 courses. The program consists of: required "core" courses from information systems, computer science, business administration, and mathematics; arts electives; and free electives. A minimum of 132 ch is required for the degree. A minimum grade of C is required for all courses used for credit towards the BISys degree.

CORE COURSES

CS 1073	Introduction to Computer Programming I (in Java)
CS 1083	Introduction to Computer Programming II (in Java)
CS 2043	Software Engineering I
CS 2253	Machine Level Programming
CS 3413	Operating Systems I
CS 3503	Systems Analysis, Design and Project Management
CS 3873	Net-Centric Computing
CS 3997	Professional Practice
INFO 1003	Foundations of Information Systems
INFO 1103	Data and Information Management
INFO 2403	Information Security
INFO 3103	e-Business Software Development
INFO 3303	Enterprise Information Systems
INFO 3403	Information Systems Administration
INFO 4900	Information System Project
ADM 1113	Administration
ADM 1213	Financial Accounting
ADM 1313	Principles of Marketing
ADM 2223	Managerial Accounting
ADM 2413	Principles of Finance
ADM 2513	Organizational Behavior
ADM 2623	Business Statistics
ADM 2624	Management Science
ADM 3573	Organizational Design
MATH 1823	Calculus for Management Sciences
MATH 1833	Finite Mathematics for Management Sciences

ELECTIVES

Arts Electives

Students must take at least 3 courses offered by the Faculty of Arts.

Free electives

Students must take at least 10 other courses (min 30 ch) selected from a list of approved courses that can be obtained from the Faculty of Computer Science. At least two of these free elective courses (minimum of 6 ch) must be 2nd year or above.

Note: For both the 'Arts electives' and 'Free electives' requirements, courses worth 6 credit hours or more will count as two courses.

GENERAL NOTES

1. UNIV 0101 (formerly, UNIV 1001), AESL 1011 and AESL 1012 will not be counted for credit toward degree programs offered by the Faculty of Computer Science.
2. Bachelor of Information Systems students should be aware that a Minor in Business may be obtained by selecting relatively few additional Business Administration courses as free electives. Students planning to minor in Business should select courses in consultation , and in advance, with the Faculty of Business Administration.

Minor in Information Systems

Students who are not registered in a degree program in the Faculty of Computer Science may complete a Minor in Information Systems by completing 8 courses as follows:

ADM 1213	Financial Accounting
CS 1073	Introduction to Computer Programming I (in Java)
CS 3503	Systems Analysis, Design and Project Management
INFO 1003	Foundations of Information Systems
INFO 1103	Data and Information Management
INFO 3303	Enterprise Information Systems
INFO 3403	Information System Administration
One of:	
CS 1083	Introduction to Computer Programming II (in Java)
INFO 2403	Inofrmation Security
ADM 1313	Principles of Marketing
ADM 2223	Managerial Marketing
ADM 2413	Principles of Finance
ADM 2513	Organizational Behaviour
ADM 2624	Management Science
ADM 2815	Human Resources Management
ADM 3123	Business Law I

A grade of C or better is required in all courses offered for the Minor. Students working toward a Minor in Informaiton Systems must make their intentions known to the Faculty of Computer Science.

BACHELOR OF INTEGRATED STUDIES

Contact:	Bachelor of Integrated Studies c/o UNB College of Extended Learning 6 Duffie Drive, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 458-7617
Fax:	(506) 453-3572
Email:	extend@unb.ca
Website:	http://www.unb.ca/extend/bis/

GENERAL INFORMATION

The Bachelor of Integrated Studies (BIS), an innovative degree completion program, was developed in response to the needs of adult learners. BIS students will have some post-secondary educational experience (such as certificate or diploma programs, or partially completed degree programs); and may have achieved equivalent university study through a Prior Learning Assessment (PLA)

of university-level learning achieved through work, life and education experiences.
The BIS is particularly designed for part-time study. Mid-career adults may consider this program for a variety of reasons including a change in professional direction, advancement within their career, or seeking a personal or professional challenge. To help adult learners achieve their specific personal, educational and professional goals, the program will integrate their university-level educational background and career and personal objectives with an approved plan of study.

Expected Outcomes
Although each individual program of study may include learning outcomes specific to that plan, student-learning outcomes that are general to the BIS degree program include:
• *Communication skills:* graduates will be able to listen or read, synthesize, draw conclusionsand effectively communicate the results in both oral and written form.
• *Critical and analytical thinking:* graduates will be able to absorb and analyze complex material from a variety of disciplinary perspectives.
• *Problem solving:* because of their increased ability to critically analyze the complexities of an issue or problem from multiple perspectives, graduates will have developed the ability to make discerning judgments and decisions.
• *Intellectual and research skills:* graduates will have generalized intellectual and research skills, which will also develop the student's capacity for lifelong learning.
• *Interdisciplinary leadership:* graduates will be able to set a direction, create and maintain commitment to that direction, and face adaptive challenges. As well, graduates will have an interdisciplinary awareness of current social, political, and economic concerns, the leadership qualities required to assume the challenges of citizenship, and the capabilities to facilitate change.

This degree program is jointly coordinated and administered through a partnership with Renaissance College (the Faculty), and the College of Extended Learning (CEL). Renaissance College (RC), with its strength in interdisciplinary and leadership programs and with its emphasis on learning portfolios and outcomes-based learning, is responsible for the academic oversight of the BIS program (admissions, transfer credit review, curriculum changes, graduation and portfolio approvals). The College of Extended Learning, with its expertise in adult learning, distance education, workplace learning, and prior learning assessment provides the infrastructure and the administrative support for the program. The UNBF Faculties contribute expertise in the areas of the students' chosen Minor programs and in Prior Learning Assessments.

UNIVERSITY/GENERAL REGULATIONS
The General University Regulations covered in Section B of this Calendar will govern any point not covered by the General Regulations of the Bachelor of Integrated Studies. Questions concerning the application of regulations should be directed in writing to the Registrar. Normally, applicants to the Bachelor of Integrated Studies program without a prior degree must meet the following requirements:
• Have acquired a minimum of 30 credit hours of transferable credit of post-secondary study. Transferable credit may also include credit awarded through a Prior Learning Assessment (PLA).
• Out of high school minimum of seven (7) years
• As a final step in the Admission process, complete an interview with the Bachelor of Integrated Studies Coordinator to assess their suitability for the program.Potential applicants with a degree should refer to existing regulations in the UNB Calendar regarding second degrees and should consult the BIS Coordinator.

To earn a Bachelor in Integrated Studies a student must complete a minimum 120 credit hours that include the following requirements:

1. **University Minor:** A required element of the BIS program is a University Minor or the equivalent. Specialization in a discipline or subject area through a minor complements the interdisciplinary nature of the BIS program. UNB Minors are administered and approved by UNB Faculties. Externally obtained minors must meet UNB guidelines for Minors and have an equivalent content and quality level to those offered by UNB. In cases where the students' particular interests and qualifications warrant a minor in Interdisciplinary studies, this can be approved by the Faculty of Renaissance College in consultation with the College of Extended Learning.
2. **Leadership Component:** To build program coherence and to explore interdisciplinary and integrated learning approaches to issues, each learner will normally complete at least 15 credit hours of interdisciplinary courses through Renaissance College within the first two years of study. This will provide them with a Certificate in Leadership studies (see Certificate in Leadership Studies of Philosophy in Interdisciplinary Leadership – Certificate in Leadership Studies in the Undergraduate Calendar). By adding three additional leadership related courses through Renaissance College, students can obtain a Minor in Leadership Studies (see Bachelor of Philosophy in Interdisciplinary Leadership – Minor in Leadership studies). This will not replace the requirements of the BIS minor. At minimum you need to successfully complete the following RCLP courses: RCLP 1001, RCLP 1011, RCLP 1062, RCLP 2001, RCLP 3030.

3. **Individualized Plan of study:** Adult learners admitted to the BIS will meet with the BIS Coordinator to design a plan of study that builds upon their interests and previous academic study, and that meets the program requirements. Each individual plan of study includes a statement of objectives written by the learner, a list of courses previously taken and to be taken during the upcoming academic year, a summary of BIS program requirements, and a description of how each component will contribute to achieving the student's learning objectives. Each learner's plan of study must be approved by Renaissance College.

4. **Personal learning portfolio:** Two distinct elements of the BIS portfolio are required for graduation. The first is successful completion of RCLP 3030, the BIS learning portfolio course. This 3ch course introduces learners to the BIS learning outcomes, reflective writing, and experiential learning as a foundation for developing their learning portfolios. BIS students take this course early in their program. The second element is a personal learning portfolio that learners continue to develop throughout their studies. The development of the learning portfolio begins with the Admission application process, and if applicable, the applicants' prior learning assessment. A portfolio review takes place annually to allow learners to recognize and reflect on progress toward their objectives and the BIS learning outcomes. Finally, learners must submit their completed portfolio to the Faculty in the semester prior to their expected graduation for evaluation. Learners' portfolios are then evaluated to ensure they contain a substantial meta-analysis and documentation of key learning events and activities and their contribution to both personal growth and competency in relation to the BIS learning outcomes.

5. **Elective credits:** The balance of the BIS program is comprised of elective courses that students select based on individual goals and interests identified in their study plans.

6. Students must complete a minimum of 39 credit hours (one-third of the program) at the3000 and/or 4000 level.

7. Normally students will complete a minimum of 45 credit hours of the program at UNB. The Registrar in consultation with Renaissance College and the College of Extended Learning may waive this provision.

8. Students must maintain a minimum cumulative grade point average of 2.0.

9. Any course taken or transferred to satisfy any of the requirements for a BIS degree must be passed with a minimum grade of C. A maximum of twelve (12) credit hours from courses with a final grade D can transfer as elective credit only and must be from a field in which a grade of D is considered to be a passing grade.

The standing RC BIS Committee (composed of one RC faculty member, the BIS Coordinator and the RC College Coordinator) will review and make recommendations to RC Dean or Council for approval of PLA, transfer credit, periodic plans of study and graduation.

JURIS DOCTOR
Faculty of Law

General Office:	Ludlow Hall, Rm 202
Mailing Address:	Faculty of Law, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4669
Fax:	(506) 453-4604 / 453-4548
Email:	law@unb.ca
Website:	http://www.law.unb.ca

· Anderson, Pamela L., BA (Ott), LLB (UNB), LLM (Ott), Asst Prof - 2010
·Austin, Janet E., BCom, LLB (UNSW), LLM (Sydney), Asst Prof - 2010
·Bell, David G., BA, MA (Qu), LLB (UNB), LLM (Harv), Prof - 1985
·Chatterjee, Aloke, BSc, LLB (Dal), LLM (Harv), Asst Prof - 2003
·Fleming, Donald J., BA (Mt A), LLB (UNB), LLB (Cantab), Prof - 1977
·Hughes, Jula M., MA (Erl-Nuremburg), D Phil (Erl-Nuremburg), LLB (Ott), Asst Prof - 2006
·La Forest, Anne W., BA (Ott), LLB (UNB), LLM (Cantab), Prof - 1996
·MacArthur, Carl D., BA, MBA (York), LLB, LLM (York) Asst Prof - 2008
·MacDonnell, Vanessa, BSc (StFX), JD (Tor), LLM (Harv), Asst Prof - 2010
·Mathen, Carissima R., BA (McG), LLB (York), LLM (Col), Assoc Prof - 2002
·McCallum, Margaret E., LLB, BA, MA, PhD (Tor), Prof - 1990
·McEvoy, John P., BA (STU), LLB (UNB), LLM (York), LLL (Ott) Prof - 1980
·Moore,Tammy, BA, LLB, MA (UNB) Senior Instructor - 2006
·O'Byrne, Nicole, BSc (Queen's), LLB (Sask), BA (Regina), LLM (McGill), Asst Prof - 2009
·Pearlston, Karen F., LLB (York), LLM (UBC), PhD (York) Assoc Prof - 2001
·Siebrasse, Norman V., BSc, LLB (Qu), LLM (Chic), Prof - 1993
·Theriault, Leah M., BSc, JD (Tor), LLM (UC Berkeley), Asst Prof - 2010
·Townsend, David A., BA (StM), LLB (Dal), LLM (York), Prof – 1979
·Williamson, John R., BBA, LLB (UNB), LLM (Harv), Prof and Assoc Dean - 1974
The Faculty of Law offers a full-time three-year course leading to the degree of Bachelor of Laws (LLB). Established in 1892, the Faculty has about 230 students from across the country.For detailed information on admissions policy and procedure, a description of the school and program, please consult the Faculty of Law, Admissions Guide, available from the Law Admissions Office, Faculty of Law, PO Box 44271, Fredericton, NB, E3B 6C2. Phone: 506-453-4693. email to: lawadmit@unb.ca or visit our website at http://www.unb.ca/fredericton/law.

BACHELOR OF NURSING

Faculty of Nursing

General Office:	MacLaggan Hall, Room 106
Mailing Address:	Faculty of Nursing, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506)-453-4642
Fax:	(506) 447-3057 / 453-4519
Email:	nursing@unb.ca
Website:	http://www.unbf.ca/nursing/

FACULTY

Dean: Gail Storr, BN, MEd, MN, PhD

Associate Dean: Karen Tamlyn, BN,MN (On Sabbatical)

Assistant Dean Research/Faculty Development:

Judith McIntosh, BN, MScN, PhD

Assistant Dean Humber College: Patricia Seaman, BN, MN, PhD

Assistant Dean Graduate/Advanced RN Studies:

Kathryn Wilson, BN, MN, PhD

BN Program Director: Fredericton: Heather MacDonald, BN, MScN, PhD
BN Program Director: Moncton Catherine Aquino-Russel, BScN, MScN, PhD
BN Program Director: Bathurst: Joan Williamson, BN, BA, MN

·Amirault, Debra, BN (UNB), MN (UNB), Sr Teaching Assoc - 1999
·Antworth-Underhill, Andrea, BN (UNB), MN (Athabasca),Nurse Clinician III- 2003
·Aquino-Russell, Catherine, BScN (LU), MN (UofM), PhD (Curtin, Australia), Prof- Moncton 2002
·Batty, Mary-Lou, BN(UNB), BA(Dal), MN(UNB), Nurse Clinician III - 2010
·Beckwith, Deidre, BN (UNB), Nurse Clinician I-2011
·Barclay, Katherine, BSc (UNB), MSc (Wat.), PhD (Guelph), Sr Teaching Assoc (Joint Biology and Kinesiology) - 2001
·Bulman, Donna, BN (DAL), Med (SFX), PhD (U of Nottingham), Asst Prof-2008
·Burke, Dawn, BN (UNB), MN (Dal), Sr Teaching Assoc - 2010
·Burton, Pamela, BN (UNB), MN (UNB), Sr Teaching Assoc -1990
·Cameron, Elaine, BN(Dal), Nurse Clinician I - 2003
·Deitch, Patty, BN/RN (UNB), MN (UNB), Sr Inst, - Bathurst - 2007
·Didyk, Andy, BA(UNB), PhD (UNB), Sr Teaching Assoc, Moncton/Bathurst (Joint Biology) - 1999
·Doiron-Maillet, Nancy, BN (UNB), MN (Dal), Sr Teaching Assoc - 1991
·Doucet-Clark, Celia, BN (UNB), Nurse Clinician I - Bathurst- 2003
·Furlong, Dolores, BN (MUN), MScN (UWO), PhD (UofT), Prof - 1997
·Gallibois, Gisele, BA (STU), BN (UNB), MEd (UNB), Nurse Clinician II - 2010
·Gaudet, Bev, BN (UNB), MN (Athabasca), Sr Inst-2003
·Hamilton, Sharon, BScN (SHU), MSc (Yale), Sr Teaching Assoc- 2011
·Hodgins, Marilyn, BSN (UWO), MN (U of A), PhD (Alta), Assoc Prof - 1998
·MacDonald, Heather, BN (UNB), MScN (UofT), PhD (Manchester), Assoc Prof - 1990
·Mallet-Boucher, Monique, BScN (UdeM), BEd (UdeM), MEd (UdeM), MN (UNB), PhD (c), Sr Teaching Assoc, Moncton – 1995
·McCloskey, Claudia, BN (Dal), BEd (UdeM), MEd (UNB), Nurse Clinician II-Moncton-1997
·O'Blenis, Brenda, BN/RN (UNB), MN (UNB), Sr Inst - Moncton - 2010
Pelletier-Hibbert, Maryse, BN (UNB), MN (Dal), PhD (McGill), Prof – 1985
·Savoie, Daniel, BScN (UdeM), MSc(A) (McG), Sr Inst - Moncton 1997
·Seaman, Patricia, BN (UNB), MN (Dal), PhD (UNB), Sr Teaching Assoc and Asst Dean - 2001
·Secco, Loretta, BScN (SFX), MN (U of M), PhD (U of M), Professor- 2008
·Seymour, Fran, BN (UNB), MN (UNB), Sr Teaching Assoc-2007
·Scott, Juanita, BN (UNB), Nurse Clinician I - 2004
·Scott-Storey, Kelly, BN (UNB), MN (UNB), PhD (UNB), Asst Prof - 2011
Rickards, Tracey, BN (UNB), MN (UNB), PhD(Dal), Asst Prof - 2011
Storr, Gail, BN (UNB), MEd (UNB), MN (Dal), PhD (Edinburgh), Prof - 1982

·Tamlyn, Karen, BN (UNB), MN (Dal), Prof and Assoc Dean - 1987
·Thompson, Janice, BSC (Nursing)(Iowa), PhD (Utah), Prof-2006
·VanSlyke, Stephen, BN (UNB), MN (UNB), Sr Teaching Assoc - 2003
·Weaver, Kathy, BN (Dal), MN (UNB), PhD (Alta), Assoc Prof - 1991
·Webster, Jessica, BN, MN (UNB), Nurse Clinician III - 2007
·Williamson, Joan, BN (UNB), BA (UNB), MN (UNB), Sr Teaching Assoc, Bathurst - 1999
·Wilkins, Krista, BSc, BScN (Dal), MN (U of M), PhD (U of M) Asst Prof - 2008
·Wilson, Kathryn, BN (UNB), MN (Dal), PhD (UNB), Assoc Prof and Asst Dean - 1990

HONORARY RESEARCH PROFESSOR

·Merrit-Grey, Marilyn, BN (UNB), MSN (UW), Prof - 1987
·Wuest, Judith, BScN (U of T), MN (Dal), PhD (Wayne State), Prof Ermita-1987

MISSION STATEMENT

The Faculty of Nursing promotes leadership in nursing education, research and practice in New Brunswick. The Faculty achieves this goal through commitment to:

·Questioning, developing, applying and sharing nursing knowledge

·Creating a climate for the advancement of excellence in nursing practice

·Implementing a curriculum grounded in the principles of primary health care, social justice, and caring

·Engaging diverse communities as full participants in inquiry, caring and decision-making related to health.

The Faculty of Nursing contributes to enhancing people's health and the advancement of the profession and discipline of nursing.

GENERAL INFORMATION

The Faculty of Nursing was established in 1958 through the financial generosity of the W.K. Kellogg Foundation and the provincial government. It was the result of the recognized need for better education for professional nurses by this University and individuals and organizations in the health fields. This program has built a solid reputation across Canada and internationally over the years.

The Nurses' Association of New Brunswick established a Task Force which led in 1989 to the endorsement of the Baccalaureate degree in Nursing as the entry level to the profession by the year 2000. In Dec., 1994 the total responsibility for nursing education in N.B. was transferred to the universities. In the fall of 1995, UNB admitted first year students to the four year program on 4 campuses: Fredericton, Saint John, Moncton and Bathurst. In fall of 2000, the Faculty began a collaborative relationship to offer the basic baccalaureate program at the Humber Institute of Technology and Advanced Learning.

The Faculty of Nursing offers two programs leading to a baccalaureate degree. The basic degree program covers four years of general and professional education. The Advanced Standing degree program is two calendar years in length and begins in September of each year. On completion of either program, graduates are eligible to write the National Council Licensure Examination (NCLEX-RN).Those who are successful are eligible to apply for registration across Canada and in other countries by reciprocity.

Nursing students practice in a variety of clinical facilities and health agencies. All students will be expected to travel out of town for some clinical experiences. In some instances, accommodation will be required. Students may also be expected to complete clinical during evenings, nights, and Saturdays to accommodate availability of clinical facilities and/or instructors. Normally Summer session clinical courses are completed by the end of May/early June (BN program). However, depending on the availability of clinical facilities and/or instructors, these time frames may need to be extended. Students will be provided with notice of clinical scheduling as soon as it is feasible.

All BN and BN ASP students must provide proof of required immunizations. Clinical agencies require that students the fully immunized in order to access facilities and may ask students at any time to provide proof of the following mandatory immunizations: Diptheria Pertussis, Tetanus, Polio, Measles, Mumps, and Rubella; appropriate Diptheria, Tetanus and Pertussis boosters; and the series of Hepatitis B immunizations and titre status.

Students also must have an initial 2-step Mantoux test for Tuberculosis and subsequent yearly Mantoux tests. Further details are contained in the relevant Faculty policy.

Additionally, in order to participate in nursing Clinical courses, students must have current CPR Certification Basic Life Support for Health Care Providers (Health Care Provider BLS-HCP) and must have completed a suicide intervention course (Such as Applied Suicide Intervention Skills Training [ASIST]). In order to access clinical agencies, students must submit a yearly Criminal Record check, including Vulnerable sector check. In addition, some clinical agencies require students to have a Social Development Reference Check as described in the Family Services Act of New Brunswick, prior to the clinical practice experience.

Costs

Costs in addition to those listed in Section C of this Calendar are: CPR Certification, Criminal Record check, Suicide Intervention course, immunization costs, books, photocopying, lab kits, equipment, uniforms, preparation for NCLEX examination and examination writing costs, professional nursing registration, nursing pin, professional meetings; travel costs to and from clinical practice areas; room and board for off-campus and off-site placements/course requirements.

University Regulations

It is advisable to read carefully Section C of this Calendar, University-Wide Academic Regulations, and in particular the subsection headed Examinations, Standing and Promotion.

Any point not covered in the following regulations will be governed by the General University Regulations.

Transfer and mature students are particularly advised to consult Section B. Transfer students and students applying for Nursing as a second undergraduate degree will take Nursing courses and in addition, those Arts and Science courses required by the Faculty if they have not already taken them. To be eligible for the basic degree program, transfer and mature students must have a minimum grade of 70% on each of the following Grade 12 academic high school courses (or the equivalent) with an overall average of 75% on the four: Biology, Chemistry, English and either Pre-calculus 110 or Foundations of Mathematics 120 (prior to September 2013, Functions and Relations). If a higher level Math course in the Pre-Calculus stream is presented, the math courses with the highest grade will be considered. In addition to these high school courses, transfer applicants must have completed a minimum of 24 credit hours of post-secondary studies with an average of 3.0 (B or 70%) or higher. For transfer applicants who have completed more than 24 credit hours, the admission average will be calculated on the most recent 24 credit hours of course work. The grades for all courses taken within an academic term will be included in this calculation, even if this results in exceeding the 24 credit hour requirement. Mature applicants must have a completed a minimum of 12 credit hours (or 4 courses) of university studies with an average of 3.0 (B or 70%). Preference may be given to those mature applicants who began and successfully completed this requirement within the year prior to the term for which admission is sought. Questions concerning the application of regulations should be directed to the BN Program Director.

Admission Policy on English Proficiency

The language of instruction within our program is English and prospective students whose native language is not English will be required to demonstrate competence in the English language prior to admission. Prospective students may prove English language proficiency in one of the following ways:
i. Minimum TOEFL (paper based) score of 600
ii. Minimum TOEFL (IBT) score of 100
iii. Minimum of IELTS score of 7.0
iv. Equivalent results of a UNB approved standardized proficiency tests.
In all cases, the Faculty reserves the right to require further proof of language proficiency before permission will be granted to register in academic courses.

GENERAL REGULATIONS

1. A student whose assessment grade point average (the May/April period; for definition, see Standing and Promotion Requirements in Section B of this Calendar) falls:

   a. below 2.0 but above 1.6 will be placed on academic probation; if in any subsequent period the grade point average falls below 2.0 the student will be required to withdraw from the program.

   b. below 1.7 will, subject to review by the Nursing Faculty, be required to withdraw from the program.

2. A student who twice fails to achieve at least a "C" or "CR" grade in any Nursing course will be required to withdraw from the Nursing program.

3. A student must receive at least a "C" or clinical "CR"

   a. in each Nursing course before proceeding to ensuing Nursing courses and

   b. in all additional required non-nursing courses before proceeding to the next year of Nursing courses.

   c. in nursing electives

4. A "D" grade is accepted only in non-nursing open electives (a nursing elective taken as an open elective requires a "C" grade for credit).

5. Normally, students must complete all courses in a given year before proceeding to the next year of the program.

6. A student repeating a Nursing course may, at the discretion of the Nursing Faculty, also be required to repeat and pass the Nursing course that immediately preceded it.

   a. Basic degree students must complete the program within 6 years of enrolment in the Faculty of Nursing.

   b. Advanced Standing Degree Program students must complete the program within 5 years of enrollment in the first term of the program

   c. Guidline for Students Returning to BN Program Following an absence of Less Than One Year
   Students who have been out of regularly sequenced nursing courses for less than one year, for any reason, are required to notify the campus BN Director by email of their intentions for future studies by July 31st. This will facilitate planning for the upcoming academic year. Failure to notify the BN Director of the intention to return to the program by this deadline may result in lack of availability of a clinical placement in a required clinical course(s).

7. Students enrolled in the BN program must complete 95 credit hours in Nursing and 35 credit hours in other faculties. Students enrolled in the Advanced Standing Degree Program must complete 84 credit hours in Nursing and 3 credit hours in Biology.

Curriculum for BN Students Basic Program

YEAR I	
Term 1:	NURS 1011 (3ch), NURS 1032 (3ch), BIOL 1711 (4ch), Open Elective (3 ch), Writing elective (English or Writing designated Course) (3 ch).
Term 2:	NURS 1225 (3ch), NURS 1235 (3ch), BIOL 1782 (4ch), Open Elective (3 ch), restricted elective (Psychology)(3 ch).
YEAR II	
Term 1:	NURS 2132 (3 ch), NURS 2135 (3 ch), NURS 2145 (3 ch), NURS 2155 (4 ch), BIOL 2501 (3 ch).
Term 2:	NURS 2041 (4 ch), NURS 2177 (3 ch), NURS 2187 (3 ch), BIOL 2513 (3 ch), STAT 2263 (3 ch).
Intersession:	NURS 2063 (3 ch).
YEAR III	
Term 1:	NURS 3052 (3 ch), NURS 3065 (4 ch), NURS 3066 (4 ch), NURS 3092 (3 ch), BIOL 2251 (3 ch).
Term 2:	NURS 3031 (3 ch), NURS 3072 (3 ch), NURS 3073 (5 ch), 3082 (3 ch).
Intersession:	NURS 3103 (4 ch).
YEAR IV	
Term 1:	NURS 4111 (3 ch), NURS 4121 (3 ch), NURS 4123 (5 ch), open or Nursing elective (3 ch).
Term 2:	NURS 4165 (2 ch), NURS 4175 (3 ch), NURS 4185 (3 ch), NURS 4152 (6 ch).

Curriculum for BN for Students in the Advanced Standing Degree

The Advanced Standing degree Program in Nursing is intended for applicants with a university degree (or 60 credit hours or more of courses) who wish to become professional nurses.

 To be eligible for the Advanced Standing BN program, applicants must have a minimum grade of 70% on each of the following high school courses (or the equivalent) with an overall average of 75% on the four: Biology 120, Chemistry 122, English 122, and Pre-Calculus 11 or Foundations 12. In addition to these high school courses an applicant must have completed a minimum of 60 credit hours of university courses with an admission average of 3.0 ("B" or 70% average) or higher. For applicants who have completed more than 60 credit hours, the admission average will be calculated on the most recent 60 credit hours of course work. The grades for all courses taken within an academic term will be included in this calculation, even if this results in exceeding the 60 credit hour requirement. Preference is given to those with a background in the human sciences and/or human behaviour. Students must maintain a minimum 3.0 GPA ("B" average or 70%) in their prerequisite courses in order to be admitted into the Advanced Standing BN Program.

Program Prerequisites Are:

1. BIOL 1711 : Human Anatomy I (4 ch)
2. BIOL 2251 or equivalent: Microbiology (3 ch)
3. STAT 2263 or equivalent: (3 ch)
4. A unrestricted elective in either the Humanities or Social Sciences (3 ch)
5. BIOL 2501 : (Pathophysiology I (3 ch)

YEAR I	
Sep - Dec:	NURS 1121 (4 ch), NURS 1136 (4 ch), NURS 1135 (4 ch), NURS 1131 (3 ch).
Jan-April:	NURS 2171 (3ch) NURS 2172 (5ch) NURS2173 (2ch) NURS 2133 (3ch)
May-Aug:	NURS 3042 (4ch) NURS 3065 (4ch) NURS 3066 (4ch) BIOL 2513 (3ch)
YEAR II	
Sep-Dec:	NURS 3072 (3ch) NURS 3073 (5ch) NURS 3082 (3ch) NURS 3092 (3ch).
Jan - April:	NURS 4113 (3ch) NURS 4121 (3ch) NURS 4124 (4ch) NURS 4176 (3ch).
May- August:	NURS 4185 (3ch) NURS 4153 (12 ch)

Credit Hour Requirements for Nursing Programs

Basic Degree Program Minimum 130 ch

Advanced Standing Degree Program Minimum 85 ch

Nursing Electives

Nursing electives may not be available each academic year.

Students may choose from the following Nursing electives:

NURS 1232	Cultural Encounters in Nursing	(3 ch)
NURS 1324	Aboriginal Health Issues	(3 ch)
NURS 4234	Independent Study	(3 ch)

BACHELOR OF PHILOSOPHY IN INTERDISCIPLINARY LEADERSHIP

Renaissance College

General Office:	811 Charlotte Street
Mailing Address:	Renaissance College, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 447-3092
Fax:	(506) 447-3224
Email:	rc@unb.ca
Website:	http://www.unb.ca/renaissance/

FACULTY

Dean: Cynthia Stacey, BSc (Acadia), MSc (Guelph), PhD (Ottawa)

· Mira Bachvarova, BA (Trent), MA Carleton), PhD (Queen's)
· Thomas Mengel, Dipl Paed, Lic Theol (Bamberg), MA (Toronto), Dipl Inf (Hagen); Dr Theol (Bamberg)
· John Valk, BA (Calvin), MA (St. Michaels), PhD (Toronto)

General Information

The Renaissance College Undergraduate Interdisciplinary Leadership Program is a rigorous 129 credit hour program.approximately sixty percent of the program is held at Renaissance College in its classes, seminars, forums, and internships, with the remaining forty percent of the
program available in other UNB courses. Graduates of the Bachelor of Philosophy (in Interdisciplinary Leadership Studies) will have learning experiences in leadership, depth in one discipline equivalent to at least a UNB minor, and an interdisciplinary approach to issues.

Program Features

· An understanding of leadership in different situations and cultures
· A breadth in interdisciplinary knowledge in the social sciences, natural sciences, humanities and fine arts
· A wide selection of elective courses providing students with the opportunity for depth in a disciplinary or professional area
· An emphasis on experiential forms of education to enhance learning
· Activities to enhance the student's physical, emotional, spiritual, intellectual, and social aspects of personal well-being
· An intentional approach to meeting designated knowledge-based and experiential learning outcomes
· An international placement designed to foster multiple cross-cultural perspectives on issues
· Intensive summer, internships and international placements reduce the calendar length of the eight semester B. Phil. degree program from the typical four years of study to three years plus two summers
· Community-based resource people share their special expertise and will help to situate learning in a practical context

General Regulations

Any point not covered by the General Regulations of Renaissance College will be governed by the General University Regulations stated in Section B of the Undergraduate Calendar. Questions concerning the application of university regulations should be directed to the Registrar in writing.

1. To earn a Bachelor of Philosophy degree (in Interdisciplinary Leadership Studies) a student must demonstrate in a summative

Portfolio, growth, and competence in each of the programs designated learning outcomes. During each of the three years prior to graduation, students will show development and competency in a

formative personal portfolio. At the end of three years students submit a summative portfolio that documents development and competency in all of the RC learning outcomes. Within the context of Interdisciplinary Leadership Studies, the learning outcomes to be achieved are in the following main areas: Knowing Oneself and Others, Effective Citizenship, Problem Solving, Multi-Literacy, Personal Well-Being, and Social Interaction. No letter grade is assigned to the summative portfolio, rather the portfolio is assessed as "acceptable", "acceptable with minor revisions"," acceptable with major revisions", or "not acceptable at this time".

2. The Renaissance College degree program is designated as a limited enrolment program and meeting the minimum requirements does not guarantee admission. Normally, not more than twenty-five students will be admitted in any academic year.

3. Requests, in writing, for part time study after the first year of study will be considered by the Dean.

4. The maximum time period between the first registration in the Renaissance College program and the completion of the degree will normally be seven (7) years.

5. Few prerequisites are specified; it is expected that students will ordinarily take courses in the normal sequence and exceptions will require the permission of the Dean and instructor of the course.

6. In exceptional circumstances, and with the approval of the Dean, alternative arrangements may be made in lieu of the Internship or International Placement to meet degree requirements.

7. Where the educational objectives of a course will be best served by limiting enrolment in the course, the Dean may approve a limited enrolment for the course.

8. In course offerings of other Faculties/Departments, students must meet the prerequisite and other requirements of that Faculty/ Department.

9. Each student's program of study must be approved by a College advisor.

10. A minimum grade of C will be required for all courses that are used to meet the core requirements of the program (Includes all leadership-related courses taken outside Renaissance College that are deemed acceptable replacements for RCLP 4001 , and courses judged to be equivalent to RCLP courses as part of credit transfer).

11. Students must be in good academic standing (min. 2.0 assessment GPA) in order to register in RCLP 2023 Canadian Internship. Failure to meet preparatory course requirements could lead to disqualification from participation in the Canadian internship. Any costs incurred by the student up to the point of disqualification are the sole responsibility of the student. A student who fails to qualify will normally be expected to take RCLP 2023 the following year.

12. In order for students to register in RCLP 3046 , students must a) achieve a minimum grade of B (3.0) in RCLP 2023 , and b) achieve a term GPA of 2.7 in the fall term preceding the internship or a minimum cumulative GPA of 2.7. Failure to meet preparatory course requirements could lead to disqualification from participation in the international internship. Any costs incurred by the student up to the point of disqualification are the sole responsibility of the student. A student who fails to qualify will normally, be expected to take RCLP 3046 the following year.

Curriculum

Core Courses

RCLP 1001	Leadership Foundations	3 ch
RCLP 1010	Formative Learning Portfolio I	2 ch
RCLP 1011	World Views, Religions and Cultures	3 ch
RCLP 1021	Concepts of Enhancing Personal Well-Being	3 ch
RCLP 1052	Mathematical and Economic Approaches to Problem-Solving	3 ch
RCLP 1062	Citizenship and Community Issues	3 ch
RCLP 1111	Integrative Forum I	6 ch

RCLP 1112	Integrative Forum II	6 ch
RCLP 2001	Leadership in Community Projects	3 ch
RCLP 2014	Public Policy Forum I	3 ch
RCLP 2020	Formative Learning Portfolio II	2 ch
RCLP 2023	Canadian Internship	12 ch
RCLP 2042	Natural Science, Technology and Society	3 ch
RCLP 3002	Practicing Leadership in Cross-Cultural Contexts	3 ch
RCLP 3015	Public Policy Forum II	3 ch
RCLP 3046	International Internship	12 ch
RCLP 4002	Change Leadership and Social Entrepreneurship	3 ch
RCLP 4028	Community Problem-Solving and Research Project	6 ch
RCLP 4031	Images and Insight	3 ch
RCLP 4040	Summative Learning Portfolio III	3 ch

Total credit hours of core courses is 84 ch

Electives

Electives shall constitute a minimum 45 credit hours, with at least 24 ch assigned to a concentration equivalent to a UNB Minor Program and at least 3ch assigned to a Leadership elective The Leadership elective can be done in two alternative ways,

RCLP 4001 Directed Studies in Interdisciplinary Leadership- 3 ch.

An individualized study of a topic of interest to the student, developed in consultation with a faculty mentor and approval of the College.

OR

A course in a leadership studies related field from a list of courses pre-approved by Renaissance College. Courses already part of a minor will generally not be acceptable.

Minor in Leadership Studies

The Renaissance College Minor in Leadership Studies is an interdisciplinary program offered to students registered in other degree programs. Enrolment is limited and application to the program is required. The Minor consists of 8 course (24 ch) as listed below. Students are advised that in order to complete the minor they may need to take more than the usual number of credit hours required by their degree program. Students should check with their faculty advisor and the Renaissance College , College Coordinator.

Leadership Studies Minor Required Courses:

RCLP 1001	Leadership Foundations	3ch
RCLP 1011	Worldviews, Religions, and Cultures	3 ch
RCLP 1021	Concepts of Enhanced Personal Well-being	3 ch
RCLP 1062	Citizenship and Community	3ch
RCLP 2001	Practicing Leadersihp in community Projects	3 ch
RCLP 3002	Practicing Leadership in Cross Cultural Contexts	3 ch
RCLP 3030	Learning Portfolio	3ch
RCLP 4002	Changing Leadership & Social Entrepreneurship	3ch

Normally RCLP 1001 is taken in the first year of study. RCLP 1001 is a pre-

requisite or co-requisite for RCLP 2001.

Certificate in Leadership Studies

The Certificate in Leadership Studies requires the following 5 courses of the minor (RCLP 1001 , RCLP 1011 , RCLP 1062 , RCLP 2001 , RCLP 3030) totaling 15 credit hours. The certificate is open to students registered at UNB and students are advised that in order to complete the certificate they may need to take more than the usual number of credit hours required by their degree program. Students should check with their faculty advisor as well as the Renaissance College, College coordinator.

BACHELOR OF RECREATION AND SPORTS STUDIES

Faculty of Kinesiology

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FACULTY

Dean: Wayne Albert, BSc, MA, PhD
Assistant Dean (Undergraduate Programs): Jeff Burkard, BA, MPE
Assistant Dean (Graduate Programs and Research): Usha Kuruganti, BScEE, MScEE, PhD

•Albert, Wayne, BSc (Ott), MA (UWO), PhD (Qu), Prof and Dean - 2010
•Barclay, Katherine, BSc (UNB), MSc (Wat.), PhD (Guelph), Sr Teaching Assoc (Joint Biology, Nursing) - 2001
•Burkard, Jeffrey, BA (SUC, Brockport), MPE (UNB), Sr Teaching Assoc - 2002
•Chester, Victoria, BScHK (Guelph), MA (Laur), PhD (UNB), Prof - 2002
•Cleave, Shirley, BA, MA (UWO), PhD (Ill), Assoc Prof and Assoc VP Academic - 1979
•Duquette, Greg, BKin (McM), MA (CMU),Sr. Instructor - 2008
•Edwards, Jonathon, BSM (Brock), MA, PhD (Alberta),Asst Prof - 2012
•Kuruganti, Usha, BScEE, MScEE, PhD (UNB), Assoc Prof - 2004
•Mason, Fred, BA, BPE (MUN), MA (Ott), PhD (UWO), Assoc Prof - 2006
•McGarry, Timothy, BSc (Liv), MSc (Brad), MPE, PhD (UBC) Assoc Prof - 2000
•McGibbon, Chris, BSc, MSc, PhD (UNB), Prof - 2004
•McKenna, Mary, BSc (McG), MSc (Cornell), PhD (Nottingham), Prof - 1993
•Reading, Stacey, BSc, MSc, PhD (Guelph), Assoc Prof - 2007
•Scott, David, BA, PGCE (Ulster), MA, MA, PhD (Vic B.C.), Assoc Prof - 1997
•Seaman, Kenneth, BSc (Dal), MSc (UNB) - Instructor - 2011
•Shannon-McCallum, Charlene, BBA, B of Recr Mgmt (Acad.), MA, PhD (Wat), Assoc Prof - 2002
•Stacey, Cynthia, BSc (Acad.), MSc (Guelph), PhD (Ott), Assoc Prof and Dean of Renaissance College - 1995
•Tymowski, Gabriela, BA, BEd, MA (UWO), PhD (Gloucestershire), Assoc Prof - 1999

General Information

The Faculty of Kinesiology offers two undergraduate degree programs: Bachelor of Recreation and Sport Studies (BRSS) and Bachelor of Science in Kinesiology (BScKin). The four year BRSS program provides a solid foundation in theories and applications in the social-psychological aspects of recreation, sport, physical activity and leisure. Students may select one of four options in the BRSS degree program: Management, Education Preparation, Welness or BRSS with Minor. Students in the program develop competency in communication, critical thinking, problem solving, professional conduct and numeracy, as well as, comprehensive and applicable knowledge of recreation, sport, physical activity, leisure and healthy living. The curriculum is designed to prepare students for a variety of vocational careers and/or further study at the graduate level.

The BRSS and the BScKin degree programs will prepare students interested in becoming elementary or secondary physical education teachers and coaches in school systems. Students who are interested in the Arts and Humanities as a teachable subject, should select the BRSS degree program, while students who are interested in the Sciences as a teachable subject, should select the BScKin degree program.

High School applicants or first-year students interested in the BEd program at UNB should refer to the Faculty of Education Admission Advantage program in either the Admissions section of this calendar (Item J) or the Bachelor of Education section under Fredericton Degree Programs.

University Regulations

Any point not covered in the following regulations will be governed by the General University Regulations as stated in Section B of this Calendar. Questions concerning the application of regulations should be directed to the Registrar in writing.

Conditions Regarding Admission to the BRSS Program

All admissions are on a competitive basis; satisfaction of minimum requirements does not guarantee admission. Normally, no more than 100 students will be admitted to first year in the Faculty of Kinesiology in any academic year.

Transfer Students

1. Normally, a minimum session grade point average of 3.0 is required for a student to be considered for transfer into one of the Faculty's programs.

2. Normally, a student will not be allowed to transfer into the Faculty mid-way through the academic year.

3. In addition to scholastic record, a transfer applicant's record of participation and interest in the "Kinesiology", "Recreation", and "Sport Science" field is also considered for admission.

4. Students presently registered in the Faculty will continue to be governed by the regulations in effect when they first registered. Students who were formerly in the Faculty and apply for re-admission, if accepted, will be governed by the regulations in effect at the time of their re-admission.

Time Limitation

The maximum time period permitted between the first registration in the BRSS degree program and the completion of the BRSS degree shall normally be eight (8) years. Normally, students who are re-admitted within this time frame must complete the degree requirements in effect at the last re-admission.

BRSS as a Second Degree

In addition to the University's regulations for a second undergraduate bachelor's degree as specified in the UNB Undergraduate Calendar, the Faculty of Kinesiology requires that any student accepted into the BRSS degree program as a second undergraduate bachelor's degree be required to: (a) Complete at least thirty (30) credit hours of courses, and (b) Complete the requirements of the selected program within the BRSS degree.

General Regulations

Grade Point Averages

1. The method of calculating grade point averages is explained in Section B (Grading System and Classification) of this Calendar.

2. To earn a BRSS degree, a student must have successfully completed 120 ch of approved courses in the BRSS with Minor and Management options, 121 ch in Wellness or 122 ch in the Education Preparation option.

3. Students should refer to Section B of this Calendar for regulations regarding academic probation and withdrawal.

Policy on Grades

BRSS students must obtain a grade of "C" or better in required degree program courses. These courses include:

a. all first year required courses

b. all required core courses

Note: KIN 1001 is considered to be pre-requisite or co-requisite to all other KIN and RSS courses. Students receiving a final grade of "D" in KIN 1001 may repeat KIN 1001as a co-requisite to other second year KIN and RSS courses.

Repeating Courses

1. Regulations pertaining to repeating courses can be found in Section B of this Calendar.

2. Any required courses not successfully completed during a given year must be attempted not later than the next academic year, except by special permission of the Director of Undergraduate Studies.

Summer Term Courses

BRSS students who wish to take Summer Term courses that are to be credited towards their degree should first consult with their Faculty Advisor.

Practicum and Directed Studies

1. Normally, students may elect a maximum of twelve (12) ch from practicum/internship courses, i.e., RSS 3913 (3), RSS 3914 (3), KIN 3950 (6), RSS 4910 (6), KIN 4950(6), and RSS 3100 (12).

2. Normally, students may elect a maximum of six (6) ch from directed study courses, i.e., RSS 4093 (3), RSS 4094 (3), RSS 4800 (6), and from Special Activity courses, i.e., KIN 2831(1), KIN 2832 (1), KIN 3831 (2), KIN 3832 (2), and from Leadership courses, i.e., KIN 2861 (1), KIN 2862 (1), KIN 3861 (2), and KIN 3862 (2).

Approval of Elective Courses

Advice concerning elective courses will be provided by members of the Faculty. All elective courses require approval of the Faculty.

Normal Workload

The maximum student workload is considered to be 20 ch per term, or 40 ch per year (not including Summer Term). Permission from the Director of Undergraduate Studies is required to exceed 20 ch per term or 40 ch in any given academic year.

BRSS Year Designation Based on Credit Hours

For the purposes of on-line registration and administrative operations BRSS students shall be considered as in:

1. Second year after the student has successfully completed 30 ch toward their BRSS.

2. Third year BRSS after the student has successfully completed 60 ch toward their BRSS.

3. Fourth year BRSS after the student has successfully completed 90 ch towards their BRSS.

Curriculum

General Notes

1. It is the students' responsibility to complete the degree program curriculum for the year in which they enrol.

2. All students take a common core listed in section A AND MUST choose from one of four options: Management, Education Preparation, Welness or BRSS Minor as outlined in sections B through E, respectively.

3. The minimum credit hour total to graduate is: 120 ch for Management, and BRSS with Minor options; 121 ch for Wellness; and 122 ch for the Education Preparation option.

4. Students must complete at least 48 ch of 3000, 4000 level courses in order to graduate (42 ch min. in Education Preparation Option).

A. CORE PROGRAM (total 54 ch for Management and BRSS with Minor, 58 ch for Education Preparation and Wellness.)

Students in the BRSS degree program are required to attend a two-day conference (or equivalent) sponsored by a recognized professional or academic organization prior to graduation. Written approval of the conference must be obtained through the Faculty prior to attendance. A written post-conference reflection report and session moderator attendance sheet must be submitted.

KIN 1001	Introduction to Kinesiology	3 ch
1 of	1st year Psychology/Sociology/Philosophy	3 ch
	**1st year Science	
ENGL	1144 or 1145	3 ch
RSS 1042	History of Sport and Recreation	3 ch
RSS 1061	Recreation and Sport Delivery Systems	3 ch
RSS 1213	Leisure, Recreation and Sport Concepts	3 ch
RSS 2081	Health and Wellness I	3 ch
KIN 3093	Ethics and Kinesiology	3 ch
RSS 2011	Management of Sport and Recreation Organizations	3 ch
RSS 2023	Sociology of Sport Physical Activity & Leisure	3 ch
RSS 2032	Recreation and Sport Programs and Events	3 ch
KIN 2032	Introduction to Sport and Leisure Psychology	3 ch
STAT 2263 or equivalent	Statistics for Non-Science Majors	3 ch
RSS 3001	Assessment and Evaluation in Recreation and Sport	3 ch
RSS 3311	Leadership Principles and Practices	3 ch
RSS 4083	Health and Wellness II	3 ch
RSS 4092	Senior Integrative Course	3 ch

** Students in the Education Preparation and Wellness options will complete 55 ch in the core as they MUST choose BIOL 1711 as the first year science option. Students in the Management option must choose one of: Econ 1013, 1014, 1023, 1024. Students in the BRSS with Minor option must choose one of BIOL, CS, ECON or POLS.

B. MANAGEMENT OPTION (total 66 ch)		
RSS 3051	Advanced Management of Sport and Recreation	3 ch
RSS 4053	Financial Management of Recreation and Sport Organization	3 ch
RSS 4081	Marketing and Sponsorship in the Recreation and Sport Study Industry	3 ch
RSS 3100	Professional Internship	12 ch
Either RSS/KIN Electives or NON RSS/KIN Electives		24 ch
BUSINESS MINOR		
ADM 1213	Financial Accounting	3 ch
ADM 1313	Principles of Marketing	3 ch
ADM 2413	Principles of Finance	3 ch
ADM 2513	Organizational Behaviour	3 ch
ADM 3123	Business Law I	3 ch
	ADM 3000/4000 level electives (RSS 5071 may be used as an elective	6 ch
*RSS 2011 counts as part of Business Minor		
C. EDUCATION PREPARATION OPTION (total 64 ch)		
BIOL 1782	Human Physiology I	4 ch
KIN 2051	Prevention and Care of Athletic Injuries	4 ch
KIN 2062	Introductory Biomechanics	3 ch
KIN 2072	Introduction to Motor Control and Learning	3 ch
KIN 3041	Disability Awareness	3 ch
KIN 2082	The Psychologic Basis of Physical Activity	3 ch
MATH 1003 or 1503	Calculus or Linear Algebra	3 ch

Teachable Subject NON RSS/KIN Electives 15 ch
RSS 3223 Youth Development through Recreation and Sport 3 ch
KIN Sports Skills Activity Labs 8 ch
Either RSS/KIN Electives or NON RSS/KIN Electves 18 ch

D. WELLNESS OPTION (total 66 ch)		
BIOL 1782	Human Physiology I	4 ch
KIN 2082	The Psychologic Basis for Physical Activity	3 ch
KIN 3282	Physical Activity, Health and Wellness	3 ch
KIN 3481	Nutrition for Healthy Living	3 ch
RSS 4063	Strategies for Health Promotion	3 ch
RSS 4081	Marketing and Sponsorship in Recreation and Sport Industry	3 ch
RSS 3100	Professional Internship	12 ch
KIN Activity Labs		2 ch
Either RSS/KIN Electives or NON RSS/KIN Electives		30 ch

E. BRSS WITH MINOR OPTION	
*Approved Minor	
NON RSS/KIN Courses	24 ch
RSS/KIN Electives	30 ch
Either RSS/KIN Electives or NON RSS/KIN Electives	12 ch
*The Minor must be approved by the awarding Faculty.	

Honours Program: BRSS

1. The Honours program provides students with the opportunity to undertake academic research and be recognized as one of the Faculty's top students. Upon successful completion of the program, "Honours" is printed on the student's official academic transcript. See the Faculty for application procedures.

2. Application requirements include: minimum CGPA of 3.7, must be in one's final year of study, must identify a faculty member willing to serve as one's Honours Research Project supervisor.

3. Once accepted into the program, students must: outline the required deliverables and expectations of the Honours project which will be approved by the Honours supervisor before being submitted to the Director of Undergraduate Studies no later than Oct 15th. This outline (one or two pages) briefly describes: i) the nature of the study being conducted, ii) timelines, iii) deliverables and expectations. This outline serves as a course contract between the student and the supervisor.

4. To graduate with a BRSS Honours, students must meet the following requirements: maintain a minimum CGPA of 3.5 throughout one's undergraduate degree; successfully complete RSS 4900: Honours Research Project.

Minor in Recreation and Sports Studies

The Minor in Recreation and Sports Studies is designed for students from outside the Faculty of Kinesiology interested in a coherent package of Recreation and Sports Studies courses. Students interested in the minor, must apply through the Undergraduate Degree Program Office, Faculty of Kinesiology. Enrolment is limited.

The Minor will consist of 24 credit hours of approved Recreation and Sports Studies courses. Students enrolled in the Minor will be required to take 12ch of introductory courses and 12ch of 3000 & 4000 level courses chosen in consultation, and in advance, with the Faculty of Kinesiology. A grade of C or better is required in each course used towards the Minor

BACHELOR OF SCIENCE
FACULTY OF SCIENCE

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Dean:	David I. McGee
Assistant Dean:	Bruce Benton, BSc, MSc.
Assistant Dean:	Andreas Decken, Dip, PhD
Assistant Dean:	Katherine Barclay, BSc, MSc, PhD
Science Student Services:	Angela Jefferies Regier, Co-ordinator

General Information

The first year curriculum is common to all students entering the Faculty. Commencing in second year students must select one of the available options. Some options lead to specialization in a single subject area, while interdepartmental options involve specialization in two subject areas . Majors and Honours programs are available in these options. Pass degree programs are also available in Physics and Earth Sciences. In addition, co-operative programs are available that enable

students to combine academic studies with work terms in university, industry or government laboratories. The General Science Degree option offers a broader exposure to more sciences and the program can be customized to meet the interest and academic development of the students. Honours is not available in General Science but students achieving a high academic performance are awarded Distinction upon graduation.

At the time of registration all students entering the Faculty of Science will be advised by members of the Faculty regarding selection of courses to meet the program requirements. It should be noted that as students register for the second, third and fourth years, approval of the courses and programs should be obtained from the program advisors for the Departments concerned or from the Dean's office when they are not available.

Students are strongly recommended to read the University-wide Regulations, Section III of this Calendar, and in particular the subsection headed Grading and Classification. Any point not covered in the following regulations will be governed by the General University Regulations.

General Regulations

Students should note that in the Faculty of Science the minimum acceptable grade in a course which is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is being taken for the first time in the final year.

Valid WHMIS (Workplace Hazardous Materials Information System) certification is required for all students who wish to take Chemistry laboratory courses. Information regarding WHMIS training will be provided during the first week of classes.

Major, Honours and Minor Programs
Major and Honours Programs

Major and Honours programs are offered for specialization and enriched training, respectively, in various subject areas. Upon the successful completion of the First Year, Science students will declare their Majors in one of the Science options or one of the Interdepartmental programs. Students must consult their respective program advisors to develop their programs and obtain pre-approval for the selection of courses. Such course requirements and choices are listed under each of the options and interdepartmental programs in the subsequent sections.

A minimum CGPA of 3.0 is required for admission to and retention in an Honours program in Science. For individuals who wish to enrol in Honours programs, they must contact the corresponding department Chairs or their delegates to learn about the application procedures and requirements that are discipline specific. In order to graduate with Honours recognition, the graduate must maintain a minimum CGPA of 3.0. Additional discipline specific requirements must also be met. A student who has completed the courses of an Honours program but did not achieve the minimum CGPA requirement will be awarded a Major degree. An Honours graduate with a CGPA of 3.7 and above will be awarded First Class Honours provided that the discipline specific requirements are also met.

Minor Programs

Minor programs are offered to broaden a student's educational background and complement a Major or Honours program. Science Minors are offered in the disciplines of Biology, Chemistry, Economics, Earth Sciences, Physics, Psychology, Mathematics and Statistics. The Minors follow the University guidelines outlined in Section V in the University-wide Academic Regulations of the Calendar and consist of a sequential and coherent grouping of courses totalling at least 24 credit hours (with a grade of C or better) as approved by the department offering the Minor. Courses that are required in the student's degree program may not normally be counted toward the Minor.

Co-Operative Education in Province

The UNB Faculty of Science seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty, through its constituent departments/programs, operates a Co-operative education program based on established partnerships with selected employers.

The Co-op team, reporting to the Dean of Science, liaises with the academic advisor in each department/program to ensure alignment between students' academic and professional experience objectives. Additional oversight is provided by the Faculty of Science Co-op Committee, which functions like a board of directors, and, as such, influences the Co-op program's strategies and policies. The effectiveness of the Co-op program in delivering the planned professional internship experience is closely monitored and assessed by the Co-op coordinators through interactions with the students, company personnel, and the University.

Co-operative education is available within all Science Programs including BAS and BA/BSc. Work terms may be 4, 8, 12 or 16 months in duration and are generally interspersed with academic study terms. Prior to applying for Co-op jobs, students will be oriented to the process and will be assisted in preparing resumes and for job interviews.

Co-op Program Eligibility:

1. Students must be registered as full-time students in an undergraduate science, BAS or BA/BSc degree program at UNB. Students on Co-op work terms retain their full-time status.
2. Students must have completed at least 32 ch of study in science prior to their first Co-op work term.
3. Approval to participate in the Co-op program must be received from the Co-op Office and from the student's department/program.
4. All students participating in the Co-op program must be in good academic standing.
a. Students must have an Assessment GPA of at least 2.7.

Co-op Work Term Requirements:

1. Students completing the first year of science studies will be limited to an initial summer work term of 4 months.
2. Students completing their second year of full-time science studies will be limited to work terms of 4 or 8 months.
3. Students completing their third year of full-time science studies are eligible for extended work terms of 4 - 16 months.
4. A fee is charged for each 4-month portion of a work term.
5. The final term in the student's degree program must be a full-time science study term at UNB.
6. When combined the total of all work terms cannot exceed 24 months.
7. Students must register for the appropriate Work Term Report Course. The student's evaluation by the employer will be taken into consideration but the final assessment on whether or not a work term has been successful will be the responsibility of the Faculty of Science.
8. A Co-op designation is awarded upon graduation to those students who have successfully completed work terms that total at least 12 months.

Planning and Scheduling:

1. Work terms usually commence at the beginning of January, May, and September.

2. A schedule of work and study terms is developed by each student in consultation with the Director of Undergraduate Studies or designate for the student's specific science program.

More information can be obtained from the Co-op Office.

First Year Curriculum:

The normal requirement for first year science (which must be completed before graduation) is MATH 1003 or MATH 1013 (6 ch), 18 ch of First Year lectures in three of the four subject areas of Biology, Chemistry, Earth Sciences and Physics, plus 8ch of laboratories to accompany lectures in two of the subject areas. In addition, there are two term courses of electives that may be taken which can be chosen from courses offered by various faculties (6 ch total) or they can be two terms of science laboratories (4 ch) to accompany the third science subject chosen. The total course load will be 36 to 38 ch depending on the above selections. The particular first year science lecture and lab courses should be chosen to fit into the student's future degree program.

The First Year core science lecture and laboratory courses, respectively, are:

• BIOL 1001 , 1012 and BIOL 1006 , 1017
• CHEM 1001 , 1012 and CHEM 1006 , 1017
• ESCI 1001 , 1012 and ESCI 1006 , 1017
• MATH 1013 or MATH 1053 and MATH 1013 or MATH 1063
• PHYS 1061 or 1071 , PHYS 1062 or 1072 and PHYS 1091, 1092

*Any exceptions allowed in a particular program will be noted in the program requirements. Courses such as CHEM 1982 , 1987 and unassigned first level transfer credits in science disciplines could be used in some circumstances.

First Year Science Entrance Program

1. High School students who do not meet the admission requirements noted In the Admission Chart for direct entry to the BSc program but have a passing grade in each of the required courses, a minimum senior science average of 70% and an admission average of 70% may be considered for full time admission to an Entrance Program to the extent that capacity allows.
2. Students enrolled in the BSc Entrance Program are restricted to a maximum of 29 ch in the first year of studies. This is a prescribed set of courses as determined by the Faculty including UNIV 101, MATH 1003, 1013, 10 ch of a first-year Science subject and 10 ch of a second first-year Science subject as determined in consultation with a Faculty Advisor.
3. Students are required to meet with their Faculty Advisor on a regular basis.
4. Students who successfully complete their first year with a minimum GPA of 2.0, regardless of the total number of credit hours completed, receive credit for UNIV 101 and meet other conditions as outlined by the Faculty, will be approved for admission to the BSc program for the upcoming academic year.
5. Students who do not succeed in completing the program requirements will not be permitted to continue in the BSc Entrance program nor enter the BSc degree program.
6. Students can only register in the BSc Entrance program once.

Course Recognitions from other Institutions
UNB recognizes a number of field courses offered at the Huntsman Marine Science Centre, and other similar institutions, which may be used toward meeting part of the degree requirements for UNB students as subjected to the approval by the respective Departments or Divisions. Students should note that at least half the advanced-level courses counted towards Major/Honours/Minor in a Science subject must be from courses taken at the University of New Brunswick.

Advanced Placement Tests
Advanced Placement Tests in selected first year Science courses will be available to students achieving a grade of 90% in the appropriate Level 1 high school course or 95% in the appropriate Level 2 high school course. Advanced placement in Math requires a high school Calculus course beyond NB Math 120 with a minimum grade of 90%. The Department of Mathematics also offers a "Calculus Challenge Exam" to NB students at a school that has made arrangements with the Department of Mathematics and Statistics. The Challenge Exam is written in June. Consult the mathematics section of the calendar for more information.

The grade obtained on an advanced placement test will not be included in a student's GPA calculation. It will be equivalent to a transfer credit. A fee would be charged for each placement test.

Criteria for Granting B.Sc. (General Science) degrees to former UNB Science Students who are graduates from Professional Degree Programs
A student who has completed a minimum of 78 ch of science core courses, including those at the 1000 level, with the University of New Brunswick will be granted the BSc degree in General Science upon successful completion of a science-based health professional degree. The Faculty has determined that these requirements can be satisfied by students who have successfully completed Medicine, Dentistry, Veterinary Medicine, Pharmacy, or Optometry.

Students wishing to be considered for a BSc (Gen.Sci) degree who satisfy the above conditions must apply in writing, complete with official transcripts, to the Registrar. Students in professional programs not specifically listed above who are interested in being considered for the BSc (Gen.Sci.) degree, should contact the Office of the Dean of Science. Such students are expected to provide detailed description of courses in their programs as well as further information requested by the Faculty.

Regulations for Granting a Second UNB Bachelor of Science Degree
A student who holds a BSc degree from UNB may obtain, following further studies, a second specialization. See the regulations below. BSc degree holders from another university may apply for admission to and follow a program towards a second BSc degree. Further details can be found in the general regulations in Section VII in the University-wide Academic Regulations of this Calendar.

BSc graduates of UNB may apply for admission to and follow a program towards a second BSc undergraduate bachelor's degree under the following regulations:

• The general regulations of the University and the regulations of the degree program concerned must be satisfied.
• Degree and departmental regulations concerning option, concentration, Major or Honours must be satisfied.

Normally, the minimum number of credit hours which must be successfully completed beyond the work required for the previous degree would not be less than the normal load of the final academic year in the degree program concerned. More than the minimum number of credit hours, or courses, may be required.

The courses taken must be approved by the Dean and the Department, or Departments, under which the option, concentration, Major or Honours, falls.

The general regulation that at least half the total credit hours for a degree must be taken at this University will apply.
Candidates for a second undergraduate degree may not choose a Major, or option, or Honours, or concentration using the same Departmental discipline as in the first undergraduate degree, whether the discipline was part of a single or an interdepartmental program. (For example, a student with a BSc in Biology-Chemistry may not return and obtain a BSc in Chemistry. A student with a BSc in Earth Sciences may not return and obtain second BSc degree in Environmental Geochemistry.)

Students with a UNB BSc degree are not eligible to obtain a second degree under the special provisions for granting a BSc (General Science) after a professional school.

Students may be permitted to upgrade a Minor or a Major from the first degree under the following conditions:

•A Minor from the first degree may be upgraded to a Major or Honours after completion of the first degree.
•A Major from the first degree may be upgraded to an Honours after completion of the first degree.
•In either case, a notation only will be included on the student record and a second degree will not be awarded.

Students will not be permitted to include a Minor in the second degree

Students must make specific application to the Associate Registrar/Admissions for entry to the second degree program.

Only in special circumstances will students be admitted to a third undergraduate degree program.

The final decision on the course work requirements for a second undergraduate bachelor's degree shall be a matter of agreement between the Registrar and the Dean after consultation with the Chairs of Departments concerned.

BIOLOGY OPTION

DEPARTMENT OF BIOLOGY

General Office:	Bailey Hall, Room 29
Mailing Address:	Department of Biology, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4583
Fax:	(506) 453-3583
Email:	biology@unb.ca
Website:	http://www.unb.ca/fredericton/science/biology/

FACULTY

- Addison, Jason A., BSc, PhD (Dal.), Assoc Prof - 2008
- Bailey, Robert C., BSc, MSc, PhD (UWO), Adjunct Prof- 2010
- Baird, Donald J., BSc, PhD (Glas), Visiting Res Prof -2003
- Barbeau, Myriam A., BSc (McG.), PhD (Dal.), Prof - 1999
- Barclay, Katherine, BSc (UNB), MSc (Wat.), PhD (Guelph), Sr Teaching Assoc (Joint Kinesiology and Nursing) - 2001
- Benfey, Tillmann, BSc (McG.), MSc (Nfld.), PhD (Br.Col.), Prof - 1989
- Campbell, Douglas A., BSc (Acad), PhD (UWO), Adjunct Prof -2001
- Chambers, Patricia, BSc Honours (Trent), PhD (Scotland), Adjunct Prof - 2006
- Clark, Denise V., BSc (Br.Col.), PhD (S. Fraser), Prof - 1994
- Courtenay, Simon, BSc, MSc (Western), PhD (Br.Col.) Visiting Res Prof - 2005
- Crawford, Bryan D., BSc (Alta), MSc (Vic.(BC)), PhD (S. Fraser) Assoc Prof 2006
- Culp, Joseph, BSc (Oklahoma Univ), MSc, PhD (Calg.), Visiting Res Prof (Cross Appt) - - 2002
- Cunjak, Richard, BSc (Guelph), MSc (Nfld.), PhD (Wat.), - Prof (Joint Forestry) - 1997
- Curry, Allen, BES (Wat.), MSc (Trent), PhD (Guelph), Prof, Recreational Fisheries (Joint Forestry) - 1997
- Cwynar, Les C., BSc, MSc, PhD (Tor.), Prof - 1988
- Diamond, Antony W., BA (Cantab.), MSc, PhD (Aberd.), Prof, Atlantic Laboratory for Avian Research (Joint Forestry) - 1994
- Didyk, Andy, BA, PhD (UNB),Sr. Teaching Assoc,, Moncton/Bathurst Campuses (Joint Nursing) - 1999
- Duffy, Michael, BSc (Hons), PhD (UNB), Assoc Prof - 2005
- Durnford, Dion, BSc (Dal), PhD (Br.Col), Prof - 1997
- Forbes, Graham, BA (York), MA, PhD (Wat.), Prof (Joint Forestry) - 1997
- Heard, Stephen, BSc (Wat.), PhD (Pennyslvania), Prof - 2002
- Jesson, Linley, BSc (Auckland), MSc (Hons) (Canterbury), PhD (Tor), Prof - 2006
- Johns, Robert, BSc (St. FX), PhD (UNB), Adjunct Prof - 2012
- Kubien, David, BScFor (Br.Col), MSc (Car.), PhD (Tor.), Assoc Prof - 2005
- Lawrence, Janice, BSC, PhD (Dal.), Assoc Prof - 2003
- MacLellan, Shawn, BSc (Guelph), MSc (Guelph), PhD (McMaster), Assoc Prof -2010
- Mayes, Charlene, BSc, MS (S.Fraser), BCIDP (Vancouver Community College), Sr Teaching Assoc - 1997
- Miles, Kelly, BSc (Dal), MSc (Dal.), Instructor - 2012
- Nedelcu, Aurora, BSc (Romania), PhD (Dal.), Assoc Prof - 2002
- Patten, Cheryl, BSc, PhD (Wat.), Assoc Prof - 2004
- Peake, Stephan, BSc General, BSc Honours (Guelph), MSc (Wat.), PhD (S. Fraser), Assoc Prof - 2002
- Pureswaran, Deepa, BSc, MSc, PhD (S.Fraser), Adjunct Prof-2010
- Reyes Prieto, Adrien, BSc, PhD (Mexico), Asst Prof-2009
- Sacobie, Charles, BSc, MSc, PhD (UNB), Instructor - 2013

- Saunders, Gary W., BSc, MSc (Acad.), PhD (S. Fraser), Prof, UNB Chair
  - in Molecular Systematics & Biodiversity, and Chair - 1995
- Sharp, Lisa, BSc (Br.Col) MSc (Vic. BC), Sr Instructor - 2001
- Stephenson, Robert L., BSc, PhD (Canterbury), Visting Res Prof - 2010

Biology Goal

The educational goal of the Department of Biology at UNB is to foster a fascination with and an ability to learn about progress in the biological sciences, and appreciate the importance of these fields to society. This is achieved through teaching within the department that emphasises the questions of contemporary biology, and how they are asked. Our graduates understand that the sub-disciplines of 21st century biology are interrelated, ask questions at a range of spatial and temporal scales, with a broad taxonomic scope, and that these dynamic disciplines have a strong quantitative foundation.

Our aim is to provide students with a foundation upon which they can build in future professional or postgraduate training, and as scientifically literate citizens of our society.

Programs in Biology

The Department of Biology offers the following programs: Honours (by Thesis or by Course), Major and Minor.

Either of the *Honours programs* provides students with the preparation required for graduate work in Biology, while pre-professional students will usually find that they can adapt the Honours by Course Program to meet the prerequisites for admission to professional schools.*

The *Major program* is designed to provide concentration in Biology while maximizing a student's access to the offerings of other Departments and Faculties. It will therefore be of use to students with interdisciplinary educational and career objectives. With care, pre-professional students should be able to use this to satisfy prerequisites to many professional schools.*

The *Minor program* is structured to meet the individual needs of the student and will complement his/her major program.

Admission to these programs is by application to the Chair of Biology or Director of Undergraduate Studies. Minimum cumulative grade point average (CGPA) requirements and prerequisites may be required for admission.

An advisor, assigned to each successful applicant, must approve course selections according to the guidelines given below.

Students are reminded that courses offered by other Departments form an important complementary part of the overall program of studies. A minimum of 12 ch of electives selected from the course offerings of the Faculty of Arts are required in the Honours and Major programs.

Note:* In addition to their Biology advisor, pre-professional students must consult the Assistant Dean of Science for information about prerequisites and advice on program planning.

Program Requirements
Major Program (132 ch total):

Level I
1. BIOL 1001 , 1006 , 1012 , 1017 ; CHEM 1001 , 1006 , 1012 , 1017 ; MATH 1003 or 1053 and one of MATH 1013 , 1063 or STAT 2264 .
2. 2 more term courses of first year science lectures (Physics or Earth Sciences).

Level II
BIOL 2003, 2008, 2013, 2018, 2023, 2028, 2063, 2068 ; CHEM 2401 (3 ch) and STAT 2264 (3 ch)* (see Note 2) .

Levels III and IV
Upper level (Level III or IV) Biology courses totalling a minimum of 34 ch, including a minimum of 10 ch of laboratory or field courses (denoted by the course designation "L" in the course description). Courses considered toward the laboratory and field experience requirement include BIOL 3058, 3102, 3113, 3173, 3206, 3293, 3301, 3383, 3441, 3521, 3541, 3593, 3603, 3703, 3883, 3908, 3943, 4182, 4221, 4443, 4533, 4641, 4688, 4723, 4732, 4746, 4851, 4863, and 4991 (but do not include BIOL 3149, 4149, or 4090).

Electives
1. 12 ch of Arts courses.
2. 24 ch of other courses (in any field including Biology).

NOTES:(*)
1. A C grade or better is required in all courses for Biology degree programs. Students in all Biology programs will not be allowed to take any third or fourth level Biology courses, until they have passed (C minimum) all first level requirements for Biology programs.
2. If STAT 2264 is counted as a first year requirement, then an extra 3 ch of Level III/IV courses must be taken.
3. Students are urged to register early (by the end of classes, Winter term) for courses they plan to take in the next academic year that are required for their program and that have limited enrollment

Honours Program (150 ch total):
There are two honours programs: Honours by Course and Honours by Thesis. Students must have (and maintain) a minimum CGPA of 3.0 to be accepted in and remain in either program. Application to the Honours by Thesis program is initiated by writing a letter of intent to the Chair of Biology before preregistration at the end of year 3. Students must make arrangements to complete their dissertation research with a Faculty member in the Department of Biology before applying to the Program. BIOL 4090 (Honours Thesis Project) is required and the course description should be consulted for further information and specific procedures.

Level I
1. BIOL 1001 , 1006 , 1012 , 1017 ; CHEM 1001 , 1006 , 1012 , 1017 ; MATH 1003 or 1053 and one of MATH 1013 , 1063 or STAT 2264 .
2. 2 more term courses of first year science lectures (Physics or Earth Sciences).

Level II
BIOL 2003, 2008, 2013, 2018, 2023, 2028, 2063, 2068 ; CHEM 2401 (3 ch) and STAT 2264 (3 ch)* (see Note 2).

Levels III and IV
Upper level (Level III or IV) Biology courses totalling a minimum of 52 ch, including a minimum of 10 ch of laboratory or field courses (denoted by the course designation "L" in the course description). Courses considered toward the laboratory and field experience requirement include BIOL 3058, 3102, 3113, 3173, 3206, 3293, 3301, 3383, 3441, 3521, 3541, 3593, 3603, 3703, 3883, 3908, 3943, 4182, 4221, 4443, 4533, 4641, 4688, 4723, 4732, 4746, 4851, 4863, and 4991 (but do not include BIOL 3149, 4149, or 4090). The minimum of 52 ch also includes BIOL 4090 for Honours by Thesis.

Electives
1. 12 ch of Arts courses.
2. 24 ch of other courses (in any field including Biology).

NOTES:(*)
1. A C grade or better is required in all courses for Biology degree programs. Students in all Biology programs will not be allowed to take any third or fourth level Biology courses, until they have passed (C minimum) all first year requirements for Biology programs.
2. If STAT 2264 is counted as a first year requirement, then an extra 3 ch of Level III/IV courses must be taken.
3. Students are urged to register early (by the end of classes, Winter term) for courses they plan to take in the next academic year that are required for their program and that have limited enrollment.
4. The Honours student (by course or by thesis) must achieve a minimum final CGPA of 3.7 to obtain First Class Honours standing upon graduation. A student completing all course requirements for Honours but with a CGPA below 3.0 will be given a Majors degree.

Minor Program:
The Minor in Biology is designed for students in other Departments of the Faculty of Science, and outside the Faculty of Science, who are interested in a coherent package of Biology courses. The Minor follows section V in the "University Wide Academic Regulations" of the Undergraduate Academic Calendar and consists of BIOL courses, totalling at least 24 credit hours with a grade of C or better, approved by the Biology Director of Undergraduate Studies. The Level II BIOL courses and the Concentrations can be used as guidelines. Students requiring BIOL 1001, 1006, 1012, 1017, or other BIOL courses for their Major are not eligible to also count these courses towards a Biology Minor. Students not requiring Biology courses for their Major must take, and can count, BIOL 1001 , BIOL 1006 , BIOL 1012 and BIOL 1017 as part of their Biology Minor. Also, see Note 2 below.

*Notes:

1.   Some upper level courses (3000 and 4000 level) have limited enrollment. Students should register in the Winter term for these courses, since assignments will be made in May following pre-registration. Priority for admission is as follows: Year IV Honours, Year IV Majors, Year III Honours, Year III Majors. Within each category, students will be selected based on CGPA (and at the discretion of the instructor). If space permits, students in a Minor program may also enroll in these courses.

2.   Some Biology courses are designed for non-Science students. Students enrolled in Biology programs may take these courses, but they can only be considered as electives for the purposes of the Biology programs. Permission of the instructor may be required. Such courses include: BIOL 1782, 1789, 1846, 2251, 2501, 2509, 2513, 2519, and 2753.

Co-operative Work Experience in Biology
The Faculty of Science seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty, through the Department of Biology and other Science departments and programs, operates a Co-operative Education Program. Co-op opportunities are available for qualified students; please refer to the Science section of this calendar for detailed information.

Concentrations
Upper level Honours and Major students in Biology can choose from many Biology courses (see requirements for Levels III and IV, above). Concentrations are designed to guide students who want more concentrated education in a specific area. Each of the concentrations has recommended courses and other relevant courses, from which students can select to best suit to their future goals.

Aquatic Biology Concentration	
Recommended Courses:	BIOL 3173 , 3383 , 3883 , 4741 , 4746 , 4773 , 4863 , 4981 , 4991 , 6183
Other relevant courses	BIOL 3602 , 3801 , 3908 , 3943 , 4443 , 5473 ; ENR 2114 , 2531 , 3111 , 3112 , 3201 , 3532 , 4111; also see Marine Biology Concentration

Biological Diversity Concentration	
Recommended Courses:	BIOL 1846, 3261, 3301, 3383, 3493, 3521, 3602, 3673, 3703, 3801, 3883, 4221, 4233, 4352, 4443, 4688, 4723, 4732, 4741, 4746.
Other relevant courses	BIOL 3181, 3541, 4162, 4413, 4533, 3633.

Cell and Molecular Biology Concentration	
Recommended courses:	BIOL 3031, 3043, 3058, 3073, 3206, 3261, 4082, 4533; CHEM 2401 or 2421, 2422.
Other relevant courses:	BIOL 3102 , 3133 , 3162 , 3242 , 3311, 3493, 3521, 3673, 4123, 4182, 4272 **.**

Evironmental Biology Concentration (Students interested in environmental biology should take ESCI 1001, 1006, 1012 and 1017)	
Recommended courses:	BIOL 4863 ; BIOL 3261 , 3521 , or 3801/3908 ; BIOL 3441 , 3633 , 3943 , 4191 , 4233 , 4352 , 4773 ; CHEM 2121 , 2136 ; ENVS 2003 , 2023 ; FOR 2281, 2282 .
Other relevant courses:	BIOL 1846 , 3083 ; 3173 , 3293 , 3301 , 3383 , 3603 , 3703 , 3883 , 4302 , 4413 , 4423 , 4443 , 4563 , 4723 , 4732 , 4741 **,** 4746 , 5473 ; ENVS 4001 , 4002 ; ESCI 3442 **,** 4452 ; FOR 4545 , 4721 ; PHIL 3206 ; see also Marine Biology Concentration.

General Zoology Concentration	
Recommended	BIOL 3603 , 3703 , 3801 , 3908 .
Suggested field courses:	BIOL 3173, 3383.
Other relevant courses:	BIOL 3162 , 3593 , 3673 , 3873 , 3883 , 4182 , 4723 , 4732 , 4741 , 4981

Marine Biology Concentration	
Students should complete the Level II requirements Core prior to entering this concentration. The Marine Block Semester offers four of the recommended courses in the Fall term in a block format, where the courses are offered consecutively over the term.	
Recommended courses:	BIOL 3173 , 3633.
Marine Block courses (recommended; taken together in the Fall Term):	BIOL 4221, 4641 , 4851 or 4981, 4991 .
Other relevant courses :	BIOL 3173 , 3603 , 3943 , 4233 , 4741 , 4746 , 4773 , 4863 , 5473 , ENR 3111 .

Human Biology Concentration	
Recommended courses:	BIOL 1711 or 1719 , 2761 , 2792 , 2812 , 3593 , 3833 .
Other Relevant courses	BIOL 3031 , 3043 , 3058 , 3073 , 3162 , 3206 , 3261 , 3493 , 3673 , 3801 , 3908 , 4082 , 4182 ; PHIL 1201 , 3203.

Parasitology Concentration	
Recommended courses:	BIOL 3593, 3603, 3673, 3703, 3801, 4688.
Other Relevant courses	BIOL 3031, 3043, 3133, 3153, 3163, 3311, 3873, 4191, 4863, 4991; BIOL 6671/6672.

Physiology Concentration	
Recommended courses:	BIOL 3162, 3206, 3261, 3521, 3593, 3801, 3908, 4182, 4413, 4823.
Other relevant courses	BIOL 3031, 3043, 3133, 3153, 3163, 3311, 3673, 3873, 4688

Wildlife, Ecology and Conservation Concentration	
Recommended Courses:	BIOL 3083, 3113, 3293, 3441, 3541, 3606, 3703, 3873, 3883, 4191, 4233, 4352, 4423, 4723, 4732, 4741, 4851, 4863, 4899
Relevant field courses:	BIOL 3173 , 3383 , 4443 , 4641; BIOL 6183; also see Marine Biology Concentration

CHEMISTRY OPTION

DEPARTMENT OF CHEMISTRY

General Office:	F.J. Toole Hall, Room 15
Mailing Address:	Department of Chemistry, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4781
Fax:	(506) 453-4981
Email:	chem@unb.ca
Website:	http://www.unb.ca/fredericton/science/chem/

FACULTY

· Adam, Allan G., BSc, MSc (UWO), PhD (Wat), Prof (Cross Appt - Physics)- 1991
· Balcom, Bruce, BSc (Mt.All.), PhD (UWO), Prof (Cross Appt - Physics) - 1993
· Bottomley, Frank, BSc, MSc (Hull), PhD (Tor), DSc (Hull), FCIC, Prof Emeritus - 1999
· Calhoun, Larry, BSc, MSc, PhD (UNB), Sr. Research Assoc - 1994
· Chibante, Felipe, BSc (McGill), MA (Rice), PhD (Rice), Assoc Prof (Richard J Currie Center Chair in Nanotechnology; Cross Apt - Chemical Eng) - 2007
· Cooper, Rodney H., BMath, MMath (Wat), Prof (Cross Appt Computer Science)- 1975
· Decken, Andreas, Dip (Duisburg), PhD (McM), Sr. Research Assoc - 1995
· Deslongchamps, Ghislain, BSc (Sher), PhD (UNB), University Teaching Prof (Cross Appt- C.S.) – 1992
· Dyker, Adam C, BSc (UNB), PhD (Dalhousie), Assoc Prof-2010
· Eisler, Sara, BSc, PhD (Alberta), Assoc Prof - 2008
· Findlay, John A., BSc, PhD (UNB), FCIC, Hon Res Prof - 1995
· Grein, Friedrich, BSc, MSc (Goett), PhD (Fran), FCIC, Prof Emeritus - 1995
· Kang, Guojun, BS (Nankai), PhD (McG.), Research Assoc - 1993
· Elbakali-Kassimi, Noureddin, BS (Morocco), MS, PhD (Paris), Sr. Inst - 2000
· Mattar, Saba M., BSc (Alexandria), MSc (Amer U Of Cairo), PhD (McG.), Hon Res Prof - 2013
· McGrady, Sean, BA, DPhil (Oxford), Prof - 2003
· Neville, John, BSc (UNB), PhD (UBC), Assoc Prof - 1999
· Ni, Yonghao, BEng (Northwest Inst of Light Industry), MEng, PhD (McG.), Prof and CRC Chair in Pulping Tech. (Joint Chemical Eng) - 1993
· Passmore, Jack, BSc, Dipl Ed (Brist), PhD (UBC), DSc (Brist), FCIC, Prof Emeritus- 2007
· Reeves, Valerie, BSc, PhD (UNB), Inst - 2005
· Tait, James, BSc, PhD (Western), Sr. Inst - 2007
· Thakkar, Ajit, BSc, PhD (Qu), FCIC, Prof - 1984
· Valenta, Zdenek, Dip. (Zurich), PhD (UNB), Prof Emeritus - 1993
· Villemure, Gilles, BSc, PhD (Ott), Prof - 1990

GENERAL INFORMATION

There are five chemistry degree programs: Major, Medicinal Chemistry Major, Honours, Medicinal Chemistry Honours and Chemistry Co-op. All five programs, have national accreditation under the Canadian Society for Chemistry. The Honours and Chemistry Co-op programs are recommended for students pursuing graduate studies and careers in chemistry. The Medicinal Chemistry Honours program is recommended for students pursuing graduate studies leading to careers in the health professions or the pharmaceutical industry.There are two options available in the Chemistry Honours and Medicinal Chemistry Honours programs; Honours by Thesis, and Honours by course. A Minor program is offered for students in other departments of the Faculty of Science and outside the Science Faculty who are interested in a coherent package of chemistry courses.

Valid WHMIS (Workplace Hazardous Materials Information System) certification is required for all students who wish to take CHEM laboratory courses. Information regarding WHMIS training will be provided during the first week of classes.

Minor Program

Students wishing to pursue a minor in chemistry must follow the guidelines below. The disciplines in chemistry (analytical, inorganic, organic, physical and theoretical) chosen for a minor must be pre-approved by the Director of Undergraduate Studies.

A. Students not requiring Chemistry courses for their majors degree: CHEM 1001 , 1006 , 1012 and 1017 plus courses in three disciplines chosen by the student. Students are required to take one lecture and one lab course in each of the chosen disciplines.

B. Students requiring Chemistry courses for their majors degree are not eligible to count 1st year Chemistry courses towards a Chemistry minor. Two options are:

Students wishing a broad range of topics are required to take six lecture courses in a minimum of four of the disciplines plus one lab course in each of the chosen disciplines.

Alternatively, students wishing a specialized set of topics are required to take six lecture courses in two of the disciplines plus four lab courses in the chosen disciplines.

First Year

CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017 , MATH 1003 or MATH 1053 , MATH 1013 or MATH 1063, PHYS 1061 and PHYS 1062 or PHYS 1071 and PHYS 1072, PHYS 1091, PHYS 1092, BIOL 1001, BIOL 1012, plus 6ch electives.

The minimum credit hour requirements beyond first year are:

Major: 66 chemistry, 3 biology, 6 mathematics, 18 electives.

Honours by Thesis: 79 chemistry, 3 biology, 6 mathematics, 18 electives.

Honours by Course: 81 Chemistry, 3 biology, 6 mathematics, 18 electives.

Chemistry Co-op: Please refer to the Science section of this calendar for detailed information

Note: A minimum of twelve (12) ch of the twenty-four (24) ch of electives must be from the Faculty of Arts.

Major Program

Second Year

CHEM 2002 , CHEM 2201 , CHEM 2222 , CHEM 2237 , CHEM 2421 , CHEM 2422 , CHEM 2416 , CHEM 2601 , MATH 2003 , MATH 2213 or equivalent (approved by the Chemistry department), plus electives.

Third Year

CHEM 2121, CHEM 2136, CHEM 3621, CHEM 3637, CHEM 3122, CHEM 3137, CHEM 3201, CHEM 3222, CHEM 3236, CHEM 3421, CHEM 3422, CHEM 3622, plus electives.

Fourth Year

BIOL 2023 , CHEM 4416 , CHEM 4601 , CHEM 4616 , two of CHEM 4013 , CHEM 4112 , CHEM 4222 , CHEM 4422 , CHEM 4622 , plus electives.

Honours Program

Entry into the Honours program is allowed after first year provided that a minimum CGPA of 3.0 has been attained for all subjects taken in the degree program. A CGPA of 3.0 must be maintained in subsequent years. The graduating Honours student must achieve a minimum CGPA of 3.7 for First Class Honours standing and a minimum of 3.0 for Honours standing. A student completing all the course requirements for Honours but with a CGPA below 3.0 will be given a Majors degree. Students must notify the Director of Undergraduate Studies of their intent to pursue an Honours Program for appropriate academic advising.

Second Year

CHEM 2002, CHEM 2201 , CHEM 2222 , CHEM 2237 , CHEM 2421 , CHEM 2422 , CHEM 2416 , CHEM 2601 , MATH 2003 , MATH 2213 or equivalent (approved by the Chemistry department), plus electives.

Third Year

CHEM 2121 , CHEM 2136 CHEM 3621 , CHEM 3637 , CHEM 3122 , CHEM 3137 , CHEM 3201 , CHEM 3222 , CHEM 3236 , CHEM 3421 , CHEM 3422 , CHEM 3622, plus electives.

Fourth Year

BIOL 2033 , CHEM 4416 , CHEM 4601 , CHEM 4616 , CHEM 4000 , four of CHEM 4013 , CHEM 4112 , CHEM 4222 , CHEM 4422 , CHEM 4622 , plus electives.

Fourth Year Option 2 (Honours by Course)
BIOL 2023, CHEM 4416, CHEM 4601, four of CHEM 4013, CHEM 4112, CHEM 4222, CHEM 4422, CHEM 4622, a minimum of eleven credit hours from CHEM 3003, CHEM 4513, CHEM 4523, CHE 5313, CHE 2501, CHE 5714, CHE 5824, plus electives.

Chemistry Co-op Program

The UNB Faculty of Science seeks to provide opportunities for students and employees to develop realtionships that enhance the learning experience for students and present employers with skilled, motivated, employees looking to make a career connection. To achieve this, the Faculty, through the Department of Chemistry and other Science departments and programs, operates a Co-operative education program. Co-op oppurtunities are available for qualified students, please refer to the Science section of this calendar for detailed information.

Medicinal Chemistry Program

First Year
CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017 , MATH 1003 or MATH 1053 , MATH 1013 or 1063 , PHYS 1061 and PHYS 1062 or PHYS 1071 and PHYS 1072, PHYS 1091 , PHYS 1092 , BIOL 1001 , BIOL 1012 , BIOL 1006 , BIOL 1017 .

The minimum credit hour requirements beyond first year are:

Medicinal Chemistry Major:
61 chemistry, 9 biology, 6 mathematics, 18 electives.

Medicinal Chemistry Honours by Thesis:
71 chemistry, 15 biology, 6 mathematics, 18 electives.

Medicinal Chemistry Honours by Course: 70 chemistry, 15 biology, 6 mathematics, 18 electives.

Note: A minimum of twelve (12) ch of the eighteen (18) ch of

electives must be from the Faculty of Arts.

MEDICINAL CHEMISTRY MAJOR PROGRAM

Second Year

BIOL 2023 , CHEM 2002 , CHEM 2201 , CHEM 2222 , CHEM 2237,

CHEM 2416, CHEM 2421 , CHEM 2422 , CHEM 2601 , MATH 2003,

MATH 2213 or equivalent (approved by the Chemistry department),

plus electives.

Third Year

BIOL 2251 , BIOL 2013 , CHEM 2121 , CHEM 2136 , CHEM 3421 , CHEM 3422 , CHEM 3621, CHEM 3637, CHEM 4416, CHEM 4523 , plus electives.

Fourth Year
CHEM 3003 , CHEM 4513 , CHEM 4422 , two of CHEM 3137, CHEM 3236, 4616, one of CHEM 3122, CHEM 3201, CHEM 3222, CHEM 3622, CHEM 4601 plus electives.

MEDICINAL CHEMISTRY HONOURS PROGRAM

Second Year
BIOL 2023 , CHEM 2002 , CHEM 2201 , CHEM 2222 , CHEM 2237, CHEM2416, CHEM 2421 , CHEM 2422 , CHEM 2601 , MATH 2003 , MATH 2213 or equivalent (by the Chemistry department), plus electives.

Third Year
BIOL 2251 , BIOL 2013, CHEM 2121, CHEM 2136, CHEM 3421 , CHEM 3422 , CHEM 3621, CHEM 3637, CHEM 4416, CHEM 4523, plus electives.

Fourth Year Option 1 (Honours by Thesis)
BIOL 2753, BIOL 2792, CHEM 3003, CHEM 4000, CHEM 4422, CHEM 4513, one of CHEM 3137, CHEM 3236, 4616, two of CHEM 3122, CHEM 3201, CHEM 3222, CHEM 3622, CHEM 4601 plus electives.

Fourth Year Option 2 (Honours by Course)
BIOL 2753, BIOL 2792, CHEM 3003, CHEM 4422, CHEM 4513, two of CHEM 3137, CHEM 3236, 4616, twelve credit hours from CHEM 3122, 3201, 3222, 3622, 4601, 4112, 4222, 4622, plus electives.

ECONOMICS OPTION

DEPARTMENT OF ECONOMICS

General Office:	Singer Hall, Room 465
Mailing Address:	Department of Economics University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4828
Fax:	(506) 453-4514
Email:	econ@unb.ca
Website:	http://www.unbf.ca/arts/econ

• Dalkir, Elif, BS (Mathematics-METU), MS (Bogazici), MA (Mathematics-Kansas), PhD (Economics & Mathematics - Kansas), Assist. Prof. 2012
• Dalkir, Mehmet S., BS, MS (Engineering-METU), MA (Kansas), PhD (Kansas), Assoc. Prof - 2005
• Farnworth, Mike, BA, MA (Qu.), PhD (McM), Assoc. Prof - 2000
• Lantz, Van, BA (Car.), MA (Dal), PhD (S.Fraser), Assoc. Prof (Joint Forestry & Enviro Mgmt) - 2000
• Leonard, Phillip, B. Comm (Queen's), MA (Ottawa), PhD (McMaster), Research Assoc and Health Economist with NB-IRDT - 2014
• McDonald, Ted, BA (St. F.X.), MCom, PhD (Melbourne), Prof - 2001
• Murrell, David, BA (Duquesne),BSocSc, MA (Ott), PhD (Qu), Prof - 1985
• Myatt, Anthony E., BA (Lancaster), MA, PhD (McM), Prof - 1983
• Passaris, Constantine E., BA (American U, Cairo), MA (Nfld), PhD (Leicester), Prof - 1972
• Yevdokimov, Yuri, BSc (Sumy), MA (Academy of Science), MSc (Ill), PhD (Manit.), Prof (Joint Civil Eng.) - 1999
• Peters, Paul, BES (Waterloo), MES (Waterloo), PhD (Texas) Assist Prof and Canada Research Chair (Joint with Sociology) - 2014
• Yu, Weiqiu, BSc (Shandong), MA (UNB), PhD (S. Fraser), Prof & Chair - 1993

Programs available to Faculty of Science students include Majors, Honours and a Minor in Economics (see below), Major and Honours in Mathematics/Statistics-Economics, and Major in Earth Science-Economics,These programs can be found at BSc. Interdepartmental Programs.

Majors and Honours

Students are advised to carefully plan their selection and sequencing of foundation courses as each course is a prerequisite for higher level courses within the same subject area.

Students normally choose a major or Honours in the second year and should register with the Department at the beginning of the academic year. Registration forms may be obtained from the departmental secretary in SH465 or downloaded from the departmental website at: http://www.unb.ca/fredericton/arts/departments/economics/index.html.

Major in Economics

The Major consists of a minimum of 30 ch in Economics of which 24 ch must be in advanced courses (i.e., courses that start with the number 3 or higher are advanced). Required courses include ECON3023 , ECON3013 , and a 3 ch course in statistics. Since the Economics Department does not offer an undergraduate statistics course, most statistics courses offered by other Departments are acceptable as an Economics statistics credit, e.g. ADM2623/ ECON 3601 First Year (36 ch minimum.

Major in Economic Studies

This Major consists of a minimum of 30 ch in Economics, of which 24 ch must be in advanced courses. There are no other restrictions on course selection. The Economic Studies Program is appropriate for those who want a liberal arts background in Economics without the commitment to theory and statistics required by the Major in Economics.

Honours in Economics

There are two Honours programs: Single Honours and Joint Honours. They are suitable for students who intend to become professional economists, particularly those who plan to do graduate work at UNB or another university.

The **Single Honours program** consists of a minimum of 54 ch in Economics courses or approved substitutes, of which 36 ch must be in advanced courses. The **Joint Honours program** consists of 48 ch in Economics courses or approved substitutes, of which 24 ch must be in advanced courses.

Students may substitute up to 9 ch of non-Economics courses for non-compulsory Economics courses. Department of Economics approval is required. These substitute courses must be approved by the Director of Undergraduate Studies.

To remain in the Honours programs, a student must maintain a GPA of 3.0 in Economics courses and approved substitutes.

The following courses are compulsory for Honours students: ECON 3013 and ECON 3023, ECON3601/ADM2623 and ECON3628/ADM3628 or approved substitutes, ECON 3665 , ECON4013 , ECON4023 , ECON4625 , and ECON4665 .

Minor in Economics

In addition to the Majors/Honours programs in Economics, a Minor in Economics is also available to students from all Faculties. The minor in Economics shall consist of at least 24 ch in Economics. The courses for the Minor must be from a "coherent set of sequence of courses" as called for by the general university regulations for a Minor.

Minor in Public Policy

This is a joint Minor proposed by the departments of Economics and Political Science. Students may minor in Public Policy by completing 24ch of courses offered by the Department of Economics and the Department of Political Science. Students are required to complete 24ch as follows:

a. 6ch of economics (ECON) courses chosen from: ECON 1014 or ECON 1013 , ECON 1024 or ECON 1023, ECON 2203, ECON 3505, ECON 3705, ECON 3905.
b. 6ch of introductory political science (POLS) courses chosen from: POLS 1103 , POLS1203 , POLS 2013, POLS 2202, , POLS 2503, POLS 2603.
c. 6ch of advanced economics (ECON) courses from: ECON 3055 , ECON 3203 , ECON 3504 , ECON 3702 , ECON 3755 , ECON 3775, ECON 3801, ECON 3815, ECON 3845, ECON 3865.

d. 6 ch of advanced political science (POLS) courses from: POLS 3103, POLS 3213, POLS 3215, POLS 3241, POLS 3251 , POLS 3257 , POLS 3282, POLS 3284, POLS 3292, POLS 3391, POLS 3461, POLS 3647, POLS 4724.

Economics Program to Business Administration Students

Please refer to the Faculty of Business Administration for further details on the Economics Program in Business Administration.

Economics Programs to Science Students

Please refer to the Faculty of Science for further details on the Economics Programs in Science.

Additional Programs: Cooperative Education Program

The Department operates a small Co-operative Education (Co-op) Program available to academically qualified Honour and Majors in Economics and Majors in Economic Studies. It is co-ordinated through the Faculty of Business Administration. This Program offers students the opportunity to undertake paid work-terms, the work to include economic research and analysis beyond classroom instruction. The Program offered within the Department consists of a minimum of three (3) four-month work-term sessions which may or may not be taken consecutively depending on the work-term offer taken. These work-term sessions are in addition to the normal eight semesters of academic study.

The Program allows the student to obtain a Major in Economics or Economic Studies or Honours in Economics in addition to Co-op participation. Students normally apply to enter the Co-op program after completing the first year of study, but later admission may be possible.

The following Program rules apply:

1. Admission into the Program is selective. Students must maintain a minimum GPA of 3.0 while participating in the Co-op Program.

2. Students must be fully registered at UNB during each work-term so that they can be considered as full-time students while working.

3. A Co-op fee will be charged for each registered 4-month work-term to cover placement and administration costs.

4. Students must undertake a minimum of 3 work-terms. The work-terms may alternate with study-terms, or the terms may run consecutively over two or three terms, depending on employer demand.

5. Each 4-month work term will be monitored directly by the employer, and by the departmental Co-op Director through oral and written communications with the employer and student. The student must complete a work-term report after each 4-month term. Work-term evaluations by the employer and work-term reports must be satisfactory for the Co-op designation to appear on university transcripts. Each successful work-term will appear on the student's transcript.

6. Students must complete at least one study-term after their last work-term.

7. The term "Co-operative Education in Economics" will follow the degree designation on the student's final transcript.

ENVIRONMENTAL BIOLOGY OPTION

PLEASE NOTE: ADMISSION TO THE ENVIRONMENTAL BIOLOGY OPTION HAS BEEN SUSPENDED EFFECTIVE MAY 1, 2015. FOR FURTHER INFORMATION PLEASE CONTACT THE CHAIR OF BIOLOGY.
The Environmental Biology Option is offered as an Honours or Majors Program through the Department of Biology.
The Honours program requires the student to take a minimum of 150 credit hours, including 74 ch of Years I and II requirements, 44 ch of Years III and IV requirements (see below), and 32 ch of electives (which Include a minimum of 12 ch of courses in the Faculty of Arts). A student must sustain a minimum CGPA of 3.0. Students maintaining a minimum CGPA of 3.0 are eligible to apply for BIOL 4090 (Honours by thesis).

The Major program requires a minimum of 132 credit hours, with 69 ch of Years I and II requirements, 38 ch of Years III and IV requirements, and 25 ch of electives (including a minimum of 12 ch of course in the Faculty of Arts).

NOTE: Students must consult their Environmental Biology advisor for information about prerequisites, electives, and program planning.

Year I (34 ch, same for both Honours and Majors programs)

1. MATH 1003 or 1053 (3ch) STAT 2264 (3ch)
2. BIOL 1001 , 1006 , 1012 and 1017 (10ch)
3. CHEM 1001, 1006 , 1012 and 1017 (10 ch)
4. GEOL 1001 , 1012 and 1017 (8ch)

Year II (40 ch Honours, 35 ch Majors)

1. CHEM 2111 (5 ch, Honours program only)
2. Cell/Molecular module (10 ch) BIOL 2025 , 2033 , 2053
3. Ecology/Evolution module (10 ch) BIOL 2113 , 2105 ,2143
4. Organismal module (15 ch) BIOL 2073 , 2083 , 2093.

Years III and IV (44 ch Honours, 38 ch Majors minimum required plus electives)

1. BIOL 4863 (4ch)
2. Two of ENVS 2003 , 2023 , 4001 ,or 4002 (6 ch)
3. One of BIOL 3801 (3 ch), 3521 (5 ch), or 3261 (3 ch)
4. One of BIOL 3173 , 3383 , 4443 , or equivalent (4 ch)
5. Minimum 12ch for Honours, 9 ch for Majors from Group A courses (see below)
6. Minimum 15ch for Honours, 12 ch for Majors from Group B courses (see below)
7. Electives to bring total credit hours in Honours program to 150 ch, Majors 132 ch minimum.

NOTE: Credit for a course will only be counted once toward degree requirements.

Group A Courses (Plants and Microbes)		
BIOL 3206	Advanced Microbiology Laboratory	(4 ch)
BIOL 3261	Microbial Physiology	(3 ch)
BIOL 3293	Population Genetics	(4 ch)
BIOL 3301	Taxonomy of the Flowering Plants	(5 ch)
BIOL 3423	Forest Tree Genetics and Genomics	(3 ch)
BIOL 3441	Forest Ecology: Populations and Communities	(5 ch)
BIOL 3521	Plant Function: Physiology and Primary Metabolism	(5 ch)
BIOL 3541	Plant Ecology	(5 ch)
BIOL 3633	Biological Oceanography	(3 ch)
BIOL 3943	Hypothesis Testing in Biology	(3 ch)
BIOL 4221	Diversity, Evolution and Ecology of Marine Plants	(5 ch)
BIOL 4352	Climate change and Environmental Response	(3 ch)
BIOL 4413	Environmental Plant Physiology	(3 ch)
BIOL 4423	Resource Conservation Genetics	(3ch)
ENR 3111	Estuary and Ocean Ecosystems	(3 ch)

Group B Courses (Animals and Ecology)		
BIOL 3113	Evolutionary Ecology	(5 ch)
BIOL 3293	Population Genetics	(4 ch)
BIOL 3602	Invertebrate Zoology	(5 ch)
BIOL 3633	Biological Oceanography	(3 ch)
BIOL 3703	Vertebrate Zoology	(5 ch)
BIOL 3801	Animal Physiology	(3 ch)
BIOL 3873	Ethology	(3 ch)
BIOL 3883	Entomology	(4 ch)
BIOL 3908	Laboratory Studies in Vertebrate Physiology	(3 ch)
BIOL 3943	Hypothesis Testing in Biology	(3 ch)
BIOL 4191	Wildlife Management	(3 ch)
BIOL 4233	Conservation Biology	(3 ch)
BIOL 4352	Climate Change and Environmental Response	(3 ch)
BIOL 4641	Coastal Marine Ecology	(5 ch)
BIOL 4723	Ornithology	(5 ch)
BIOL 4732	Mammalogy	(5 ch)
BIOL 4741	Fish Biology	(2 ch)
BIOL 4746	Advanced Studies in Ichthyology	(4 ch)
BIOL 4851	Ecology of Marine Birds	(5 ch)
BIOL 4899	Population Analyses	(3 ch)
BIOL 4991	Aquaculture in Canada	(5 ch)
BIOL 4773	River and Lake Ecosystems	(3 ch)
BIOL 5473	Experimental design and data analysis in Biology and Forestry	(3 ch)
ENR 4111	Fisheries and Aquatic Science Techniques	(3 ch)
FOR 4602	Ecology and Forest Insects	(3ch)
FOR 4656	Wildlife: Scale and Forest Landscapes	(3 ch)

ENVIRONMENTAL GEOCHEMISTRY OPTION

This option provides Earth Sciences students who have an interest in environmental science with a background to pursue careers or graduate studies in environmentally related geoscience fields, especially in areas related to water resources, contamination and remediation.

REQUIRED COURSES

First Year

ESCI 1001, 1012, 1006, 1017, MATH 1003 or 1053, 1013 or 1063, CHEM 1001, 1006, 1012, 1017.

Students are required to successfully complete BIOL 1001, 1006, 1012, and 1017, and PHYS 1061 or 1071, 1062 or 1072, PHYS 1091, 1092 prior to graduation. Either the BIOL or PHYS courses must be included in first year. It is strongly recommended that the remaining science be completed by the end of the second year of study.

Second Year

ESCI 2131, 2142, 2211, 2321, 2602, 2703, MATH 2003 and 2013 or 1503 and 2513, CHEM 2601.

Third Year

CHEM 2111, 3122, 3137, ESCI 2022, 3442, 3631, 3713, one of STAT 2264, or 2593, one of BIOL 2073, 2113, or 4352, plus sufficient electives (see below) to meet program requirements.

Fourth Year

GE 5753, ESCI 3131, 4401, 4452, 4512, plus sufficient electives (see below) to meet program requirements.

Honours students are required to take ESCI 4900 (Thesis Project) in addition to the above courses.

ELECTIVES

In addition to the required courses, the program requires three (3) term course equivalents of Earth Sciences electives, plus four (4) term course equivalents of non-Earth Sciences electives.

EARTH SCIENCES OPTION

DEPARTMENT OF EARTH SCIENCES

General Office:	Forestry & Geology Building, Room 112
Mailing Address:	Department of Earth Sciences, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4804
Fax:	(506) 453-5055
Email:	odonnell@unb.ca or lodge@unb.ca
Website:	http://www.unb.ca/fredericton/science/depts/earth-sciences/index.html

FACULTY

· Al, Tom, BSc, MSc (Memorial), PhD (Wat), Assoc Prof - 1996
· Broster, Bruce, BSc (Wat), PhD (UWO), Prof - 1987
· Butler, Karl E.,P.Eng, BSc (Queen's), MSc, PhD (UBC), Assoc Prof - 1999
· Dingwell, Don, BSc (Memorial), PhD (Alberta), Adjunct Prof-2005.
· Donovan, Stephen, BSc (Manchester), PhD, DSc (Liv.), Adjunct Prof - 2000
· Keighley, David, BSc (Manchester), PhD (UNB), Assoc Prof - 2004
· Lentz, David R., BSc, MSc (UNB), PhD (Ott), Assoc Prof - 2000
· McCutcheon, Steven,BSc, PhD (UNB) , Adjunct Prof - 2001
· McFarlane, Chris, R.M, BSc (Toronto), MSc (Calg), PhD(Austin) Assoc Prof-2007
· Miller, Randall, BSc, MSc, PhD (Waterloo), Adjunct Prof- 1995
· Pickerill, Ronald K., BSc, PhD (Liv), Prof - 1975
· Shaw, Cliff, BSc (Goldsmith), MSc, PhD (Western), Prof & Chair - 2002
· Spray, John G., BSc (Cardiff), PhD (Camb), Prof - 1986
· Susak, Nicholas John, BS (Penn State), MA, PhD (Prin), Assoc Prof- 1982
· Timmermans, Ann C., BSc (Waterloo), MSC (Carleton) Instructor - 2014
· White, Joseph C., BSc, PhD (UWO), Prof - 1981
· Williams, Paul F., BSc (Durham), MSc (NSW), PhD (Sydney), Em. Prof - 1980

General Information

Earth Science is the natural science that deals with Earth, its interior make-up, and surficial features, its formative and destructive processes, its age, history and development through time. Earth is the natural habitat of all life including mankind. Urban and land-use planning and efforts to clean up our environment require a sound knowledge of geology and geological processes. Earth scientists are concerned with a diverse range of issues such as the origin, migration and quality of groundwater, river and coastal erosion, desert-dune migration, the origin and evolution of oceans and continents, of mountain ranges, valleys and canyons. Studies concerning the causes and effects of natural hazards, such as those created by land and rock slides, earthquakes, floods and droughts, and volcanic eruptions all fall within the realm of Earth Sciences.

Geologists research the origin of Earth's natural resources, and are extensively involved in the discovery, development, and conservation of the metallic minerals we use, the clay, sand, gravel, cement, and fertilizer we need to improve our living conditions, the water we drink and the coal, oil and natural gas we use to for energy.

Earth Sciences includes studies of the origin, history and evolution of life through time. Most importantly, Earth Science is concerned with the special set of circumstances that makes life on Earth possible and Planet Earth so unique in our Solar System if not in the Universe.

Geochemists deal with the chemical make-up of magmas and rocks in the earth's crusts, and are concerned with using geochemical techniques in the discovery of new ore reserves and in addressing environmental concerns. Geophysicists measure and study the gravity, magnetic and electrical fields of the earth and record and analyse seismic waves generated by earthquakes and man made sources. This information is used to investigate the nature and form of the Earth's interior, from the near surface to the inner core, in mineral and petroleum exploration, engineering site investigations, and in the solution of environmental Earth Science problems.

Biogeologists are concerned with the taxonomy, biogeography and behavioural evolution of fossils, paleoecological aspects of ancient life forms, history and evolution of life and establishing a relative time frame for past geological events. Mineral economics is mainly concerned with applying economic principles to the unimpeded and ordered supply of metals and energy resources for an expanding society on a global basis.

Geologists, geochemists, geophysicists, biogeologists and mineral economists find employment in the mineral industry, including exploration for oil, metals, and industrial minerals, in government surveys, in University teaching and research, and as independent consultants to the mining industry and engineering and environmental organizations.

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W.E. Hale Fund

In addition to the required field schools, the Department supports non-credit field trips through the W.E. Hale Fund. This fund partly defrays the cost of student-initiated field trips. These field trips are generally scheduled during spring break or at the end of term. In the past the Hale Fund has sponsored trips to Iceland, the Eifel volcanic field in Germany, the active Volcanoes of Italy and to the Grand Canyon and the Basin and Range Province of the southwest USA, to Cape Breton Island and Newfoundland, and Iceland. This fund was established by the friends and colleagues of the late Dr. W.E. Hale, a Professor and former Chair of the Department of Earth Sciences.

Earth Sciences Programs

Three programs are offered to students starting their second year in Science and wishing to specialize in Earth Sciences: Major, Honours, and Pass. Two required off-schedule field schools for Major and Honours programs contribute 12ch to the program totals. The Pass program includes 6ch of second year field school.

Honours students follow the Major program and are only identified as Honours students in their final year. Student must consult with the Director of Undergraduate Studies of the Department of Earth Sciences prior to selecting programs and courses. Note that many third year and most fourth year courses are offered on an alternate year (A) basis. Consult the department's undergraduate advisor or webpage for anticipated third and fourth year elective offerings.

1. **Honours Program: (173ch + 12 ch field schools):**This program is designed for properly qualified students entering the final year of their undergraduate studies who wish to explore in some detail a Earth Sciences subject area of particular personal interest and to gain practical experience in research and in presentation of the results in a written form. The Honours degree is the standard for professional registration in New Brunswick. Entrance to the Department of Earth Sciences Honours Program requires a cumulative grade point average of atleast 3.0 overall, by the end of the year prior to the student's final year. A written request for admission to this program must be submitted to the Departmental Chair. For graduation with an Honours degree, a minimum cumulative grade point average overall of 3.0 and a grade of B- or higher in GEOL 4900 are required. Students failing to meet these requirements will be awarded a Major degree**.**

2. **Major Program: (166 ch + 12 ch field schools):** This is the program selected by students specializing in Earth Sciences. Minimum course requirements are given below.

3. **Pass Program: (141 ch + 6 ch field school):** This program is designed for those students who are looking for a minimal specialization in Earth Sciences and the opportunity of taking more elective courses outside the Earth Sciences Department. Minimum course requirements are given below**.** The Pass Program can be tailored to meet the requirements for professional registration in New Brunswick.

4. **Minor Program:** The Department can also offer a Minor in Earth Sciences following theUniversity guidelines outlined in the online calendar. A Minor consists of a coherent grouping of courses totalling at least 24 credit hours (with a grade of C or better) approved by the department. Courses required as part of a declared degree program may not normally be counted towards the Minor. The Earth Sciences Minor typically does not meet the requirements for professional registration in New Brunswick.

Students are reminded that courses offered by other Departments can form an important complementary part of the overall course of studies.

Honours Program

First Year
ESCI 1001 , ESCI 1012 , one of ESCI 1006 , 1026 , or 1036   ; MATH 1003 or 1053 , MATH 1013 or 1063; CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017; PHYS 1061 , PHYS 1062 , PHYS 1091, PHYS 1092; plus an additional 4 ch (38 ch minimum).

Second Year
ESCI 2131 , ESCI 2142 ,ESCI 2202 ,ESCI 2211 , ESCI 2321 ,ESCI 2602 , ESCI 2703 , 6 ch of mathematics or statistics chosen from MATH 1503 , MATH 2003 , MATH 2013 , MATH 2213 , STAT 2513 , STAT 2253 , STAT 2264or STAT 2593 . It is strongly recommended that these seven 'core' second year Earth Sciences courses and second year field school be taken as a coherent group.

Third Year

ESCI 3131 , ESCI 3322 , ESCI 3703 ,plus sufficient electives to meet program requirements.

Fourth Year

ESCI 4312 , ESCI 4900 , plus sufficient electives to meet program requirements.

Electives

A minimum of 35 ch of Earth Sciences at or above the 2000 level. The electives must include one course each of geophysics, quaternary geology and resource geology. A minimum of 9 ch in the Faculty of Science outside of Earth Sciences. A minimum of 12 ch of approved courses outside of the Department of Earth Sciences. A minimum of 15 ch of free electives.

Major Program

First Year
ESCI 1001 , ESCI 1012 , one of ESCI 1006 , 1026 , or 1036 ; MATH 1003 or 1053, MATH 1013 or 1063; CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017; PHYS 1061, PHYS 1062 , PHYS 1091, PHYS 1092; plus an additional 4 ch (38 ch minimum).

Second Year
ESCI 2131 , ESCI 2142 , ESCI 2202 , ESCI 2211 , ESCI 2321 , ESCI 2602 , ESCI 2703; 6 ch of mathematics or statistics chosen from MATH 1503 , MATH 2003 , MATH 2013 , MATH 2213 , MATH 2513 , STAT 2253 , STAT 2264or STAT 2593 .It is strongly recommended that these seven 'core' second year Earth Sciences courses and second year field school be taken as a coherent group.

Third Year

ESCI 3131 , ESCI 3322 , ESCI 3703 , sufficient electives to meet program requirements

Fourth Year

ESCI 4312 , plus sufficient electives to meet program requirements.

Electives

A minimum of 35 ch of Earth Sciences at or above the 2000 level.

The electives must include one course each of geophysics (ESCI 4501 or ESCI 4512),

quaternary geology (ESCI 4401) and resource geology (choose from ESCI 3482, ESCI 3492,

ESCI 4442, ESCI 4461, ESCI 4472) .

A minimum of 9 ch in the Faculty of Science other than Earth Sciences. A minimum of 12 ch of approved courses outside of the Department of Earth Sciences. A minimum of 15 ch of free electives.

Major Program

First Year
ESCI 1001 , 1012 , one of ESCI 1006 , 1026 , or 1036 ; MATH 1003 or 1053 , 1013 or 1063; CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017 . A minimum of 2 term courses of lectures chosen from BIOL 1001 , 1012 , or PHYS 1061, 1062. A minimum of 1 term course of labs chosen from BIOL 1006 , 1017 , ESCI 1017 , or PHYS 1091, 1092; plus an additional 6 ch (38 ch minimum).

Second, Third and Fourth Year
ESCI 2131 , 2142 , 2211 , 2321 , 2602 , 2703 , 3131 , 4312 , plus at least 25 ch of Earth Sciences courses at or above the 2000 level, plus at least 45 ch of other approved electives (which may include Earth Sciences courses).

Note: All of the 2000 level Earth Sciences courses listed above need not be taken in the second year of the program but students should be aware that most of these courses are prerequisite to many 3000 and 4000 level courses. See Description of Courses, Earth Sciences for prerequisite requirements for specific courses

Co-op Program

MAJOR AND HONOURS ONLY

The Department of Earth Sciences operates a Co-operative Education (Co-op) Program that is available to academically qualified Earth Sciences students who have completed two years of study. The program allows students to put classroom knowledge to practical and profitable use in the Canadian workplace. At UNB the Co-op Program in Earth Sciences consists of eight study terms of four months each and two work terms of eight months each. This program is normally completed in five years compared to the regular four year program and allows students to obtain a Majors or Honours designation in Earth Sciences. Students normally apply for this program during their third term of study and enter the program at the end of their second year.

1. Students must normally have achieved a minimum of a 2.7 cgpa in the study term preceding their application for employment.

2. Students must register for each work term in order that they be considered as full-time students while working.

3. A work term fee will be charged for each 8 month work term registered.

4. The overall assessment of the work period is the responsibility of the Department of Earth Sciences. The work period assessment shall consist of two components: 1) student performance as evaluated by a coordinator, given input from the employer, and 2) a work report graded by a coordinator or a member of faculty.

5. Students will normally have at least one study term after their last work term.

6. Students must be registered as full-time students in order to be eligible to apply for Co-op jobs.

First Year
ESCI 1001 , ESCI 1012 , one of ESCI 1006 , 1026 , or 1036 ; MATH 1003 or 1053, MATH 1013 or 1063; CHEM 1001 , CHEM 1006 , CHEM 1012 , CHEM 1017; PHYS 1061, PHYS 1062 , PHYS 1091, PHYS 1092; plus an additional 4 ch (38 ch minimum).

Second Year
ESCI 2131 , 2142 , 2202 , 2211 , 2321 , 2602 , 2703 , 6 ch of mathematics or statistics chosen from MATH 1503 , 2003 , 2013 , 2213, 2513, STAT 2253 , 2264 , 2593 .

Third, Fourth and Fifth Year
ESCI 3131 , 3322 , 3703 , 4312 (plus ESCI 4900 for the Honours Program), a minimum of 35 ch of approved Earth Sciences electives, plus a minimum of 9ch in the Faculty of Science other than Earth Sciences, plus a minimum of 12 ch of approved courses outside of the Department of Earth Sciences, plus a minimum of 15 ch of approved electives that may include Earth Sciences courses.

Courses must be selected such that Work Term #1 (ESCI 3803) starts in the winter term of the third year and terminates at the end of summer term of the third year. Work Term #2 (ESCI 4803) will start in the summer term of the fourth year and terminate at the end of the fall term in the fifth year.

ESCI 3703 must be taken in the Fall Term of the Third year.

MATHEMATICS AND STATISTICS OPTIONS

DEPARTMENT OF MATHEMATICS AND STATISTICS

General Office:	Tilley Hall, Room 418
Mailing Address:	Department of Mathematics and Statistics, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4768
Fax:	(506) 453-4705
Email:	math@unb.ca
Website:	http://www.unb.ca/fredericton/science/ math/

FACULTY

· Bremner, David, BSc (Calg), MSc (S.Fraser), PhD (McG), Assoc Prof (Cross Appt Computer Science) - 1999
· Campbell, H.E,A. Eddy, BSc, MSc, (Memorial), PhD(Tor), Prof - 2009
· Dean, Andrew, HBSc (Lakehead), MSc, PhD (Toronto), Adjunct Prof - 2007
· Gegenberg, Jack D., BA (Colorado), MSc (UBC), PhD (S.Fraser), Prof - 1985
· Grant McLoughlin, John, BMath (Wat.), MSc Teaching (Tor), PhD (SUNY Buffalo), Prof (Cross Appt - Education)- 2002
· Hasan, M. Tariq, BSc, MSc (Dhaka), MSc, PhD (Memorial), Asst Prof - 2006
· Husain, Viqar, BSc (Manchester), PhD (Yale), Prof - 1999
· Ingalls, Colin, BSc (Dal), PhD (MIT), Assoc Prof - 2000
· Kucerovsky, Dan, BSc (UWO), DPhil (Oxon), Assoc Prof - 1999
· Ma, Renjun, BS, MSc (Wuhan), PhD (UBC), Assoc Prof - 2000
· Marchand, Eric, BSc, MSc, PhD (Montreal), Adjunct Prof - 2007
· Mason, Gordon R., BSc (Bishops), MSc, PhD (McG), Hon Res Prof - 1969
· Monson, Barry R., BSc (Sask), MSc, PhD (Tor), Prof - 1979
· Picka, Jeffrey, BASc, BSc, MSc (Tor), PhD (Chicago), Assoc Prof - 2003
· Purdy, Caroline, BA, MSc, BEd (UNB), Senior Inst - 2001
· Rangipour, Bahram, BSc (Isfahan U of Tech.), MSc (Isfahan), PhD (W. Ontario), Assoc Prof - 2007
· Reynolds,A. Patrick, BA (St. FX), MSc, PhD (Queen's), Inst - 2013
· Salmani, Mahin, BSc (Isfahan), MMath (Victoria), MStat (Ohio), Inst - 2008
· Sankey, Alyssa, AB (Vassar), MSc, PhD (Michigan), Senior Inst - 2006
· Seahra, Sanjeev, BSc, PhD (Waterloo), Asst Prof - 2007
· Tasic, Vladimir, BSc (Novi Sad, Yugoslavia), PhD (Manit), Prof and Chair- 1995
· Thomas, Hugh, BSc (Tor), MS, PhD (Chicago), Prof - 2004
· Tingley, Daryl, BSc, MA (Dal), MSc, PhD (Mich State), Prof (retired) - 1985
· Tingley, Maureen A., BA (Adelaide), MA (Dal), MAT, MSc (Mich Stat), PhD (Dal), Prof (retired) - 1986
· Tupper, Brian O.J., BSc, PhD, DSc (Lond), FIMA, Hon Res Prof - 1998
· Turner, T. Rolf, BA (Vic.(BC)), MSc (Qu), PhD (Mich), MStat (UNSW), Adjunct Prof - 2007
· Wang, Lin, Bsc, Msc (Hunan), PhD (Memorial), Asst Prof - 2007
· Watmough, James, BASc, MSc, PhD (UBC), Prof - 2000
· Yan, Guohua, BSc (Liaocheng), MSc (Beijing, Windsor), PhD (UBC), Asst Prof - 2008

GENERAL INFORMATION

The Department of Mathematics and Statistics offers Honours and Majors BSc and BA degrees in Mathematics and in Statistics. Requirements for the BA degrees are available from the Department. Minors are also offered.

MATHEMATICS OPTION

Introductory Level Courses

Introductory Mathematics courses are organized into the following sequences:

1. MATH 1003 and 1013 , Introduction to Calculus I and II (or MATH 1053 and 1063): these courses are required for a degree in Mathematics or Statistics and are prerequisites for intermediate and upper-level courses in Mathematics and Statistics. Students who intend to pursue a degree in Mathematics or Statistics should take these courses in their first year. Grade 12 Mathematics is the normal prerequisite.

2. MATH 1823 and 1833 , Mathematics for Management Sciences I and II: this sequence provides a mathematical background for quantitative work in Business Administration and in the social sciences. These courses do not provide the preparation for most intermediate and upper-level courses in Mathematics and Statistics.

Minors Program

The Minor in Mathematics consists of 24 ch in Mathematics courses. Credit must be obtained for MATH 1003 (or MATH 1053), MATH 1013 (or MATH 1063), and either MATH 1503 or MATH 2213 . The remaining 15 ch of the minor must consist of Mathematics courses at the second year level or above. A maximum of 6 ch of Statistics may count towards the 15 ch.

Minor in Financial Mathematics

For a minor to be designated Financial Mathematics the courses taken by a student must satisfy the requirements for the Mathematics Minor, as listed above, and must include: MATH 2003 or MATH 2513 , MATH 3803 , two of MATH 3813 , MATH 3843 or MATH 4853 ; and STAT 2593 or STAT 2264 , or both of STAT 3083 and STAT 3093 . Other recommended courses are MATH 2013 , MATH 3043 , MATH 3073, MATH 3373.

Minor in Computational Mathematics

For a minor to be designated Computational Mathematics the courses taken by a student must satisfy the requirements for the Mathematics Minor, as listed above, and must include: MATH 2003 or MATH 2513, MATH 3003, MATH 3073, MATH 3533, MATH 3413, MATH 4503 . Other recommended courses are MATH 3343, MATH 3473, MATH 3043, MATH 3243, MATH 4853 .

Certificate in Actuarial Studies

The primary objective of the Certificate is to prepare students at UNB for a career in the actuarial profession. Professional qualification in the actuarial profession is contingent on passing a series of examinations administered by the Canadian Institute of Actuaries and on passing university courses in five specialized topics, known as Validation by Educational Experience or VEE courses. The Certificate will require that the five VEE courses be taken, and will also require courses that help the student prepare for the first three professional examinations.

Admission to the Certificate in Actuarial Studies program requires admission into a major or honours program in Mathematics, Statistics, Economics, or Business Administration at UNB, or permission of the program administrator.

The Certificate requires the successful completion (with a grade of B- or higher) of nine (9) courses, totaling twenty-seven credit hours, which shall include the following: AM 3415 (VEE), ECON 1013 (VEE) or 3013 (VEE), ECON 1023 (VEE) or 3023 (VEE), MATH 3803 (E), MATH 3843 (E), STAT 3083 (E) or 2593 (E), STAT 3093 , STAT 4433 (VEE), STAT 4053 (VEE) or ECON 4625 (VEE).

Courses indicated with an E are courses that prepare the student for the first three actuarial exams. Prerequisites for these courses may require additional course work outside of the student's major or honours program.

If the student passes SOA Exam FM or CAS eam 2 before graduating, then MATH 3803 will not be required for Certificate. If the student passes SOA Exam MLC or CAS Exam 3L before graduating the Math 3843 will not be required for Certificate.

To be awarded the Certificate, a minimum of eighteen (18) credit hours must be completed at UNB. Subject to approval by the Dean of Science, a maximum of nine (9) credit hours (or the equivalent) of comparable coursework may be transferred from another recognized post-secondary institution.

Mathematics Degree Program

The Mathematics major degree is designed to prepare students for careers in industry, government or education. Mathematics students are urged to obtain some expertise in an area of application such as the physical sciences, computer science, engineering or business.

General Requirements

STAT 3083 , 3093 and at least one approved Computer Science term course are required courses for all Mathematics degrees. CS 1003 or CS 1073 is strongly recommended. CS 2525 and 1043 will not be approved.

First Year

First year required courses are listed under the BSc general regulations. MATH 1013 or MATH 1063 must be included. Suggested electives are MATH 2213 , MATH 2203 or CS 1303 , and CS 1073 , CS 1083 .

Second Year

MATH 2003 , 2013 , 2203 , 2213 , and approved electives equivalent to 6 term courses.

Third and Fourth Years

Students normally choose an Honours or a Majors degree in the Third Year. Students must apply to the Department Chair for admission to the Honours program. The Honours degree is the normal prerequisite for graduate study in the mathematical sciences. However, unless the undergraduate program is chosen carefully, a student may have to take certain undergraduate courses before entering or as part of their graduate program. Students with a Majors degree generally will be required to complete a qualifying year before being admitted to graduate study.

All Mathematics Majors and Honours students must have their course selections approved by the Department.

Honours Program

1. MATH 3033, 3213, 3243, 3103, 3113, MATH 4100 (normally taken in fourth year), and at least five other 3000-4000 level Mathematics term courses including at least one 4000 level term course, totalling at least 36 ch. STAT 3303 and STAT 3313 may count as Mathematics courses for this requirement.

2. STAT 3083, STAT 3093 and an additional 15 ch are required in approved 3000-4000 level courses selected from Science (excluding Mathematics but including Statistics), Arts, Business Administration, Computer Science, or Engineering.

3. Two other approved electives with a minimum 3 ch each

4. A total of 132ch is required to complete the degree.

For the award of a first-class Honours degree, in addition to the Science Faculty general regulations, a grade point average of 3.5 is required in 3000-4000 level Mathematics courses; this average is calculated on the minimum number of specified Mathematics courses as stated in 1 above. Credit hours obtained above the minimum will not be used in calculation of the average.

Majors Program

1. MATH 3003 , 3213 , 3033 , 3243 , and at least five 3000-4000 level Mathematics term courses, totalling at least 27 ch. STAT 3303 and STAT 3313 may count as Mathematics courses for this requirement.

2. STAT 3083, STAT 3093, and an additional 15 ch are required in approved 3000-4000 level courses selected from Science (excluding Mathematics but including Statistics), Arts, Business Administration, Computer Science, or Engineering.A maximum of 6 ch from a list of approved Education courses may be included. At least 9 ch must be taken from one coherent field of study, excluding Statistics.

3. Four other approved electives with a minimum of 3 ch each.

4. A total of 129 ch is required to complete the degree.

Co-op Program

The UNB Faculty of Science seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty, through the Department of Mathematics and Statistics and other Science departments and programs, operates a Co-operative education program. Co-op opportunities are sometimes available to qualified students. Please refer to the Science section of this calendar for detailed information.

STATISTICS OPTION

Introductory and Service Courses

In addition to degree programs in Statistics, the Department of Mathematics and Statistics offers a number of courses, both introductory and upper level, aimed at non-specialists whose discipline requires them to obtain some knowledge of statistics. The introductory courses are: STAT 2253, STAT 2263, and STAT 2264 (prerequisite Grade 11 Mathematics), and STAT 2593 (prerequisite MATH 1013) .

Minors Program

The Minor in Statistics consists of 24 ch in Statistics and Mathematics courses. Credit must be obtained for MATH 1003 or MATH 1053, and MATH 1013 or MATH 1063, and either MATH 1503 or MATH 2213 . The remaining 15 ch of the minor must consist of Statistics courses at the second year-level or above.(MATH 3843 or MATH 3373 may be counted as a Statistics course).

Statistics Degree Program

General Information

The degree programs in Statistics are designed to prepare students for careers in industry or government as well as to provide a background for graduate study. Statistics students are required to obtain expertise in an area of application such as the applied sciences, economics or psychology. Consequently, all upper level electives must be approved by the undergraduate faculty advisor.

The courses STAT 3083 and 3093 form the core of the Statistics degree programs. These courses are prerequisites for most of the upper year Statistics courses. It is strongly recommended that students take these courses in second year to facilitate flexibility of their programs in third and fourth years.

Students who have an interest in, or who are preparing for future careers which involve the design and implementation of statistical algorithms, are strongly encouraged to take MATH 3413 and CS 3113 .

The Honours degree is the normal prerequisite for graduate study in Statistics. Students with a Majors degree generally will be required to complete a qualifying year before being admitted to graduate study.

Majors Program

The basic structure of the majors program is as follows:

First year requirements

As specified by the Science Faculty regulations.

MATH 1013 or 1063 must be included.

General Requirements

i. At least 4 ch of approved Computer Science courses. CS 2525 and CS 1043 will not be approved.

ii. A total of 129 ch, of which at least 48 ch must be at the 3000 level or above. These credit hours include those specified below; the balance is to be made up of approved electives.

Science Elective Requirements

At least 16 ch of approved Science courses, at the 2000 level or above, taken outside the Department of Mathematics and Statistics. At least eight of these credit hours must be at the 3000 level or above.

Second Year Course Requirements

MATH 2003, 2013, and 2213 .

Students are strongly encouraged to take a second year Science course (outside Mathematics & Statistics) in their second year in order to make sure they have the prerequisites for Third Year Science electives.

Third and Fourth Year Course Requirements

i. STAT 3083 and 3093 . (Note: These courses may be taken in second year.)

ii.At least 21 more credit hours of approved 3000-4000 level Statistics courses, giving a total of 27 ch of Statistics courses at the 3000 level or above. Up to 12 ch chosen from MATH 3003, 3043, 3103, 3113, 3373, 3413, 3473, 3803, 3813 and 3843 may count as STAT courses for this requirement.

Honours Program

Students normally choose between an Honours or Majors degree in Third Year. They must apply to the Department Chair for admission to the Honours program.

For the award of a first-class Honours degree, in addition to the Science Faculty general regulations, a grade point average of 3.5 is required in 3000-4000 level statistics courses. This average is calculated on the basis of the courses, meeting the minimum requirements specified in (i), (ii), and (iii) below, in which the student has the highest marks.

The basic structure of the Honours program is as follows:

First Year Course Requirements:

General requirements:

i. As for the Majors program.

ii. A total of 132 ch, of which at least 63 must be at the 3000 level or above. These credit hours include those specified below; the balance is to be made up of approved electives.

Science Elective requirements:

As for the Majors program.

Second Year Course Requirements:

As for the Majors program, plus MATH 2203 .

Third and Fourth Year Course Requirements:

A total of 42 ch of approved STAT and MATH courses at level 3000-4000, with more ch in STAT than in MATH. These ch must include the following:

i. STAT 3083 and 3093 . (Note: These courses may be taken in second year.)

ii.At least 15 ch of Stat at 4000 level, including STAT 4100 .

iii. MATH 3103, at least one of MATH 3003, MATH 3113, at least one of MATH 3033, MATH 3043, MATH 3243 .

Co-op Program

The UNB Faculty of Science seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty, through the Department of Mathematics and Statisitcs and other Science departments and programs, operates a Co-operative education program. Co-op opportunities are sometimes available to qualified students. Please refer to the Scienc section of this calendar for detailed information. Students must take STAT 3083 and STAT 3093 in their second year to be eligible for this program.

PHYSICS OPTION

DEPARTMENT OF PHYSICS

General Office:	I.U.C. - Physics & Administration Building, Rooms 206/209
Mailing Address:	Department of Physics, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4723
Fax:	(506) 453-4581
Email:	physics@unb.ca
Website:	http://www.unb.ca/fredericton/science/ physics/

FACULTY

· Adam, Allan G., BSc, MSc (UWO), PhD (Wat), Prof (Cross Appt - Chemistry)
· Backman, Phillip, J., BSc (Dal), MSc, (UND), Sr. Instructor - 2004
· Balcom, Bruce, BSc (Mt.All.), PhD (UWO), Prof (Cross Appt -   Chemistry) & Canada Research Chair -1993
Benton, J. Bruce, BSc, MSc (UNB), Sr Teaching Assoc and Asst   Dean 1983
· Gegenberg, Jack D., BA (Colorado), MSc (UBC), PhD (S. Fraser), Prof - 1985 (Cross Apt - Math & Stat)
· Ghosh, S.N., BSc (Calc), MSc (Calc & Nfld), PhD (UNB), Sr Teaching Asoc - 1978
· Hamza, Abdelhaq, BSc (Algiers), MSc, PhD (MIT), Prof - 1995
· Husain, Viqar, BSc (Machester), PhD (Yale), Prof and Chair - 1999 (Cross Appt - Math & Stat)
· Jayachandran, P.T. BSc (Calicut), MSc, PhD (Andhra), Prof - 2005
· Mastikhin, Igor, MSc, PhD (Novosibirsk State), Prof - 2002
· Newling, Benedict, BA, PhD (Camb.), Assoc Prof - 2002   ·
Normandeau, Magdalen, BSc, MSc (Laval), PhD (Calgary), Sr Instructor 2005
· Ross, Stephen, BSc (Tor), MSc, PhD (Car), Prof - 1988
· Sharp, Allan R., BSc (McM), MSc, PhD (Wat), Prof (Cross Appt- Renaissance College) and Dean - 1975
· Seahra, Sanjeev, BSc, PhD (Waterloo), Asst Prof - 2010 (Cross Appt - Math & Stat)   ·
Tokaryk, Dennis, BSc (Sask), MSc (Guelph), PhD (Guelph) - Assoc   Prof - 2002
· Ward, William, BSc (UWO), PhD (York) - Prof and Chair - 2001
· Xu, Li-Hong, BSc (UWO), PhD (UNB), Prof-1994
· Yan, Zong-Chao, BSc (Shanghai Teachers U.), MSc (Tongji), MSc   (Nfld), PhD (Windsor), Assoc Prof - 1999   ·
Zhao, Saibei, BSc, MSc, PhD (UNB) Sr Teaching Assoc - 2000

GENERAL INFORMATION

Programs are offered at four different levels:

1.**Honours:** These programs are designed primarily for qualified students intending to pursue a post graduate education In general, the Honours programs require more specialization and a greater overall course load than the Major programs. A Co-op program is available.
2. **Major:** The Major programs allow a wider choice of courses outside the Physics Department and a somewhat reduced course load.
3. **Pass:** A Pass degree is intended for students who require a basic foundation in Physics to undertake further study in another area (such as X-ray technology, medical imaging technology, etc.) It has fewer requirements than a Major in Physics.
4. **Minor:** A Minor in Physics consists of first year physics (PHYS 1061 , 1062 , 1091 , 1092 or equivalent) plus at least a further 14 ch of approved physics courses (at least 24 ch of physics courses in total).

A student may do a Major, Honours or Honours Co-op program in Physics, Applied Physics, or Physics (Biology).

Students entering second year from Engineering must complete the requirements of First Year of their physics program before graduation. CHEM 1982 may replace CHEM 1012 and CHEM 1987 may replace CHEM 1017 . Note that students must take CHEM 1001 and 1006 . PHYS 1081 and EE 1813 may replace First Year Physics *i.e.* PHYS 1061 , 1062 , 1091 , 1092 (or equivalently PHYS 1071 , 1072 , 1091 , 1092).

The Applied Physics program is not an Engineering program and does not satisfy the requirements for a P.Eng. qualification.

Honours Program

A student intending to take Honours should consult with the undergraduate advisor in physics.

All students in Honours Programs are required to complete an Honours Project (PHYS 4338). Students must have arranged with the Department for an appropriate project by October of their final year and must submit a report to the Department. The deadline for the report is decided and circulated each year, but is usually late in March.

To remain in and graduate in Honours, the student must meet certain minimum standards in the course work beyond second year.

1. In each **term** of study beyond second year, the student must have a GPA of at least 3.0 calculated from the grades of the courses taken that term.

2. The student must have a minimum GPA of 3.0 in the **required** upper level physics courses and a minimum grade of B- in PHYS 4338 .

When students apply to graduate with Honours, records will be checked for compliance with 1 and 2 above. Students offering all the courses necessary for the Honours program but failing to meet the qualifications outlined in 1 and 2 above will receive Major degrees, provided they have a minimum CGPA of 2.0.

HONOURS PHYSICS

Elective courses listed below total a minimum of 36 ch (of which 18 ch must be physics courses) for the Honours degree.

First Year:

PHYS 1061 or 1071 , 1062 or 1072 , 1091 , 1092 , MATH 1003 or 1053 , 1013 or 1063 , CHEM 1001 , 1006 , 1012 , 1017 plus two more term lecture courses chosen from BIOL 1001 , 1012 , GEOL 1001 , 1012 , plus 6 ch of electives.

Note: Students are reminded that to go into the second year of any PHYSICS program, they must have completed MATH 1013 or 1063 , since second year math must be taken with the second year physics courses.

Second Year:

PHYS 2311 , 2312 , 2327 , 2331 , 2341 , 2351 , 2372 , MATH 2003 , 2013 , 2213 , CS 1073 , plus approved physics electives totalling 3 ch.

Third Year:

PHYS 3322, 3331, 3336, 3338, 3342, 3351 plus additional approved physics electives totalling at least 9 ch, plus MATH 3243 , plus MATH 3413 or CS 3113 or equivalent, plus approved electives totalling at least 6 ch.

Fourth Year:

PHYS 4321, 4332, 4351, 4371, 4338, plus approved physics electives totalling at least 6 ch, plus STAT 3083, plus additional approved electives totalling at least 6 ch.

Physics Major

Electives courses listed below total a minimum of 48 ch (of which 21 ch must be physics courses) for the Major degree:

First Year:

PHYS 1061 or 1071 , 1062 or 1072 , 1091 , 1092 , MATH 1003 or 1053 , 1013 or 1063 ,CHEM 1001 , 1006 , 1012 , 1017 plus two more term lecture courses chosen from BIOL 1001 , 1012 , GEOL 1001 , 1012 , plus 6 ch of electives.

Note: Students are reminded that to go into the second year of any PHYSICS program, they must have completed MATH 1013 or 1063 , since second year math must be taken with the second year physics courses.

Second Year:

PHYS 2311 , 2312 , 2327 , 2331 , 2351 , MATH 2003 , 2013 , 2213 , CS 1073 , plus approved physics electives totaling at least 3 ch plus approved electives totaling at least 3 ch.

Third and Fourth Years:

PHYS 3322, 3331, 3336, 3342, 3351, 4321, 4332, 4338, 4351, 4371, 4723, 4823, MATH 3243 , MATH 3413 or CS 3113 or equivalent, an approved course in Statistics plus approved electives which should include engineering and/or computer science courses totaling at least 21 ch.

Electives may be chosen to prepare the student for specialization in various aspects of applied Physics.

 Note: In choosing electives students must ensure that they satisfy prerequisite requirements for desired electives.

Make-Up Year:

Physics Major students who decide to prepare themselves for graduate studies in Physics at UNB might be required to take a further year of study composed of the following: PHYS 4321 , 4351 , 4371 , 4338 , + STAT 3083 + 3 ch Math/Stats electives + 9 ch of approved electives.

Applied Physics Program (Honours or Major)

First Year:

PHYS 1061 or 1071 , 1062 or 1072 , 1091 , 1092 MATH 1003 or 1053 , 1013 or 1063 , CHEM 1001 , 1006 , 1012 , 1017 plus two more term lecture courses chosen from BIOL 1001 , 1012 , GEOL 1001 , 1012 , plus 6 ch of electives.

Note: Students are reminded that to go into the second year of any PHYSICS program, they must have completed MATH 1013 or 1063 , (minimum grade C) since second year math must be taken with the second year physics courses.

Second Year:

PHYS 2311 , 2312 , 2327 , 2331 , 2341 , 2351 , 2372 , MATH 2003 , 2013 , 2213 , CS 1073 .

Third and Fourth Years:

PHYS 3322 , 3331 , 3332 , 3336 , 3342 , 3351 , 4321 , 4338 , 4351 , 4371 , 4723 , 4823 , MATH 3243 , an approved course in Statistics plus approved electives which should include engineering and/or computer science courses totaling at least 24 ch.

Electives may be chosen to prepare the student for specialization in various aspects of applied Physics.

Note: In choosing electives students must ensure that they satisfy prerequisite requirements for desired electives.
Physics (Biology) Program

First Year

PHYS 1061 or 1071 or 1062 or 1072 , 1091 , 1092 , MATH 1003 or 1053 , 1013 or 1063 , CHEM 1001 , 1006 , 1012 , 1017 , BIOL 1001 , 1006 , 1012 , 1017 , plus at least 2 ch of electives. Students are reminded that to go into the second year of any PHYSICS program, they must have completed MATH 1013 or 1063 , second year math must be taken with the second year physics courses.

Second Year

PHYS 2311 , 2312 , 2327 , 2331 , 2351 , BIOL 2033 , 2043 , 2025 , MATH 2003 , 2013 , 2213 , CHEM 2401 .

Third and Fourth Years
PHYS 2372, 2341, 2351, 3322, 3331, 3336, 3342, 3892, 3993, 4332, STAT 3083 , CS 1003 , BIOL 2053 , plus 9 ch of approved physics electives, plus 12 ch of approved biology electives, plus 6 ch of approved electives. Students in Honours take PHYS 4321 and 4371 as their physics electives and MATH 3243 and MATH 3413 or CS 3113 or equivalent replace approved electives. As well as the requirements listed, students in Honours take PHYS 4338 (Advanced Research Project).

Physics Co-op Program

The UNB Faculty of Science seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty through Depatment of Physics, and other Science departments and programs, operates a Co-operative education program. Co-op opportunities are available for qualified students, please refer to the Science section of this calendar for detailed information.

Pass Program

A pass degree is intended for students who require a basic foundation in Physics to undertake further study in another area (such as X ray technology, medical imaging technology, etc.). The requirements are those of second year Honours Physics plus at least 30 ch of approved physics electives plus a minimum of 15 ch of approved electives. A minimum of 126 credit hours are required for graduation.

PSYCHOLOGY OPTION

DEPARTMENT OF PSYCHOLOGY

FACULTY

· Byers, E. Sandra, BA (Roch), MA, PhD (W Virginia), Prof & Chair - 1978
· Clark, David A., BSc (Houghton Col NY), MA (New Sch for Soc Res), MPhil, PhD (Lond), Prof - 1988
· D'Entremont, Barbara, BSc, MSc (Dal), PhD (Qu), Assoc. Prof - 2000
· Hamilton, Ryan, BA, MSES, PhD (UNB), Asst Prof - 2000
· Harker, Troy, BSc, MSc (Lethbridge), PhD (Dal), Asst Prof - 2011
· LaChapelle, Diane, BSC (McM), MA, PhD (Regina) - Assoc Prof - 2002
· OSullivan, Lucia, BA, MA (UNB), PhD (Bowl) Assoc Prof - 2006
· Perunovic, W. Q. Elaine, BA, PhD (Wat.) Asst Prof - 2007
· Piercey, Darren, H.B.Sc (Toronto), PhD (Alberta), Assoc Prof - 2001
· Poulin, Carmen, BA (UNB), MA, PhD (Qu), Prof – 1991
· Ronis, Scott (Brandeis), MA, PhD (Missouri), Asst Prof-2009
· Sears, Heather, BSc (Acad.), MA, PhD (Victoria), Assoc Prof - 1995
· Stevanovski, Biljana, BA (McM), MA, PhD (Wat), Asst Prof - 2007
· Voyer, Daniel, BSc, MSc (Montr.), PhD (Wat.), Prof - 2000

General Office:	Keirstead Hall, Room 119
Mailing Address:	Department of Psychology, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4707
Fax:	(506) 447-3063
Email:	psyc@unb.ca
Website:	http://www.unbf.ca/arts/psychology/

General Information

The Department of Psychology offers several undergraduate programs through the Faculty of Arts and the Faculty of Science. Arts students may complete Minors, Majors, Double Majors, Honours, Joint Honours and Specialization in Biopsychology programs. Science students may complete Minors, Majors or Honours in Psychology. Some students may complete degrees in a combined (BASc) program or earn both Arts (BA) and Science (BSc) degrees in a concurrent program. Students in the concurrent program may declare the Major or apply for admission to Honours in Psychology in either Faculty but not both. Students in the combined program may declare the Major (following the Double Major regulations) in Psychology in either Faculty but not both.

Psychology courses generally follow the course numbering system described on page H.1 of the UNB Undergraduate Calendar. The second digit in each course number indicates Teaching Areas within the discipline of psychology. The Areas and the specific course numbers of the courses belonging to each Area are as follows:

0	General	1013 , 1023 , 3033, 3043, 3053, 3063, 4003, 4053;
1	Research	2113 , 2123 , 3113 , 3123 , 3151 , 3152 , 4103 , 4110 ;
2	Developmental	2203 , 3213 ,3215, 3233 , 3243 , 3253, 3263 ,3273 , 4203 , 4223 ;
3	Clinical	2313 , 3313 ,3323, 3353 , 3373 , 3383 , 4303 ;
4	Personality and Social	2403 , 3403 , 3415 , 3423 , 3433 , 3443 , 4403 ;
6	Memory, Learning and Cognition	2603 , 3613, 3615 , 3623 , 3633 ,3643. 4603 ;
7	Biological	2703 , 3713 , 3723 , 3733 , 3743 , 3745 , 3753 , 3773 , 3783 , 4713 , 4743 , 4773 .

The third digit in each course number designates the course within the Subject Area. Terminal digits of 3 or 5 indicate the course could be offered in any term. Please note that no more than three of PYSC 3033, PYSC 3043, PSYC 3053, and PSYC 3063 may be counted toward a Major or Honours in Psychology.

Statement on Web Courses
The Department of Psychology offers some online Web Courses to students through the College of Extended Learning. The Department of Psychology has approved these courses as equivalent to regular courses. In the Undergraduate Timetable, the section number for all Web Courses is listed as Open Access Learning.

In exceptional cases Full-Time students may be given permission to enroll in Web Courses as part of their regular course load. Current regulations require Web courses taken by Full-time students during Winter and Fall terms to be approved by the Dean of the faculty offering the course. Web courses must b e on the list of courses approved by the Department as equivalent to exsisting courses and must include a proctored final exam.

The following Web Courses have been approved by the Department of Psychology as equivalent to regular courses:
PSYC 1013 Introductory Psychology on the WEB-I 3 ch (online)
PSYC 1023 Introductory Psychology on WEB -II 3 ch (online)
PSYC 2203 Foundations of Developmental Psychology 3 ch (online)
PSYC 2313 Foundations of Clinical Psychology 3 ch (online)
PSYC 2403 Foundations in Social Psychology 3 ch (online)
PSYC 2603 Foundations of Learning, Memory and Cognitions 3 ch (online)
PSYC 2703 Foundations of Biological Psychology 3 ch (online)
PSYC 4054 History of Psychology on the WEB 3 ch (online)

Majors and Honours
Minimum Academic Standards
Students should note that in the Science Faculty the minimum acceptable grade in a course which is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is being taken for the first time in the final year.

Students are advised to carefully plan their selection and sequencing of Foundation courses as each course is a prerequisite for higher level courses within the same Teaching Area.

Course selection for each program should conform to the following pattern:

First Year (38 ch minimum)
1.PSYC 1013 , PSYC 1023 ; BIOL 1001 , BIOL 1006 , BIOL 1012 , BIOL 1017 and MATH 1003 or MATH 1053 , MATH 1013 or 1063 .
2.Two more term courses of first year science lectures with labs (either Chemistry or Physics).
3.6 ch of approved electives.

Second Year
1.PSYC 2113 , PSYC 2123 .
2.Two term courses of first year science lectures with labs (whichever of Chemistry or Physics not taken in first year).
3.PSYC 2603 , PSYC 2703 and 12 ch chosen from List A.

Third and Fourth Years
1.PSYC 4053
2.Two of: PSYC 2203 , PSYC 2313 , PSYC 2403
3.24 ch of Advanced Psychology electives.
4.12 ch chosen from List A (6 ch must be at advanced level).
5. 15 ch of approved electives.

List A: Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, Statistics

Minor Program
A Minor will consist of 24ch in Psychology courses and will include the following:

· PSYC 1013 , PSYC 1023 , PSYC 2113 ,
· two Foundation courses (selected from PSYC 2203 , PSYC 2313 , PSYC 2403 , PSYC 2603 and PSYC 2703), and
· three advanced level (3xxx or 4xxx) Psychology courses.

Major Program
Students wishing to Major in Psychology will normally declare their major during their second year after they have seen their Department advisor.

A Major will consist of 51ch in Psychology courses, 60ch in other Science courses, and 21ch of elective for a total of 132ch.

A Major in Psychology will include the following:

Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
· Research Methods 6ch (PSYC 2113 and PSYC 2123)
· Area 6 and 7 Foundation courses 6ch (PSYC 2603 and PSYC 2703)
· Two general Foundation courses 6ch (selected from PSYC 2203 , PSYC 2313 , and PSYC 2403)
· Four advanced level Area 6 or Area 7 Psychology courses 12ch (3xxx or 4xxx level)
· Four general advanced level Psychology courses 12ch (3xxx or 4xxx level chosen from any area of Psychology)
· History of Psychology 3ch (PSYC 4053)
· Biology 10ch (BIOL 1001 , BIOL 1006 , BIOL 1012 , and BIOL 1017)
·Mathematics 6ch (MATH 1003 or 1053 and MATH 1013 or 1063). ·Chemistry 10ch (CHEM 1001 , CHEM 1006 , CHEM 1012 , and CHEM 1017)
· Physics 10ch (PHYS 1061 or 1071 , PHYS 1062 or 1072 , PHYS 1091 , PHYS 1092 .
· List A Science Courses 18ch (Any level (i.e. 1xxx, 2xxx, 3xxx, or 4xxx) from Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, or Statistics)
· List A Advanced Science Courses 6ch (3xxx or 4xxx) from Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, or Statistics), and
· Electives 21ch (any level from any discipline)

Honours Program
Students wishing to Honour in Psychology will normally apply to the Department in their third year. The Honours Program is designed to provide broad exposure to the discipline and develop research skills appropriate for students wishing to pursue graduate studies in Psychology.

An Honours will consist of 60ch in Psychology courses, 60ch in other Science courses, and 12ch of electives for a total of 132ch. An Honours in Psychology will include the following:

· Introductory Psychology 6ch (PSYC 1013 and PSYC 1023)
· Research Methods 6ch (PSYC 2113 and PSYC 2123)
· Area 6 and 7 Foundation courses 6ch (PSYC 2603 and PSYC 2703)
· Two general Foundation courses 6ch (selected from PSYC 2203 , PSYC 2313 , and PSYC 2403)
· Four advanced level Area 6 or Area 7 Psychology courses 12ch (3xxx or 4xxx level) and Four general advanced level Psychology courses 12ch (3xxx or 4xxx level chosen from any area of Psychology) for a total of Eight advanced level Psychology courses 24ch
· Students must take one or both Basic Research Seminars (PSYC 3151 , PSYC 3152) in their third year. Students must also take at least one Topical Seminar (PSYC 4003 , PSYC 4103 , PSYC 4203 , PSYC 4303 , PSYC 4403 , PSYC 4603 , PSYC 4713 , PSYC 4743 , or PSYC 4773).
· Advanced Statistics 3ch (PSYC 3113)
· Full year Honours Thesis 6ch (PSYC 4110)
· History of Psychology 3ch (PSYC 4053)
· Biology 10ch (BIOL 1001 , BIOL 1006 , BIOL 1012 , and BIOL 1017)
·Mathematics 6ch (MATH 1003 or 1053 and MATH 1013 or 1063)
·Chemistry 10ch (CHEM 1001 , CHEM 1006 , CHEM 1012 , and CHEM 1017)
· Physics 10ch (PHYS 1061 or 1071 , PHYS 1062 or 1072 , PHYS 1091 , 1092 .)
· List A Science Courses 18ch (Any level (i.e. 1xxx, 2xxx, 3xxx, or 4xxx) from Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, or Statistics)
List A Advanced Science Courses 6ch (3xxx or 4xxx) from Biology, Chemistry, Computer Science, Geology, Mathematics, Physics, or Statistics) and,
· Electives 12ch (any level from any discipline)

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The Honours Thesis: The Honours Thesis will consist of an independent research project, completed in the fourth year, supervised by a Psychology faculty member and discussed in the Honours Thesis Research Seminar. Applicants to the Honours Program should apply by submitting the Honours Program Application Form, normally in the third year of their program, to the Honours Research Coordinator, and are encouraged to approach individual faculty members to find a supervisor. Only students with a cumulative grade point average of at least 3.6 in Psychology courses will be considered for the Honours Program. For the award of a first-class Honours degree, an overall cumulative grade point average of 3.76 is required.

INTERDEPARTMENTAL PROGRAMS

Eight interdepartmental programs are available based on existing courses in the Science Faculty to meet the needs of students proceeding into an interdisciplinary area. These Majors programs are not truly interdisciplinary but are extracted from the specialized offerings of two Departments in each case.

These programs are administered jointly by the two departments concerned, and students should refer to specified program advisors for counselling.

Note: In individual cases certain modifications to these programs may be recommended by the Chairs of the Departments concerned, or their delegates.

Honours in Interdepartmental Programs

Application for Honours in the interdepartmental programs is made prior to registration in the final year to the appropriate Department Chairs or their delegates. The Honours content of interdepartmental programs consists of content in addition to that prescribed for the corresponding Majors program, usually in the final year. Normally this will be in the form of one of the departmental honours or senior research projects (i.e. BIOL 4090 , CHEM 4000 , ESCI 4900 , MATH 4100 , PHYS 4338 , STAT 4100). Requirements for qualified students will be approved by the two Departments responsible for the program, in consultation.

Note: Requirements for Honours programs generally exceed those for Majors programs. In light of this, students may need to take on a heavier course load than would otherwise be the case to finish the degree in four years. Alternatively, students may need to extend the time needed to finish the degree.

Biology-Chemistry Option

The interdepartmental Biology-Chemistry Program provides a comprehensive curriculum covering various aspects of biochemistry, molecular biology, and health-relevant chemistry disciplines. It combines courses from Biology, Chemistry, Mathematics and Physics, as well as electives from other disciplines. A minimum of 12 ch of electives must be from courses offered by the Faculty of Arts. Students will normally enter the Biology-Chemistry program after completing the first year science curriculum (32 ch). Students must consult with one of the Biology-Chemistry advisors in order to enter the program.

Two Biology-Chemistry program streams are offered. The *Pre-Health Profession stream* is recommended for students who may enter a professional health program upon graduation (i.e. medicine, dentistry, pharmacy, optometry, veterinary medicine, etc.). The *Research stream* is recommended for students who may consider graduate studies or careers in the biochemistry/molecular biology/pharmaceutical sectors. Both program streams are offered at the Majors and Honours level. For the final year of the Honours program, students may choose between Honours by course and Honours by thesis. Entry into either of the Honours program streams is allowed after first year provided that a minimum CGPA of 3.0 has been attained (a CGPA of 3.0 must be maintained in subsequent years). Upon graduation, Honours students must achieve a minimum final CGPA of 3.0 (3.7 for a First Class Honours standing). A student completing all the course requirements for Honours but with a CGPA below 3.0 will be given a Majors degree.

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First Year (32 ch) (common to all Biology-Chemistry programs)
BIOL 1001 , 1006 , 1012 , 1017 , CHEM 1001 , 1006 , 1012 , 1017 , MATH 1003 or 1053 , 1013 or 1063 , PHYS 1061 or 1071 , 1062 or 1072 .

Pre-Health Profession stream, Majors program (133 ch):

Second Year (37 ch)
BIOL 1711 , 2013 , 2018 , 2023 , 2028 , 2063 , 2068 , 2792 , CHEM 2421 , 2422 , STAT 2264 , 3 ch elective.

Third Year (34 ch)
BIOL 2721 , 2812 , 3031 , 3043 , 3593 , CHEM 2416 , 3421 , 3857 , MATH 2003, 6 ch ENGL.

Fourth Year (32 ch)
BIOL 3261 , 4272 , 1 Group B course** , CHEM 2601 , 4513 , 4523 , 2 Group A courses* , 6 ch electives.

Pre-Health Profession stream, Honours program (144 ch):

Second Year (37 ch)
BIOL 1711 , 2013 , 2018 , 2023 , 2028 , 2063 , 2068 , 2792 , CHEM 2421 , 2422 , STAT 2264 , 3 ch elective.

Third Year (37ch)
BIOL 2721 , 2812 , 3031 , 3043 , 3593 , CHEM 2416 , 3421 , 3857 , MATH 2003 , 6 ch ENGL, 3 ch elective.

Fourth Year (38 ch)
BIOL 3261 , 4272 , 1 Group B course** , CHEM 2601 , 4513 , 4523 , 2 Group A courses*, 3 ch elective.

By fourth year, students must choose between Honours by course and Honours by thesis and add the following to their program:

i. Honours by course: add 3 Group A* courses.

ii. Honours by thesis: add BIOL 4090 or CHEM 4000 . Please see the course descriptions for BIOL 4090 and CHEM 4000 for details regarding admission to the thesis research courses.

Research stream, Majors program (132 ch):

Second Year (36 ch)
BIOL 2003 , 2008 , 2013 , 2018 , 2023 , 2028 , 2063 , CHEM 2421 , 2422 , STAT 2264 , 6 ch electives.

Third Year (31 ch)
BIOL 3031 , 4082 , CHEM 2416 , 2601 , 3421 , 3857 , 4523 , MATH 2003 , 9 ch electives.

Fourth Year (33 ch)
BIOL 3043 , 4273 , one of BIOL 3058 or 3206 or 4533 , CHEM 3003 , 4513 , one of CHEM 3621 or PHYS 3993 , 1 Group A* course, 9 ch electives.

Research stream, Honours program (144 ch):

Second Year (36 ch)
BIOL 2003 , 2008 , 2013 , 2018 , 2023 , 2028 , 2063 , CHEM 2421 , 2422 , STAT 2264 , plus 6 ch electives*.

Third Year (37 ch)
BIOL 3031 , 4082 , CHEM 2416 , 2601 , 3421 , 3857 , 4523 , MATH 2003 , 2 Group A* courses, plus 9 ch electives*.

Fourth Year (39 ch)
BIOL 3043 , 4273 , one of BIOL 3058 or 3206 or 4533 , CHEM 3003 , 4513 , one of CHEM 3621 or PHYS 3993 , 1 Group A* course, plus 9 ch electives*.
By fourth year, students must choose between Honours by course and Honours by thesis and add the following to their program:
i. Honours by course: add 2 Group A* courses.
ii. Honours by thesis: add BIOL 4090 or CHEM 4000 . Please see the course descriptions for BIOL 4090 and CHEM 4000 for details regarding admission to the thesis research courses.

* Group A courses:

BIOL 2501 , 2513 , 3043 , 3058 , 3073 , 3149 , 3181 , 3206 , 3261 , 3493 , 3521 , 3593 , 3673 , 3801 , 3833 , 3908 , 4056 , 4162 , 4533 , 5473 , any 2000-4000 level CHEM course , MATH 2213 , PHYS 3993 .

** Group B selections (two courses per selection):

BIOL 3073 + 3058 , BIOL 3261 + 3206 , BIOL 3801 + 3908 , BIOL 4082 + 3058 , BIOL 4082 + 4533 , BIOL 4162 + 3181 .

BIOLOGY-MATHEMATICS/STATISTICS OPTION

Requirements for the Majors Program

First Year
First year required courses are listed under the BSc general regulations.
BIOL 1001 , 1006 , 1012 , 1017 , CHEM 1001 , 1006 , 1012 , 1017 , MATH 1003 or 1053 , 1013 or 1063 must be included. Suggested electives are STAT 2264 and CS 1003 or CS 1073 . CS 1003 or CS 1073 , and STAT 2264 , if not taken in first year must be taken later in the program.

Second Year
BIOL 2013 , 2018 , MATH 2003, 2013, 2203 , 2213, plus 6 ch in Biology or Math/Stat , plus approved electives totalling at least 6 ch.

Note: Biology is a quantitative discipline and mathematics underpins all sub-disciplines in Biology. Students with a strong quantitative background are better positioned for graduate research. Areas in which Math/Stat are used extensively include all areas of ecology and evolution, bioinformatics, genomics and systems biology. Students interested in more molecular aspects of biology and hoping to direct the component of their program towards biochemistry, biophysics, etc. may be given permission to take BIOL 2023, 2028. Careful planning of the program will be required to avoid timetable problems in this case.

Third and Fourth Years
Approved Biology courses (mostly at the 3000 and 4000 level) for a total of 24 ch in Biology, MATH 3003 , 3213 , 4563 , STAT 3083 , 3093 , plus a total of 9 ch approved Math/Stat courses, plus additional approved electives totalling 12 ch. A minimum of 12 ch of electives must be from the Faculty of Arts.

A minimum of 129 ch is required for completion of this program.

Notes:

1. Students should consider the following courses in selecting Mathematics/Statistics courses.
   Analytical Orientation: MATH 3043 , 3073 , 3413 , 4503
   Statistical Orientation: STAT 4053 *, 4073 , 4083 , 3373 *, 3383 *
   (Courses marked with an * are particularly recommended)

2. Students should consider BIOL 2003, 3293 and 3943 in selecting Biology courses.

3. MATH 4563 (cross-listed as BIOL 4563) is offered in alternate years. Special care is required in scheduling.

Requirements for the Honours Program

There are two Honours programs (Honours by Course and Honours by Thesis). Students must have (and maintain) a minimum CPGA of 3.0 to be accepted in and remain in either program. Upon graduation, the Honours student must achieve a minimum final CGPA of 3.7 for a First Class Honours standing and a final CGPA of at least 3.0 for Honours. A student completing all the course requirements for Honours but with a CGPA below 3.0 will be given a Majors degree.

i. Honours by Course (141 ch): In addition to the requirements for the Majors degree listed above, the student must complete 12 ch of approved Biology or Mathematics/Statistics courses at the 3000 or 4000 level (with at least one from each of the Biology and Mathematics/Statistics Departments).

ii. Honours by Thesis (141 ch): Refer to the requirements for an Honours by Course degree listed above. In addition, students intending to complete an Honours by Thesis degree must arrange to complete their dissertation research with a faculty member in either the Department of Biology or Department of Mathematics and Statistics before applying to the program. (Joint supervision with a co-supervisor from each department is also possible.) Once an appropriate supervisor is found, the student must then write a letter to the Chair of the appropriate Department requesting entrance into the thesis course (one of BIOL 4090 or MATH 4100 or STAT 4100) as part of the additional 12 ch required by the Honours program. A reader from the second department must also oversee the research project (unless the project is co-supervised by a member from each department).

BIOLOGY-PHYSICS OPTION

Physical principles constrain the evolution and diversity of life. Current areas where Physics features most prominently in Biology include ecosystem ecology and global change biology, interactions of organisms with their physical environment, studies of metabolism and energy flux, and the physical principles of biological systems. Methodological applications such as isotope biology, and imaging also rely heavily on physical principles. Students interested in these areas will benefit from a strong background in both disciplines. To ensure necessary prerequisites are met when planning an individual program, students must consult with advisors from both departments, ideally prior to Second Year.

Requirements for the Majors Program (138 ch)

First Year
BIOL 1001 , 1006 , 1012 , 1017 , CHEM 1001 , 1006 , 1012 , 1017 , MATH 1003 or 1053, 1013 or 1063 , PHYS 1061 or 1071, 1062 or 1072, 1091 and 1092.

Second Year
BIOL 2013 , 2018 , plus 6 ch in Biology (second-year core courses) , plus PHYS 2311 , 2312 , 2341 , 2351 , MATH 2003 and 2013 or 1503 and 2513 , STAT 2264 or 2593 .

Third and Fourth Years
24 ch of approved Biology courses (mostly at the 3000 and 4000 level), plus 30 ch of approved Physics courses, plus 12 ch of approved Arts electives.

Requirements for the Honours Program (150 ch)

To receive Honours in Biology-Physics, a student must complete a total of 150 ch, including the requirements for the Major Program, plus an additional 12 ch of approved Biology or Physics courses at the 3000 or 4000 level. Students must have (and maintain) a minimum CGPA of 3.0 to be accepted in and remain in the Honours program. Application to the Honours program is initiated by writing a letter of intent to the Chair of Biology or Physics before preregistration at the end of Year III. BIOL 4090 (Honours Thesis Project) or PHYS 4338 (Advanced Research Project) is required and the course descriptions should be consulted for further information and specific procedures. Students must make arrangements to complete their dissertation research with a Faculty member in the Department of Biology or of Physics before applying to the Program. In each case, a reader from the second department must also oversee the research project.

The Honours student must achieve a minimum final CGPA of 3.7 to obtain First Class Honours standing upon graduation. A student completing all course requirements for Honours but with a CGPA below 3.0 will be given a Majors degree.

CHEMISTRY-PHYSICS OPTION

The Chemistry-Physics Option offers a challenging program for strong students. This interdepartmental program provides a solid core of courses in both Chemistry and Physics. It is set up in such a way that a student may opt for the single disciplines of Chemistry or Physics after the second year. A BSc in this joint program would allow students to continue studies at the graduate level in either Physics or Physical Chemistry.

Careful choice of electives in first and second year will make any change from the joint program into a single discipline program easier.

First Year
CHEM 1001 , 1006 , 1012 , 1017 , PHYS 1061 or 1071, 1062 or 1072, 1091 and 1092, MATH 1003 or 1053, 1013 or 1063 , plus two more term lecture courses chosen from BIOL 1001 , 1012 , ESCI 1001 , 1012 , plus 6 ch electives.

Note: Students must have a minimum AGPA of 3.0 to enter second year of this program and they must maintain the 3.0 AGPA at the end of second year to proceed to third year. Students must have passed MATH 1013 or MATH 1063 before entering the second year of this program. Because of the challenging nature of the program, some students may plan to spread the required courses over five years.

Second Year
CHEM 2421 , 2422 , 2601 , 3637 , MATH 2003 , 2013 , PHYS 2311 , 2312 , 2327 , 2331, 2351, CS 1003 or CS 1073, plus 3 ch approved electives.

Third Year
CHEM 2002 , 2201 , 2222 , 3621 , CHEM 4601 or PHYS 3752 , MATH 2213 , PHYS 2372 , 3336, 3331 , 3351 , one of 3892* or 4823 or 4722, CS 3113 or MATH 3413 or equivalent plus 3 ch approved electives.

Fourth Year
CHEM 3201 , 3222 , 3622 , 4616 , 4622 , PHYS 3322 , 4332, 4351 , one of 3892* or 3952 or 5993 , plus 6 ch approved electives. Students in Honours add PHYS 4338 or CHEM 4000 and must have a minimum AGPA of 3.0 entering fourth year.

*Since PHYS 3892 (Medical Physics) and PHYS 3952 (Solid State) and PHYS 5993 (Magnetic Resonance Imaging) are not offered every year, students can take PHYS 3952 or 5993 in their third year if it is offered and delay PHYS 4823 (Advanced Electronics) or PHYS 4722 (Signal & Image Processing) to 4th year. Note also that PHYS 4823 and 4722 alternate so that if PHYS 4823 is offered in a student's 3rd year, PHYS 4722 will be offered in 4th or vice versa. The Physics Chair has the best knowledge of when and if courses will be offered.

EARTH SCIENCES-ECONOMICS OPTION

First Year
Students follow the first year Science curriculum. MATH 1003 or 1053, 1013 or 1063 must be taken. ECON 1014 , 1024 or ECON 1013 , 1023 may be taken in the first or second year. ESCI 1001 , 1012 must be included; ESCI 1703 is recommended. One of ESCI 1006 or 1017 must be included; it is recommended that students take both laboratory courses.

Second Year
ESCI 2131 , 2142 , 2212 , 2321 , 2703 , STAT 2263, one of MATH 2003 and 2013 or 1503 and 2513 , plus ECON 1013 , 1023 if not taken in the first year. ECON 3013 and 3023 should be taken in the second year if ECON 1014 , 1024 or ECON 1013 , ECON 1023 were taken in the first year.

Third and Fourth Year
ESCI 3131 , 3322 , 4312 , 4461 , 4472 , 4442 , plus a minimum of 1 term course in Earth Sciences (ESCI 4900 is required in addition for honours), ECON 3013 , 3023 , 3665 , 3755 , 3794 , 4013 , 4023 , plus a minimum of 2 term courses in economics, CS 1003 and a minimum of 4 additional approved term courses.

EARTH SCIENCES-PHYSICS OPTION

The program totals 162 ch for Major and 170 ch for Honours. This includes 12 ch of Earth Sciences field schools which take place outside of regular fall and winter terms. The fourth year has a lighter credit hour course load than third year to accommodate the addition of an Honours Project in fourth year. Students in a Major program may prefer to move some of the courses listed under third year into fourth year to even out the course load.

First Year
ESCI 1001 , 1006 , 1012 , 1017 , PHYS 1061 or 1071, 1062 or 1072, 1091 and 1092, MATH 1003 or 1053, 1013 or 1063 , CHEM 1001 , 1006 , 1012 , 1017 , plus at least 2 ch of electives.

Note: Students must have already completed MATH 1013 or equivalent before entering the second year of this program.

Second Year
ESCI 2131 , 2142 , 2211, 2321 , 2703 , PHYS 2311 , 2312 , 2372 , MATH 2003 , 2013 plus 5 ch approved electives in Science or Computer Science.

Third Year
ESCI 3131 , 3322 , 3703 , PHYS 2327 , 2331 , 2341 , 2351 , 3331 , 3336 , CS 3113 or MATH 3413 or equivalent plus 2 ch approved electives in Science or Computer Science.

Fourth Year
ESCI 4501 , 4512 , PHYS 3322, 3342 , 3351 , 4332, 4722 or 4823 , plus 5 ch approved electives in Science or Computer Science.

Students in the Honours program add an honours project, PHYS 4338 or ESCI 4900 .

MATHEMATICS/STATISTICS - ECONOMICS OPTION

The combination of mathematics, statistics and economics is a natural one as students will see practical applications of mathematics and statistics in their economics courses and the rigorous techniques from mathematics will aid students in their problem-solving skills. Requirements for a Science degree are listed below. Requirements for an Arts degree are available from either the Department of Mathematics and Statistics or the Department of Economics.

First Year
First year required courses are listed under the BSc general regulations. MATH 1013 or 1063 must be included. CS 1003 or 1073 , one of ECON 1014 and 1024 or ECON 1013 and 1023 may be taken in first or second year.

Second Year
MATH 2003 , 2013 , 2203 , 2213 , ECON 1013 , 1023 , CS 1003 or 1073 (if not taken in first year), plus approved electives to bring the course load to a minimum of 30 ch.

Third and Fourth Years

1. MATH 3003 , 3043 , and two courses chosen from MATH 3033 , 3073 , 3213 , 3243 , 3373, 3473 , 3803 , 3843, 4423 , 4433 or 4853 .

2. STAT 3083 , 3093 , 4443 , and three courses chosen from STAT 4083, 3383 , 4053 , 4073 or 3373 .
3. ECON 3013 , 3023 , 4013 , 4023 , 4625 , 4665 , plus at least 3 additional term courses in Economics.
4. An additional 9 ch of electives so that the total in third and fourth year is 66 ch. The minimum total number of credits for the degree is 135 ch.

Recommended electives: MATH 3413 , MATH 3813 , and any of the courses listed above.

Honours Requirements
Math 3103 and 3113 must be taken and MATH 3003 becomes an elective course. Honours students must take a total of 33 ch of upper level MATH/STAT courses. The minimum GPA for an honours degree from the Faculty of Science is 3.0.

Note: Some year-to-year variation in Economics course selection is possible. For example a student taking ECON 1014, 1024 in year 1 may wish to take ECON 3013 , 3023 in year 2.

MATHEMATICS-PHYSICS OPTION
Both the Major and Honours versions of this option are demanding programs intended for strong students. The Honours Mathematics-Physics Program includes all the required courses of both an Honours Physics program and an Honours Mathematics program.

First Year
MATH 1003 or 1053, 1013 or 1063 , PHYS 1061 or 1071, 1062 or 1072, 1091 and 1092 , CHEM 1001 , 1006 , 1012, 1017 , plus two more term courses chosen from BIOL 1001 , 1012 , ESCI 1001 , 1012 , plus 6 ch of electives.

HONOURS PROGRAM (160 ch)

Second Year
MATH 2003 , 2013 , 2203 , 2213 , PHYS 2311 , 2312 , 2327 , 2331 , 2341 , 2351 , 2372 , 3342 , CS 1003 .

Third Year
MATH 3033 , 3103 , 3113 , 3243 , 3213 , 3413 , 3073 , PHYS 3322 , 3336 , 3351 , plus 6 ch Physics elective.

Fourth Year
MATH 3043 , STAT 3083 , PHYS 4321 , 4332, 4351 , 4371 , plus 3 ch Mathematics elective, plus 3 ch Physics elective, plus 6 ch other electives; and finally either Math 4100 or Physics 4338 (6 ch or 8 ch). (In either case, the research project will be jointly supervised by a reader from each Department.)

MAJOR PROGRAM (152 ch)

Second Year
MATH 2003 , 2013 , 2213 , PHYS 2311 , 2312 , 2327 , 2331 , 2341 , 2351 , 2372 , 3342 , CS 1003 , plus 3 ch elective.

Third and Fourth Years
MATH 3243 , 3413, 3503 , STAT 3083 , PHYS 3322, 3332, 3336 , 3351 , 4321 , 4332, 18 ch Mathematics electives*, 15 ch Physics electives , plus 6 ch electives.

* It is recommended that students choose MATH 3003 and 3213 in Yr 3. Other suggested Math electives would be MATH 2203 and 3033 .

GENERAL SCIENCE OPTION

This option presents students with the opportunity to get a broader science exposure by concentrating on two areas of science while taking many electives. While General Science does not give a major in any discipline, it will have to meet the minimum requirement equivalent to the minor programs in two of the selected science disciplines beyond first year. This degree has largely been used by students who planned to follow it with a second degree, e.g. in education, or a health profession.

First Year (38 ch)
The first year in General Science follows the regulations for First Year Science given in the Curriculum Section under "BACHELOR OF SCIENCE", but students must include MATH 1003 or 1053 and at least a term of lectures in each of Biology, Chemistry, Earth Sciences, Physics and Economics or Psychology. Eight credit hours of coherent First year laboratory courses are chosen to meet future prerequisite requirements.

Second, Third and Fourth Years (96 ch minimum)
A student must choose two science disciplines from Biology, Chemistry, Earth Sciences, Mathematics/Statistics, Physics and Economics or Psychology for areas of concentration. Courses chosen must be consistent with the requirement of the minor programs of the two selected disciplines above first year. The remainder of the 96 credit hours will be used for approved electives and courses required to meet the prerequisite for the core courses. The guidelines given below should be followed for choosing electives. Course selections must be pre-approved and reviewed annually by a General Science advisor.

Guideline for choosing electives:

1. A minimum of 12 ch of courses must be chosen from those offered by the Faculty of Arts, 6 ch of which must have a substantial writing component as designated with a [W] in the calendar description. Courses in History of Science and ENGL 1103, 1144 are strongly recommended electives.
2. Courses from disciplines outside of the selected concentrations that are used as prerequisites for the core courses are regarded as electives.
3. Also acceptable as electives are additional science courses (except for those that cannot be taken for credit by Science students) and approved courses from other faculties.

DISTINCTION IN GENERAL SCIENCE
The BSc with Distinction in General Science will be awarded to students who attain a cumulative grade point average of 3.7 or greater in the General Science option.

Note: The General Science options on the Fredericton and Saint John campuses are different from each other. For regulations governing the General Science option offered on the Saint John campus, see the Saint John Academic Programs section of this Calendar

BACHELOR OF MEDICAL LABORATORY SCIENCE (BMLS)

The degree of Bachelor of Medical Laboratory Science (BMLS) is offered through the Faculty of Science in partnership with the New Brunswick Community College in Saint John (NBCC-SJ). Enrolment will be limited and based on availability of seats in the Medical Laboratory Technology (MLT) program at NBCC-SJ. Students may enter the program only with approval from the Dean of Science or the program Director. The BMLS degree requires completion of the MLT program either prior to or after completion of 84 credit hours of courses at UNB. For graduation, students must have completed the UNB portion of the degree as well as 2.5 years of the MLT program at NBCC-SJ and have passed the Canadian Society for Medical Laboratory Science (CSMLS) exams required for professional practice.

Note: Students who already have the MLT certification from NBCC-SJ or any other Canadian MLT program can be admitted to the BMLS degree with no limitation on enrolment. Foreign students cannot be admitted to the BMLS degree due to restrictions on acceptance of foreign students at NBCC-SJ

First Year: (42 ch)
BIOL 1001, 1006, 1012, 1017, 2792
CHEM 1001, 1006, 1012, 1017
MATH 1003
ESCI 1001, 1012, OR PSYC 1012, 1023, OR PHYS 1071, 1072
STAT 2263 OR 2264
Plus:12 ch from the list of Science and Arts electives

Second Year: (42 ch)
BIOL 2013, 2018, 2023, 2028, 2063, 2068
CHEM 2401

Plus 24 ch from the list of Science and Arts electives
Total credits must equal 84 ch

List of Science Electives		
BIOL 1711	Human Anatomy I	4 ch
BIOL 2501	Pathphisiology I	3 ch
BIOL 2513	Pathophysiology II	3 ch
BIOL 2812	Human Anatomy II	3 ch
BIOL 3031	Cell Signaling	3 ch
BIOL 3133	Selected Topics in Biochemistry I	3 ch
BIOL 3162	Developmental Biology	3 ch
BIOL 3261	Microbial Physiology	3 ch
BIOL 3311	Immunobiology	3 ch
BIOL 3493	Introduction to Virology	3 ch
BIOL 3593	Basic Animal Histology	4 ch
BIOL 3673	General Parasitology	3 ch
BIOL 3801	Animal Physiology	3 ch
BIOL 4182	Embryology	4 ch
CHEM 2111	Analytical Chemistry I	5 ch
List of Arts Electives		
ADM 1015	Introduction to Business	3 ch
ANTH 3502	Medical Anthropology	3 ch
PHIL 3203	Health Care Ethics	3 ch
PSYC 1013	Introduction to Psychology I	3 ch
PSYC 1023	Introduction to Psychology II	3 ch
PSYC 2703	Foundations of Biological Pyschology	3 ch
PSYC 3033	Health Psychology	3 ch
SOCI 2375	Sociology of Health, Illness and Medicine	3 ch

PRE-PROFESSIONAL PREPARATION

It is not the policy of the Science Faculty to set out rigid pre-professional programs. Each professional school has its own entrance requirements and it is necessary that the student ascertain these requirements in order to be sure of qualifying as a candidate for admission to that particular school. UNB does offer the courses necessary to qualify a student for entrance into professional programs.

Experience has shown that, where possible, it is highly desirable for the pre-professional student to obtain a bachelors degree before applying for entrance to the professional school.

Students interested in meeting the entrance requirements for any professional program should meet with an assistant dean for advice before selecting their courses.

INTERDISCIPLINARY AND CONCURRENT DEGREE PROGRAMS

Bachelor of Arts and Science (BAS)

The Faculties of Arts and Science at UNB in Fredericton are co-operating to make it possible for a student to combine Arts and Science in this four-year degree program.

This Joint Program allows students:

• to experience academic work in both Faculties before committing themselves to a specialization;

•to gain a broader and more systematic exposure to disciplines outside that specialization;

•to prepare for subsequent degree programs that permit or encourage a broader distribution of courses; such programs include the General Science Program and various pre-professional programs leading to study in dentistry, medicine, veterinary medicine, optometry, and physiotherapy.

To be admitted to the Joint Arts and Science program, students must meet the entrance requirements for the BAS as outlined in the Admission Requirements Table under Admission Regulations.

To earn a BAS degree, students must complete the requirements of a Supplementary Major in an Arts subject and a Specialization in a Science subject. The requirements for a Supplementary Major are the same as those for one subject taken as part of a Double Major.

Within Science, students can specialize in one of the following subjects: Biology, Chemistry, Earth Sciences, Mathematics and Statistics, Physics, Economics (unless already selected as an Arts program), Psychology (unless already selected as an Arts program). Within Arts, students can select a Supplementary Major in one of the following areas: Anthropology, Archaeology, Classical Studies, Classics, Economics, Economics Studies, English, French, German, German Studies, History, International Development Studies, Law in Society, Media Arts & Cultures, Philosophy, Political Science, Psychology, Sociology, Spanish, Gender and Women's Studies, World Literature and Culture Studies.

Program of Study
First Year
1.ARTS 1000 Development of Western Thought.

2.6 term lecture courses in first-year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture and lab courses is dictated by the particular area of Science in which the student intends to specialize, and thus decisions about which lecture and lab courses a student takes should be made in consultation with a Science Faculty advisor.

3.6 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies), Languages (Ancient Greek, Chinese, French, German, Japanese, Latin, Modern Greek, Russian, Spanish), or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology).

Second Year

1.Two additional term lecture courses in first-year Science. Whether these need to be accompanied by labs depends upon the area of Science the student has chosen to specialize in, and as such, these courses should be chosen in consultation with a Science Faculty advisor.

2.12 ch (6 ch in each of 2 disciplines) chosen from Arts, including at least one discipline from a group (Humanities, Languages, Social Sciences) not chosen in the first year.

3.At least 18 ch of Science courses chosen in consultation with and pre-approved by the Science Faculty advisor.

Students will normally select a Supplementary Major in Arts and a Specialization in Science at this time, and should discuss the options with their Arts and Science advisors.

Third and Fourth Years

The exact content of years 3, and 4 will depend upon the particular Arts and Science areas chosen. Students take advanced courses to give them a thorough understanding of their chosen subjects and prepare them for an immediate career or further work at graduate school. Students who elect to take a Single Major or Honours in Arts and/or Science may extend their program beyond the four years, depending on the subjects chosen.

1.A minimum of 36 ch total in Science chosen in consultation with, and pre-approved by, the student's Science advisor. At least half of these courses must be at the 3000 or 4000 level).

2.36 ch total chosen in consultation with, and pre-approved by, the student's Arts Major advisor, 18 ch of which must be at the 3000 or 4000 level..

Students should note that at least half the advanced-level credits counted towards the BAS degree must be from courses taken at the University of New Brunswick. Exceptions may be considered by the Deans of Arts and Science. Students should also note that, in any given year, their course load may not be evenly balanced between Arts and Science courses. Students should plan to meet with advisors from both Faculties on an annual basis to ensure that the selected courses satisfy pre-requisites for upper-level courses and take account of courses offered in alternating years and other program requirements.

Students who enter the BAS program may opt to move into the BA program, the BSc program, or the concurrent BA/BSc program at any stage. With the exception of laboratory courses, all courses taken during the first two years can be counted towards either a BA or a BSc degree (or both). Approved specialized Science laboratory courses will count towards the BSc degree or the Concurrent Degree in Arts and Science (BA/BSc).

Instead of graduating with a BAS at the end of the four-year program, students may continue for a fifth year to earn both a BA and a BSc, two degrees, with a Major (or Honours) in an Arts discipline and a Major (or Honours) in a Science discipline - for example, BA (History) and BSc (Physics). See the following section for the five-year concurrent degree program in Arts and Science.

For further details on subjects in Arts, see the Bachelor of Arts portion of the Fredericton Programs section of this Calendar.

Concurrent Degree in Arts and Science (BA/BSc)

To be admitted to the Arts and Science program, students must meet the entrance requirements of both BA and BSc degrees given in the Admission Requirements Table of under Admission Regulations.

The concurrent BA/BSc program is designed as a five-year program. To receive both degrees, students need a Major (or Honours) in an Arts discipline and a Major (or Honours) in a Science discipline - for example, BA (History) and BSc (Physics).

Within Science, students can major or honour in one of Biology, Chemistry, Earth Sciences, Mathematics and Statistics, Physics, or one of the Interdepartmental programs such as Biology-Chemistry. Students may also choose, as their Science subject, either Economics, (unless already selected as an Arts program) or, Psychology (unless already selected as an Arts program). Within Arts, students can major or honour in one of the following areas: Anthropology, Archaeology, Classical Studies, Classics, Economics, Economics Studies, English, French, German, German Studies, History, Media Arts & Cultures, Philosophy, Political Science, Psychology, Sociology, Spanish, World Literature, and Culture Studies. In addition, interdisciplinary programs in International Development Studies, Law in Society, and Gender and Women's Studies are available as part of an Arts Double Major or Joint Honours; however, students are advised that completing a Double Major or Joint Honours in Arts will require more credit hours than a Single Major or Honours.

This program is ideal for students with a strong interest in one of the Sciences and one of the Arts disciplines. It is also and, which requires a serious commitment from the student from the outset and throughout the degree. Its breadth makes it an excellent pre-professional program to prepare for studies in dentistry, medicine, veterinary medicine, optometry and physiotherapy.

Students who enter the concurrent BA/BSc program may opt to move into either the BA or the BSc program ,at any stage. With the exception of labs, all courses taken during the first two years can be counted towards either a BA or a BSc (or both). Approved specialized Science laboratory courses will count towards the BSc degree.

Students in the concurrent program can count many of their courses toward the requirements of both degrees so it is important to select courses carefully from the outset. Students must seek advice and pre-approval from departmental/faculty advisors of both Faculties at every level from pre-entry enquiries through to graduation.

PROGRAM OF STUDY (5 Years)
First Year

1.ARTS 1000 Development of Western Thought 6 ch

2.6 term lecture courses in first-year Science (Math 1003 or 1053 included), 4 accompanied by labs. The choice of lecture and lab courses is dictated by the particular area of Science in which that student intends to major or honour, and thus, decisions about which lecture and lab courses a stydent takes should be made in consultation with a Science Faculty advisor.

3.6 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies), Languages (Ancient Greek, Chinese, French, German, Japanese,Modern Greek, Latin, Russian, Spanish) or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology)

OR

1. ARTS 1100 Development of Western Thought (for Academic Success) 9ch

2. 6 term lecture courses in first-year Science (MATH 1003 or 1053 included), 4 accompanied by labs. The choice of lecture courses and lab courses is dictated by the particular area of Science in which the student intends to major or honour, and thus decisions about which lecture and lab courses a student takes should be made in consultation with a Science Faculty advisor.

3. 3 ch (in any one discipline) chosen from either Humanities (Classics, English, History, Media Arts & Cultures, Philosophy, World Literature and Culture Studies), Languages (Ancient Greek, Chinese, French, German, Japanese, Modern Greek, Latin, Russian, Spanish), or Social Sciences (Anthropology, Archaeology, Economics, Political Science, Psychology, Sociology). The discipline should be different from any of the three taken under regulation 2, above, since first-year students may take no more than 6 ch in any one discipline.

Students will select their Science Major or Honours discipline at this point. Throughout the program, advice is available on the options and course requirements. Students should have written pre-approval from the appropriate Arts and Science advisors for all programs and course selection.

Second Year

1.Two additional term lecture course in first-year Science. Whether these need to be accompanied by labs depends uponthe area of Sciencethe student has chosen to major or honour in, and as such, these courses should be chosen in consultation with a Science Faculty advisor.

2.12 ch (6 ch in each of 2 disciplines) chosen from Arts, including at least one discipline from a group (Humanities, Languages, Social Sciences) not chosen in the first year.

3.At least 18 ch of Science courses (certain Science programs may require more than the minimum) chosen with pre-approval from the student's Science program advisor in the respective department.

Students will select their Arts Major(s) or Honours at this time with the help of Faculty and departmental/ program advisors.

Third, Fourth and Fifth Years

The exact content of years 3, 4, and 5 will depend upon the particular Arts and Science disciplines chosen. Students take advanced courses to gain a thorough understanding of their chosen disciplines and to prepare for an immediate career or further work at graduate school. Students who elect to take Honours in Arts and/or Science may extend their program beyond the five years, depending on the subjects chosen.

1. Courses in Science will be chosen in consultation with, and pre-approved by, the student's Science advisor to meet the requirement of a Science degree.

2. A total of 54 ch of courses in Arts will be chosen in consultation with, and pre-approved by, the student's Arts Major advisor to meet the requirement of an Arts degree, 36 ch of which must be upper-level courses.

Students should note that at least half the advanced-level credits counted towards a Major/Honours/Minor in an Arts subject must be from courses taken at the University of New Brunswick. The same regulation also applies to Science courses. Exceptions may be considered by the Dean of Arts and the Dean of Science, respectively.

Students should note that, in any given year their course load may not evenly balanced between Arts and Science courses. Students should plan to meet with advisors from both Faculties on an annual basis to ensure that the selected courses satisfy pre-requisites for upper-level courses and take account of, courses offered in alternating years, and other program requirements.

Concurrent Degrees in Computer Science and Science

For details, see the "Bachelor of Computer Science" portion of the Fredericton Programs section of this calendar.

Bachelor of Science in Environment and Natural Resources

Environment and Natural Resources (ENR) is a joint degree between the Faculty of Forestry and Environmental Management (FOREM) and the Faculty of Science. For details, please refer to Bachelor of Science in Environment and Natural Resources in the program section of this calendar.

BACHELOR OF SCIENCE IN ENGINEERING

FACULTY OF ENGINEERING

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Dean:	Chris Diduch, BScE, MScE, PhD, PEng
Associate Dean:	Michel Couturier, BScE, MScE, PhD, PEng
Assistant Dean:	Brian Cooke, BSc, BEng, PhD, PEng
Assistant Dean Yr 1	Frank Collins, BSc, PEng

Degree programs in engineering (BScE) are offered by the Faculty of Engineering in the following disciplines:

Chemical Engineering
Civil Engineering
Computer Engineering*
Electrical Engineering
Geomatics Engineering
Mechanical Engineering

Degree programs which are offered jointly between the Faculty of Engineering and other Faculties are:

Forest Engineering*:
A BScFE degree offered jointly with the Faculty of Forestry and Environmental Management.

Geological Engineering:
A BScE degree offered jointly with the Faculty of Science.

Software Engineering:
A BScSwE degree offered jointly with the Faculty of Computer Science

*Note: enrolment into the program is suspended for the 2015-2016 academic year.

Students completing the above degree programs in Engineering will be eligible for licensure as a professional engineer in Canada.
The following regulations apply to all of the above programs.

General Information

Math Placement Test: The recommended first year calculus courses for students who have obtained a passing score on the Department of Mathematics and Statistics placement test are MATH 1003 and MATH 1013. Those with an insufficient score may be required to take remedial math courses. The placement test is offered during orientation week (early September) each year.

Transfer Credits (Complementary Studies Courses): Students admitted with advanced standing from non-university institutions must complete a minimum of 6 ch of complementary studies courses at a university. The intention is that engineering students complete at least half of their complementary studies courses (as defined by the Canadian Engineering Accreditation Board) in a university setting. A 70% minimum is required for transferring course credit from community colleges.

Transfer Credits (other than Complementary Studies Courses): Other courses (Science, Mathematics,Computer Science, Engineering, etc.) may be accepted for transfer credit according to accepted university practice. A 70% minimum is required for transferring course credit from community colleges.

Options in Engineering: Most engineering students do not have to choose an option within their degree program, although there are several options available for students with particular interests. Students in Geological Engineering must choose an option. All departments offer a range of electives which provide opportunity for some degree of concentration. In order to graduate, a student must satisfy all program requirements.

The following options are elaborated upon in individual program descriptions on the following pages.

Biomedical Engineering Option
Cadastral Surveying Option
Energy Conversion Engineering Option
Geoenvironmental Option
Geotechnical Option
Mechatronics Option
Mineral Resources Option

Engineering and the Environment: Engineering practice and environmental concerns cannot be separated; therefore topics of environmental concern are fundamental to all engineering disciplines. Engineering students interested in the environment are encouraged to choose the discipline most closely related to their interest. The following list is not all inclusive, but gives some indication of possible areas of interest.

Air and Water Quality
Conservation and Management of Resources
Energy Conversion
Energy Utilization
Environmental Geotechnics
Environmental Impact Assessment
Environmental Information Systems
Forest Dynamics
Groundwater Development & Protection
Hazard Mapping
Hydrology
Instrumentation and Control
Integrated Renewable Resource Management
Machine/Environment Interactions
Mapping of Land and Water Resources
Monitoring of Topographic Change
Pollution Control
Recycling

Remote Sensing of the Environment
Resource Operations Management
Silviculture
Waste Disposal
Water and Waste Water Treatment

Minors in Engineering: Further to the general regulations in Section B.V of the UNB Undergraduate Calendar, engineering students may earn a minor from another academic unit. Likewise, non-engineering students may take engineering courses for a minor. In each case, a minor consists of at least 24 credit hours of courses which are not core courses for the student's degree. Forest Engineering Minors are available only to BScE students.

The courses used for a minor shall be chosen in consultation with the student, and accepted by academic advisors in both the student's home academic unit and the academic unit offering the minor. Students in a BScE program may have the program designation of the minor shown on their transcript. Students in other faculties who complete a minor in engineering shall be awarded a "Minor in Applied Science", regardless of the specialization (e.g. mechanical, chemical, etc). Designation of the minor shall be approved by the office of the dean of engineering.

Minors are elaborated upon in individual program descriptions on the following pages.

General 1st Year Program (Engineering I)

Students who are unsure of their discipline choice in engineering may register in the general first year program, Engineering I. By completing the following standard first year courses, students in Engineering I may transfer into second year of any engineering program without loss of credits.

PHYS 1081	ENGG 1082
MATH 1003	MATH 1013
MATH 1503	CHEM 1982 ,CHEM 1987
ENGG 1001 ENGG 1003 ENGG 1015	ECE 1813
CS 1003*	Humanites or Social Science Elective

* Students transferring to Software Engineering will need to take the courses CS 1073 and CS 1083 in object-oriented programming.

Engineering I students are guaranteed admission into the engineering program of their choice if their high-school average or GPA meets the program entrance requirements unless the minimum requirements for continuing are not met.

General Regulations

1. The minimum requirement for an engineering degree is the accumulation of 160 credit hours. Additional requirements may be found within the descriptions of individual programs

2. Credit hours for courses are listed with course descriptions.

3. Students should refer to Section B of this Calendar for regulations regarding academic probation and withdrawal.

4. A minimum grade of C is required for all courses used for credit towards an engineering degree.

5. The Bachelor of Science in Engineering degree must be completed within eight calendar years of initial registration in the Faculty of Engineering. Students who do not complete their program requirements within this limit will be denied further registration in Engineering. This time limit includes all time during which a student is not in attendance either by personal choice or as a result of suspension or a requirement to withdraw. Extensions will be granted for fall or winter academic terms missed due to co-op work term placements. When a student encounters special circumstances that necessitate an absence from the University for an extended period of time, the student may apply to the Faculty for an extension to the degree time limit. Students transferring into a continuing degree program will have the time limit prorated on the basis of advance credit granted.

Engineering Faculty Complementary Studies Electives requirements:

a. To ensure that the spirit of Complementary Studies Electives is achieved, each Engineering student must take for credit at least one 3 ch course from one of the following humanities or social science disciplines: Anthropology, Classics, Literature (English, French, German or Spanish), History, Philosophy, Political Science and Sociology.

b. No more than 3 ch. of language courses, including ENGL 1103 , may be used for credit as Complementary Studies Electives. Other language courses may be taken, but they would be extra to the degree.

Regulations for Granting a Second UNB Bachelor of Science in Engineering Degree

BScE students or graduates of UNB may apply for admission to and follow a program towards a second engineering undergraduate bachelors degree. The general regulations of the University and the regulations of the degree program concerned must be satisfied.

Normally, the minimum number of credit hours which must be successfully completed beyond the work required for the first degree would not be less than the normal load of the final academic year in the degree program concerned. More than the minimum number of credit hours, or courses, may be required.

The courses taken must be approved by the Dean and the Department under which the second degree falls. The final decision on the course work requirements for a second undergraduate bachelors degree shall be a matter of agreement between the Registrar and the Dean after consultation with the Chairs of Departments concerned.

The general regulation that at least half the credit hours for a degree must be taken at this University will apply.

Co-operative Education Programs in Engineering

The UNB Faculty of Engineering seeks to provide opportunities for students and employers to develop relationships that enhance the learning experience for students and present employers with skilled, motivated employees looking to make a career connection. To achieve this, the Faculty, through its constituent departments/programs, operates a Co-operative education program based on established partnerships with selected employers.

The Co-op team, reporting to the Director of Co-operative Education and the Dean of Engineering, liaises with the academic advisor in each department/program to ensure alignment between students' academic and professional experience objectives. Additional oversight is provided by the Faculty of Engineering Co-op Committee, which functions like a board of directors, and, as such, influences the Co-op program's strategies and policies. The effectiveness of the Co-op program in delivering the planned professional internship experience is closely monitored and assessed by the Co-op coordinators through interactions with the students, company personnel, and the University.

Co-operative education is available within all Engineering Programs. Work terms may be 4, 8, 12 or 16 months in duration and are generally interspersed with academic study terms. Prior to applying for Co-op jobs, students will be oriented to the process and will be assisted in preparing resumes and for job interviews.

Co-op Program Eligibility:

1. Students must be registered as full-time students in an undergraduate engineering degree program at UNB. Students on Co-op work terms retain their full-time status.
2. Students must have completed at least two full-time study terms in engineering prior to their first Co-op work term.
3. Approval to participate in the Co-op program must be received from the Co-op Office and from the student's department/program.
4. All students participating in the Co-op program must be in good academic standing.Students who have completed less than 70 credit hours must have an Assessment GPA of at least 2.7.

Co-op Work Term Requirements:

1. Students completing the first year of engineering studies will be limited to an initial summer work term of 4 months.
2. Students completing their second year of full-time engineering studies are limited to work terms of 4 or 8 months.
3. Students having successfully completed at least 100 credit hours are eligible for extended work terms of 12 or 16 months.

4. A fee is charged for each 4-month portion of a work term.
5. The final term in the student's degree program must be a full-time engineering study term at UNB.
6. When combined the total of all work terms cannot exceed 24 months.
7. The student's evaluation by the employer will be taken into consideration but the final assessment on whether or not a work term has been successful will be the responsibility of the Faculty of Engineering.
8. A Co-op designation is awarded upon graduation to those students who have successfully completed work terms that total at least 12 months.

Planning and Scheduling:

1. Work terms usually commence at the beginning of January, May, and September.
2. A schedule of work and study terms is developed by each student in consultation with the Director of Undergraduate Studies or designate for the student's specific engineering program.

More information can be obtained from the Engineering Co-op Office.

CHEMICAL ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING

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FACULTY

· Bendrich, Guida, Dipl. Ing. (T.F.H. Berlin), PhD (McM), PEng, Eur. Ing., Prof - 1995
· Chibante, Felipe, BSc Chemistry (McGill), PhD (Rice), MArts (Rice), MChem (Rice), Assoc. Prof. - 2007
· Collins, Frank, BScE (UNB), PEng, Sr. Instructor and Assist Dean 1st Year - 2002
· Cook, William, BScE, MScE, PhD (UNB) PEng, Assoc Prof, Scientific Director - 2004
· Couturier, Michel F., BScE (UNB), MSc (MIT), PhD (Qu), PEng, Prof, Acting Associate Dean & NSERC Design Chair- 1983
· Eic, Mladen, Dipl. Ing. (Sarajevo), MSc (Zagreb), MSc (Worcester Poly. Inst), PhD (UNB), PEng, Prof - 1990
Fatehi, Pedram, BScE (Sharif, Iran) MEng (AIT, Thailand), PhD (UNB), PEng, Adjunct Prof
Li, Kecheng, BEng, MASc (Northwest Inst. of Light Industry), PhD
· (Tor), Prof. - 2002
Lowry, Brian, BASc, MASc (Tor), PhD (Cornell), Assoc Prof and Chair - 1995
· Miles, Jamie, Dipl. Eng. (UPEI), BScE, MScE (UNB) Member-in-Training, Instructor - 2013
· Ni, Yonghao, BEng (Northwest Inst of Light Industry), MEng, PhD (McG), PEng, Prof, Dept Chair and Canada Research Chair in Pulping
· Technology - 1993
Romero-Zeron, Laura, BSC, MSc (Los Andes), PhD (Calg), PEng, Prof - 2004
· Singh, Kripa, BE (Birla Inst), ME (Asian Inst), PhD (Regina), PEng, Prof (Joint - Civil Eng.) - 2000
Craig, Stuart, Adjunct Prof - BSc, PhD (Leeds, UK)
Xiao, Huining, BEng, MEng (Nanjing), PhD (McM.), PEng, Prof - 2001
Yuan, Zhirun, BScE (Shianxi, China), MScE (Nanjing, China), PhD (UNB) - Adjunct Prof 2006
Whidden, Tom, Adjunct Prof, BSc Chemistry (Mt. Allison), PhD Inorganic Chemistry (UNB)
Zheng, Ying, BESc, MESc (Northwest), PhD (UWO), PEng, Prof - 1999

General Information

Chemical Engineering is the discipline of engineering that uses physical sciences to convert raw materials into desired products and services. A chemical engineering education includes a broad background in basic sciences and mathematics and advanced knowledge in the design and operation of process equipment used to produce fuels, plastics, petrochemicals, fertilizers, electricity, pharmaceuticals, paper, etc.. This degree program prepares students for direct employment in industry and provides a strong foundation for graduate degrees in engineering, business or law. Students may complete the general program or elect to concentrate their studies on one of two option programs: Biomedical Engineering or Energy Conversion Engineering.

Curriculum

A minimum of 160 credit hours (ch) is required to obtain a bachelors degree in Chemical Engineering. Twelve of these are technical electives and twelve are complementary studies electives. The degree program may be completed in eight terms of study. Students who participate in the Co-Operative Education (Co-Op) program normally complete the program in five years. Students may opt for a program which spans a longer period of time provided all required courses are taken. Details can be obtained by contacting the Director of Undergraduate Studies.

The credit system allows considerable flexibility in designing programs of study but unless care is exercised difficulties may arise with course scheduling. Students are requested to consult with the Academic Advisor or the Director of Undergraduate Studies if they plan to follow a program that differs significantly from the timetable shown in the Program Guide issued at the time of acceptance into the program.

Core Courses

CHE 2003	Fundamentals I - Mass Balances
CHE 2004	Fundamentals II - Mass & Energy Balances
CHE 2012	Engineering Thermodynamics
CHE 2412	Chemical Engineering Lab I
CHE 2418	Numerical Methods in Chemical Engineering
CHE 2501	General Materials Science
CHE 2506	Materials Science Laboratory
CHE 2525	Fundamentals of Chemical Process Design
CHE 2703	Fluid Mechanics
CHE 3123	Chemical Engineering, Thermodynamics
CHE 3304	Heat Transfer
CHE 3314	Fluid-Particle Interactions
CHE 3324	Staged Processes
CHE 3424	Chemical Engineering Lab II
CHE 3434	Chemical Engineering Lab III
CHE 3505	Chemical Process Design
CHE 3601	Process Dynamics & Control
CHE 4101	Chemical Reaction Engineering I
CHE 4225	Process Design Project
Or	
ENGG 4025	Multidisciplinary Design Project
CHE 4341	Mass Transfer Operations
CHE 4404	Chemical Engineering Lab IV
BIOL 1001	Biological Principles I
CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Laboratory
CHEM 2401	Intoductory Organic Chemistry for Non-Chemistry Majors
CHEM 3621	Physical Chemistry II
CHEM 3886	Analytical Chemistry Laboratory for Chemical Engineers
CHEM 3897	Organic Chemistry Laboratory for Chemical Engineers
CHEM 4886	Physical Chemistry Laboratory for Chemical Engineers
PHYS 1081	Foundations of Physics for Engineers
CS 1003	Introduction to Computer Programming
ECE 1813	Electricity & Magnetism
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Engineering Technical Communication
ENGG 1015	Introduction to Engineering Design and Problem Solving

ENGG 1082	Mechanics for Engineers
ENGG 4013	Law & Ethics for Engineers
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
MATH 3503	Differential Equations for Engineers
STAT 2593	Statistics for Engineers

Electives

TECHNICAL ELECTIVES

The Chemical Engineering degree program consists of a minimum of 12 ch of technical electives chosen from the list of courses below. Technical elective courses in chemical engineering are typically designated as a 5000 level course and are offered are offered each year, on a rotating basis. Students should consult with the Department for more information on planned active course offerings.

The Department also offers two option programs within its technical elective stream: *Energy Conversion Engineering* , and *Biomedical Engineering*. These options are offered to students wishing to have an area of specialization within the chemical engineering discipline. Those who successfully complete an option will receive a special notation on their university transcript upon graduation. More information on these options is given below.

Students who transfer to UNB Chemical Engineering with a minimum of one year of university-level study may take CHE 1024 (1ch), Elements of Mass and Energy Balances, in place of CHE 1004 (3ch). CHE 1024 must be taken concurrently with CHE 2004 (3ch) and students electing to take CHE 1024 are required to complete a minimum of 14 ch of technical electives.

CHE 1001	Introduction to Chemical Engineering
CHE 5114	Chemical Reaction Engineering II
CHE 5224	Applied Petroleum Reservoir Engineering
CHE 5234	Oil & Gas Process Engineering
CHE 5244	Enhanced Oil Recovery Processes
CHE 5254	Polymer Reaction Engineering & Processing
CHE 5264	Oil Sands Technology
CHE 5313	Energy and the Environment
CHE 5314	Chemical Process Industries
CHE 5413	Air Pollution Control
CHE 5416	Bioseperations Science and Engineering
CHE 5423	Chemical Engineering Practice School
CHE 5515	Advanced Surface Characterization
CHE 5714	Electrochemical Engineering
CHE 5724	Special Topics in Chemical Engineering (1 ch)
CHE 5725	Special Topics in Chemical Engineering (2 ch)
CHE 5726	Special Topics in Chemical Engineering (3 ch)
CHE 5734	Chemical Engineering Report
CHE 5735	Thesis
CHE 5834	Nuclear Engineering
CHE 5854	Nuclear Heat Removal
CHE 5877	Advanced Nuclear Systems
CHE 5913	Pulp Production
CHE 5923	Papermaking
CHE 5933	Bio-refining: Principles, Processes and Products
BIOL 2033	Biochemistry (3 ch)
CE 5421	Water Quality and Treatment (4 ch)
CE 5432	Wastewater Treatment and Pollution Control (4 ch)

COMPLEMENTARY STUDIES PROGRAM

Complementary studies are an important element in engineering education. The Chemical Engineering degree program consists of a minimum of 12 ch of Complementary Studies electives satisfying each of the following core categories:

· Humanities minimum 3ch (Sociology, Anthropology, History, Classics, Philosophy, Political Science)

· Business/Management minimum 3ch (Administration, Tech. Management and Entrepreneurship, or select Economics courses)

· Non-Language minimum 3ch (Humanities, Business or any PSYC, RLS, ENVS, ENR, IDS, RCLP, ARTS, WLCS)

· Other Approved minimum 3ch (course approved by the Director of Undergraduate Studies)

The Department strongly encourages its students to obtain business-related education through the complementary studies stream and to pursue a diploma in Technology Management and Entrepreneurship , which is offered by the Faculty of Engineering. For more information on integrating this diploma with the undergraduate degree in chemical engineering, please contact the Director of Undergraduate Studies.

DISTANCE EDUCATION

Select Chemical Engineering courses are available by distance education. Currently these courses include CHE 2501 and CHE 2418. Students in full-time attendance are not normally permitted to take online courses while a classroom-based version of the course is available.

Students wishing to take courses from any outside institution as credit towards their degree must receive approval from the Director of Undergraduate Studies prior to enrolling in the course at the outside institution.

INTERNATIONAL EXCHANGE PROGRAM

The Department offers an opportunity for its students to study abroad and receive course credits towards an undergraduate degree. Students interested in international study must be in good academic standing and receive prior approval from the Department for degree transfer credit. Interested students should consult with the Director of Undergraduate Studies to obtain more information.

Energy Conversion Engineering Option in Chemical Engineering

The chemical engineer must include environmental stewardship as a design requirement in the conversion of energy resources into commodity products and services. This option places emphasis on emerging technologies and societal issues in the energy and environment sector within chemical engineering. The directed path consists of 1 required course, 1 complementary studies elective and 3 technical elective courses (minimum total of 15 ch) selected from the approved lists below. Students may elect to receive a further specialization within the ECE Option by focusing their technical electives in nuclear & power plant technology, oil & gas processing or environmental disciplines. To participate in the option students must obtain Department approval.

Core:	
CHE 5313	Energy and the Environment
Complementary Studies Elective: (1 course from the following list):	
ECON 3865	Energy Economics
ENVS 2003	Introduction to Environmental Studies
ENVS 2023	Understanding Environmental Issues
ENVS 4001	Environmental Impact Assessment and Management
ENVS 4002	Stakeholder Approaches to Environmental Problem Solving
ENR 2021	Natural Resource Management, Institutions, Policy, Governance
ENVS 2023	Climate Change
HIST 3925	Technology and Society

Technical Elective: (3 courses from the following list):		
Oil & Gas Processing		
CHE 5234	Oil and Gas Process Engineering	
CHE 5244	Enhanced Oil Recovery	
CHE 5264	Oil Sands Technology	
CHE 5933	Biorefining: Principles, Processes and Products	
Nuclear & Power Plant Technology		
CHE 5344	Combustion	
CHE 5744	Steam Supply Systems	
CHE 5824	Corrosion Processes	
CHE 5834 or ME 5373	Nuclear Engineering	
Environmental		
CE 5432	Wastewater Treatment and Pollution Control	
CE 5314	Chemical Process Industries	
CE 5413	Air Pollution Control	
ME 5553	Ocean Wave Energy Conversion	
ME 5933	Industrial Ecology	

Students with special interest in environmental studies are also encouraged to pursue a minor or secondary major in this area through the university's Environmental Studies Program, administered by the Faculty of Forestry and Environmental Management. The Department also encourages interested students to pursue a Masters of Engineering degree in environmental studies after graduation.

BIOMEDICAL ENGINEERING OPTION IN CHEMICAL ENGINEERING
Biochemical engineering is an exciting and growing area of specialization within the chemical engineering discipline. The Biomedical Engineering Option in Chemical Engineering is a study path for students wishing to pursue careers in medicine or the health sciences industry. Students who plan on attending medical school are encouraged to seek advising immediately upon entrance into the degree program. To complete the option program, students must obtain Departmental approval and complete one core course (which is normally offered every year), and 3 technical electives chosen from the list below. Only biomedical option students may use these courses towards the technical elective degree requirements.

Required Course:		
APSC 3953	Basis of Biomedical Engineering	(3 ch)
Technical Electives:		
BIOL 2023	Biochemistry	(3 ch)
BIOL 3043	Cell Biology	(3 ch)
BIOL 2013	Evolutionary Genetics	(3 ch)
BIOL 2753 *	Introduction to Human Anatomy	(3 ch)
BIOL 2792	Human Physiology - Systems	(3 ch)
CHEM 3003 **	Biocomputing in Drug Design I	(5 ch)
CHEM 4523	Medicinal Chemistry	(3 ch)
KIN 2062 *	Introductory Biomechanics	(3 ch)
KIN 3061 *	Advanced Biomechanics	(4 ch)
KIN 4163 *	Workplace Ergonomic Design And Analysis	(3 ch)
ME 5913	Biomechanics	(4 ch)
PHYS 5993	Magnetic Resonance Imaging	(3 ch)

* some option courses require that BIOL 2753 be taken as a pre-requisite.

** some option courses require that BIOL 1001 be taken as a pre-requisite.

Students with special interest in biology and biochemical engineering are encouraged to pursue a Minor in Biology through the Faculty of Science. Such students should seek advising from the Director of Undergraduate Studies to embark upon this path as soon as possible in the degree program.

CIVIL ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING

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FACULTY

· Bischoff, Peter H., BASc (UBC), MEng (McG.), PhD, DIC (Imperial Col, Univ. of London), PEng, Prof - 1992
· Bremner, Theodore W., BScE (UNB), MSc, DIC, PhD (Lond), FSCE, FACI, PEng, Hon Res Prof, Prof Emeritus - 1969
· Christie, James., BScE, MScE, PhD (UNB), PEng, on Res Prof - 2014
· Cooke, A. Brian, BSc (Dal), Dipl Eng (SMU), BEng (TUNS), PhD (Qu.), PEng, Sr Teach Assoc and Asst. Dean- 1997
· Dukuze, Augustin, BASc (Louvain), MASc (Sherbrooke), PhD (UNB), PEng, Adjunct Prof-2010
· El Naggar, Hany, BSc (Alexandria, Egypt), MESc, PhD (Western Ontario), PEng, Adjunct Prof - 2011
· Hanson, Trevor R., BScE, MScE, PhD (UNB), PEng, Asst Prof - 2011
· Haralampides, Katy, BA, BSc (Qu), MScEng (Windsor), PhD (New Orleans), Prof - 2000
· Hildebrand, Eldo, BASc, PhD (Wat), PEng, Assoc Prof - 1987
· Hildebrand, Eric D., BScE, MScE (UNB), PhD (Wat), PEng, Prof - 1993
· Kondratova, Irina, BScEE (Kiev State), PhD (UNB), PEng, Adjunct Prof. - 2002
· MacQuarrie, Kerry T.B., BScE (UNB), Msc, PhD (Wat), PEng, Prof - 1990
· Montes, Pedro, BEng (Oaxaca), MSc (UNAM), PhD (UNB), Adjunct Prof. - 2012
· Rankin, Jeff H., BScE, MScE (UNB), PhD (UBC), PEng, Prof and M. Patrick Gillin Chair in Construction Engineering and Management - 2003
· Singh, Kripa, BE (Birla Inst), ME (Asian Inst), PhD (Regina), PEng, Prof (Joint - Chemical Eng.) - 2000
· Thomas, Michael D.A., BSc, PGCE (Nottingham), PhD (Aston), PEng, Prof - 2002
· Valsangkar, Arun J., BE (Marathwada), ME, PhD (IIS Bangalore), FEIC, PEng, Prof & Prof. Emeritus- 1981
· Waugh, Lloyd, BScE (UNB), MS, Engr, PhD (Stan), FCSCE, PEng, Prof - 1984
· Wilson, Bruce, BASc, MASc (Tor.), PhD (McM), PEng, Prof - 2001
· Wilson, Frank R., BScE, MScE (UNB), PhD (Birmingham), FCSCE, FEIC, FCAE, PEng, Hon Res Prof, VP (Research) Emeritus - 1967
· Yevdokimov, Yuri, BSc (Sumy), MA (Academy of Sciences), MSc (Ill), PhD (Manit), Prof (Joint Economics) - 1999

General Information

Civil Engineering deals with the systems and facilities associated with humanity's needs for shelter, work and transportation, which include: bridges, highways, airports, buildings, industrial plants, dams, housing, hydro developments, water supply, sewage and sewage disposal, and marine facilities. Civil Engineers work with other professionals to ensure that civil engineering works do not adversely affect the natural environment. The Civil Engineer can be involved in various stages of a project's life cycle, including planning, design, construction, operation, or maintenance.

Curriculum

In order to obtain a BScE degree in Civil Engineering, a minimum of 162 credit hours (ch) is required. All courses in the program must be passed with a C or better. The program consists of core courses complemented by a wide range of electives. The program is designed to be completed within eight academic terms; however, the student may arrange for a program that spans a longer time period. Although the program is flexible, care must be taken to avoid difficulties with prerequisites and corequisites or with time-tabling.

General Prerequisite Note

The following courses (or equivalents) are prerequisites for all 3000-level or higher Civil Engineering courses: CE 1023, ENGG 1001, ENGG 1003, ENGG 1015, CS 1003, MATH 1013, MATH 1503.

Areas of Specialization

Although the Department of Civil Engineering does not have formal options, students can take elective courses in addition to the required core courses in a specific area to develop a personalized program of study. For example, students interested in the environment may take up to four environmental technical electives in Civil Engineering and one Non-Civil Engineering environmental technical elective in addition to the two environmental core courses required in the program.

Core

Through the core of the Civil Engineering undergraduate program, the student is given a firm base in all aspects of Civil Engineering including the following major areas: Structural; Geotechnical; Construction; Materials; Environmental; Hydrotechnical; and Transportation. In addition to Civil Engineering studies, undergraduates are given instruction in the principles of Mechanical and Geomatics Engineering to enable them to deal intelligently with these branches of engineering in their work. Core courses are also provided by the Arts and Science faculties to give the students the necessary background in the Sciences, Mathematics, Humanities and Social Sciences. The core courses required of all Civil Engineering students are shown below.

The core courses required of all Civil Engineering students are shown below.

Core Courses

PHYS 1081	Foundations of Physics for Engineers
CE 1023	Statics for Engineers
CE 2023	Mechanics of Materials
CE 2033	Structural Analysis
CE 2113	Soil Mechanics I
CE 2703	Introduction to Fluid Mechanics
CE 2913	Numerical Problem Solving
Or CE 3933	Numerical Methods for Civil Engineers
CE 2973	Civil Engineering Design I
CE 3053	Reinforced Concrete Design I
CE 3063	Structural Steel Design I
CE 3123	Foundation Engineering I
CE 3201	Transportation Engineering
CE 3403	Introduction to Environmental Engineering
CE 3513	Materials for Civil Engineers
CE 3603	Construction Engineering I
CE 3713	Hydraulics and Hydrology
CE 3963	Engineering Economy
CE 3983	Civil Engineering Design II
or CE 4613	Construction Engineering II

CE 4923	Systems Design
CE 4973	Team Design Project
CHE 2501	General Materials Science
CHE 2506	Material Science Laboratory
CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Laboratory
CS 1003	Programming and Problem Solving for Engineers
ECON 1073	Economics for Engineers
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Engineering Technical Communications
ENGG 1015	Introduction to Engineering Design and Problem Solving
ENGG 4013	Law and Ethics for Engineers
ESCI 1001	The Earth: Its Origin, Evolution & Age
ESCI 1026	Geology Lab for Engineers
GGE 1001	Introduction to Geodesy & Geomatics
GGE 1803	Practicum for Civil Engineers (2 weeks)
HIST 3925	Technology and Western Society
Or	
SOCI 2534	Technology and Social Change
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
STAT 2593	Probability and Statistics for Engineers

Electives

In addition to the core courses, the Civil Engineering program includes elective courses in four categories, as follows:

Category of Electives	Credit Hours
Natural Science Elective	3
Complementary Studies Electives	6
Non-civil Engineering Technical Electives	0-4

Civil Engineering Technical Electives (Sufficient to bring program total to 162)

Technical Electives

The choice of Civil Engineering Technical Electives shall be subject to the approval of the Chair of the Department. Not all Civil Engineering Technical Electives may be available in any academic year.

CE 5013	Earthquake Engineering
CE 5043	Structural Engineering
CE 5053	Reinforced Concrete Design II
CE 5063	Structural Steel Design II
CE 5073	Structural Masonry Design
CE 5083	Structural Wood Design
CE 5132	Foundation Engineering II
CE 5141	Embankments I
CE 5153	Environmental Geotechnics
CE 5201	Road Materials & Structures
CE 5212	Pavement Design I
CE 5222	Traffic Engineering
CE 5232	Transport Facility Design
CE 5241	Introduction to Pavement Management Systems
CE 5411	Water Supply and Wastewater Removal

CE 5421	Water Quality and Treatment
CE 5432	Wastewater Treatment and Pollution Control
CE 5463	Municipal Solid Waste Management
CE 5503	Concrete Technology
CE 5612	Const: Financial and Industry Issues
CE 5623	Project Management
CE 5702	Open Channel Hydraulics
CE 5742	Engineering Hydrology
CE 5753	Engineering Hydrogeology
CE 5913	Special Studies in Civil Engineering I
CE 5923	Special Studies in Civil Engineering II
CE 5933	Special Studies in Civil Engineering III

CE 5963   Research Thesis

Non-Civil Engineering Technical Electives

The following is a partial list of acceptable Technical Electives offered by Departments other than Civil Engineering. Other courses may be elected subject to the approval of both Departments involved.

ADM 1213	Financial Accounting
ECON 5805	Transportation Economics I
EE 1813	Electricity and Magnetism
GGE 2413	Mapping Concepts and Technology
GE 2022	Engineering Geology
MATH 3503	Differential Equations for Engineers
ME 1312	Computer Aided Design
TME 3213	Quality Management

Natural Science Elective

The Civil Engineering program requires 3 credit hours of approved natural science electives such as, courses in: Biology, Chemistry, Earth Sciences, or Physics. The following is a partial list of acceptable Natural Science Electives. Othercourses may be chosen subject to the approval of both Departmentsinvolved.

APSC 2023	A Survey of 19th and 20th Century Physics
BIOL 1621	Topics in Biology I: Life On A Changing Planet
BIOL 1622	Topics in Biology II: Life On A Smaller Scales
CHEM 2421	Organic Chemistry I
ENVS 2023	Climate Change
ESCI 1012	Earth Processes, Resources and the Environment

Complementary Studies Electives

A complete Civil Engineering program requires 6 credit hours of complementary studies electives. Course selections are subject to departmental approval. At least one of the electives must be a course designated as having a substantial writing component, indicated by a [W] in the calendar description. To meet the Faculty of Engineering General Regulations for Complementary Studies requirements, at least one of the electives must be chosen from one of the following disciplines: Anthropology, Classics, Literature, History, Philosophy, Political Science, and Sociology.

Diploma in Construction

The Department of Civil Engineering offers a Diploma in Construction. Students enrolling in the diploma program will have a wide variety of educational backgrounds, and many will possess considerable experience in the construction industry. Applicants must satisfy certain requirements for admittance to the Diploma program. The program requires a minimum total of 20 credit hours. Further details of required courses and acceptable electives may be obtained from the Department.

COMPUTER ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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NOTE: For Faculty listing please see the Electrical Engineering program section.

General Information

Computer Engineering is a multi-disciplinary program that combines the two disciplines of Electrical Engineering and Computer Science. The applications of Computer Engineering are highly diversified with an emphasis on the application of computers in solving real-world problems. Students in Computer Engineering develop an expertise with interfacing and integrating computers and computer communications for creating new and innovative products and services. Engine control computers, industrial distributed computer control systems, DVD players, wireless computer networks, embedded computers and computer games are but a few.

The Computer Engineering Program is one of three distinct programs offered by the Department of Electrical and Computer Engineering. The Department also administers the Electrical Engineering Program and the Software Engineering Program is administered jointly with the Faculty of Computer Science. The Department of Electrical and Computer Engineering is committed to delivering a high quality program that prepares students for entering the workforce as Professional Engineers.

A foundation is first developed in Mathematics, Computer Science and Engineering Science. Students are then introduced to more specialized topics in Computer Engineering and in the final year students broaden their knowledge by choosing a number of elective courses in Electrical and Computer Engineering or in such related areas as Mathematics, Physics, Computer Science and other Engineering disciplines. The program also makes available courses in cultural subjects that provide an awareness of social and professional perspectives both as individuals and as future engineers.

The Department of Electrical and Computer Engineering believes strongly in the value of relevant industrial experience. The Department endorses the Professional Experience Program and the Co-op Program as described under Bachelor of Science in Engineering in Section E and students who wish to gain industrial experience are strongly encouraged to participate in either of these internship programs. Students planning to participate in the Co-op or PEP Program must obtain approval of their work/study plan from the CMPE Program Coordinator

The Department also supports emerging research that advances technology and fosters scientific discovery.

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Curriculum

Compulsory Program Core Courses

A minimum grade of C is required for all courses used for credit towards the B.Sc.E. degree. The following is a list of the courses that are core to the program.

PHYS 1081*	Foundations of Physics for Engineers
ENGG 1082*	Mechanics for Engineers
CHE 2501	General Materials Science
CHE 2506	Materials Science Laboratory
CHEM 1982	General Applied Chemistry
CHEM 1987*	General Applied Chemistry Laboratory
ECE 2213	Digital Systems (replacing CMPE 2213)

ECE 2412	Simulation and Engineering Analysis (replacing CMPE 2412)
ECE 3221	Computer Organization (replacing CMPE 3221)
ECE 3232	Embedded System Design (replacing CMPE 3232)
ECE 3242	Computer Architecture (replacing CMPE 3242)
ECE 3812	Data Communications and Networking (replacing CMPE 3812)
ECE 4251	Real Time Systems (replacing CMPE 4251)
ECE 4261	Digital System Design (replacing CMPE 4261)
ECE 4040	Electrical and Computer Engineering Design Project (replacing CMPE 4040) (or SWE 4040 or ENGG 4025 or TME 5025)
CS 1003*	Computer Programming and Problem Solving for Engineers
CS 1023	Data Structures and Algorithms
CS 2033	Software Design for Engineers
ECE 1813 *	Electricity and Magnetism
ECE 2711	Electric Circuits
ECE 2722	Circuits and Systems
ECE 3111	Electronics I
ECE 3122	Electronics II
ECE 3312	Systems and Control
ECE 3511	Signals
ECE 3821	Electromagnetics I
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Technical Communication
ENGG 1015	Intro. to Engineering Design and Problem Solving
ENGG 4013	Law and Ethics for Engineers
MATH 1003 *	Introduction to Calculus I
MATH 1013 *	Introduction to Calculus II
MATH 1503 *	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
MATH 3503	Differential Equations for Engineers
ME 3232	Engineering Economics
or	
CE 3963	Engineering Economy
STAT 2593	Probability & Statistics for Engineers
TME 3313	Managing Engineering and Information Technology Projects

ECE 4333	Robotics
ECE 4523	Communications Systems
ECE 4531	Digital Signal processing I
ECE 4542	Digital Signal Processing II
ECE 4843	Optical Fiber Communications
ECE 4913	Independent Project
ECE 4923	Introduction to Biomedical Engineering
SWE 4103	Software Quality and Project Management
SWE 4203	Software Evolution and Maintenance
SWE 4303	Performance Analysis of Computer Systems
SWE 4403	Software Architecture and Design Patterns

Students are encouraged to take combinations of electives which will permit some degree of specialization in one or more of the major fields of Computer Engineering. Two of the technical electives may be taken in another discipline subject to Department pre-approval. For instance, a number of 3000 and 4000 level courses in Math, Science, Computer Science and other Engineering disciplines are eligible. NOTE: Not all technical electives are offered every year.

COMPLEMENTARY STUDIES ELECTIVES

The CMPE program requires 9 credit hours of Complementary Studies electives. The choice of courses is subject to the Faculty of Engineering regulations for Complementary Studies Electives and the following:

a. An additional 3 ch must be an HSS related to technology and society(examples: HIST 3925 Technology and Society, SOCI 2534Technology and Social Change).
b. A minimum of 3 ch of non-language Humanities and Social Sciences (HSS) courses is required from the following: Anthropology, Classics, Literature, History, Philosophy, Political Science, and Scoiology.
c. The remaining 3 ch may be taken from: Administration, TechnologyManagement and Entrepreneurship (TME) or the Humanities andSocial Sciences.

Students are encouraged to seek out courses of interest and value to them. The final choice of electives is subject to the approval of the Department of Electrical and Computer Engineering.

Recommended Program

The program has been designed to be completed in eight study terms. The General Regulations of the Faculty of Engineering, including minimum credit hour requirements that are listed under Bachelor of Science in Engineering, apply to the Computer Engineering program.

Note:* Denotes common core first year course.
In addition to the core courses there is also requirement to complete four technical elective courses (normally 16 ch), one basic science elective (3 ch) and three complementary studies electives (normally 9 ch).

Electives
BASIC SCIENCE ELECTIVE
Each student is required to take one 3 ch basic science course chosen from Physics, Chemistry, and the life or earth sciences.

TECHNICAL ELECTIVE COURSES
Each student is required to take four technical elective courses (normally 16 ch). At least one of the electives must be a from this list (ECE 4273, ECE 4433, ECE 4823, ECE 4833 and ECE 4913).

ECE 4273	VLSI System Design (replacing CMPE 4273)
ECE 4433	Safety Critical System Design (replacing CMPE 4433)
ECE 4823	Communications Network Engineering (replacing CMPE 4823)
ECE 4253	Digital Communications (replacing CMPE 4283)
ECE 4943	Topics in Computer Engineering (replacing CMPE 4913)
ECE 3612	Electric Machines and Design in Sustainable Energy Systems
ECE 3832	Electromagnetics II
ECE 4133	Instrumentation Design
ECE 4143	Electronic Circuit Design
ECE 4173	Devices and Circuits for VLSI
ECE 4323	Industrial Control Systems

ELECTRICAL ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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FACULTY

· Biletskiy, Yevgen, MScCS, PhD (Kharkiv), PEng, Prof - 2003
·Briggs, William, BSc (Mt. A), PEng, Sr Instructor - 2001
·Castillo-Guerra, Eduardo, BSc, MSc (UCLV), PhD (UNB), Assoc Prof - 2006
·Chang, Liuchen, BSc (N.Jiatong), MSc (China Acad of Railway Sciences), PhD (Qu.), PEng, Prof - 1992
·Colpitts, Bruce, BScE, MScE, PhD (UNB), PEng, Prof - 1988
·Diduch, Christopher, BScE, MScE, PhD (UNB), PEng, Prof - 1981
·Doraiswami, Rajamani, BEE (VJI, Bombay), MEE (IIS, Bangalore), PhD (Johns H), PEng, Hon Res Prof, Professor Emeritus
·Englehart, Kevin, BScE, MScE, PhD (UNB), PEng, Prof and Director Inst of Biomedical Eng -1998
·Hill, Eugene, BScE, MScE (UNB), PhD (NC State), PEng, Hon Res Prof
·Hudgins, Bernard, BScE, MScE, PhD (UNB), PEng, Hon ResProf. - 2001
·Kaye, Mary E., BScE (UNB), MEng (Car), PEng, Prof - 1979
·Kyberd, Peter, BSc (Durham, MSc, PhD (Southhampton), Prof - 2003
·Li, Howard, BEE (Zhejiang), MScE (Guelph), PhD (Wat), Assoc Prof - 2007
·MacIsaac, Dawn, BPE (McM.), BEd (Qu.), BEng (McM.), MScE (UNB), PhD (UNB), Assoc Prof (Joint Computer Science) - 2001
·Meng, Julian, BScE (UNB), MSc, PhD (Qu.), PEng, Prof - 2002
·Narraway, John J., MSc, PhD (Cran IT), PEng, Hon Res Prof
·Parker, Philip A., BScE (UNB), MSc (St And), PhD (UNB), PEng, Hon Res Prof, Professor Emeritus
·Petersen, Brent R., BEng (Car), MaSc (Wat), PhD (Car), PEng, Assoc Prof - 1997
·Saleh, Sal A.M., BSc (Bir Ziet), MSc, PhD (Memorial), PEng,Assist Prof - 2011
·Scott, Robert, BSc (UNB), DSc (Acad.), PEng, Professor Emeritus
· Sensinger, Jonathan, B.S. (Illinois), MSc, PhD (Northwestern), Assoc Prof and Associate Director of inst. Of Biomedical Eng- 2013
Stevenson, Maryhelen, BEE (Gatech), MSEE, PhD (Stan), PEng, Prof - 1990
·Taylor, James H., BSEE, MSEE (Rochester), PhD (Yale), Hon Res Prof, Professor Emeritus
·Tervo, Richard, BSc, MSc (McM), PhD (Laval), PEng, Prof - 1986

General Information

The Department of Electrical and Computer Engineering is multi-disciplinary, combining disciplines of Electrical, Computer and Software Engineering, the latter being jointly administered with the Faculty of Computer Science The applications of Electrical and Computer Engineering are highly diversified with emphasis on the use of electrical devices and computers to solve real-world problems. Students in this program can develop expertise in renewable energy, communications, mechatronics, networking, microelectronics, signal processing and computer system design. Engineers graduated from our program experience a competitive advantage for a wide range of jobs in areas associated to industrial control, robotics, aerospace industry, cellular communication, biomedical technology, GPS systems, green power generation, smart vehicles, embedded computing, and computer games among many others. It also supports emerging research that advances technology and fosters scientific discovery.

The Department of Electrical and Computer Engineering is committed to delivering high quality programs that prepares students for successfully entering the workforce to become Professional Engineers or pursuing graduate studies. A foundation is first developed in mathematics, science and engineering. In their final year, students are then introduced to more specialized topics and broaden their knowledge by choosing a number of elective courses in Electrical and Computer Engineering or in such related areas as Mathematics, Physics, Computer Science and other Engineering disciplines. The program also makes available courses in cultural subjects that provide an awareness of social and professional perspectives both as individuals and as future engineers.

The Department of Electrical and Computer Engineering believes strongly in the value of relevant industrial experience. The Department endorses the Co-op Program and students who wish to gain industrial experience are strongly encouraged to participate in this internship program. Students planning to take Co-op are advised to consult with a program coordinator and/or advisor.

Curriculum

Required Courses

A minimum grade of C is required for all courses used for credit towards the B.Sc.E degree. The following is a list of courses that are core to the program.

PHYS 1081*	Foundations of Physics for Engineers
ENGG 1082*	Mechanics for Engineers
APSC 2023	Survey of 19th and 20th Century Physics
APSC 2028	Survey of 19th and 20th Century Physics Lab
ME 3232 (or CE 3963)	Engineering Economics or Egineering Economy
CHEM 1982 *	General Applied Chemistry
CHEM 1987 *	General Applied Chemistry Laboratory
ECE 2214 ECE 2215	Digital Logic Design Digital Logic Design Laboratory
ECE 2412	Simulation and Engineering Analysis
ECE 3221	Computer Organization
ECE 3232	Embedded Systems Design
CS 1003*	Introduction to Computer Programming
CS 1023	Data Structures and Algorithms for Engineers
ECE 1813 *	Electricity and Magnetism
ECE 2711	Electric Circuits
ECE 2722	Circuits and Systems
ECE 3031	Electrical and Computer Engineering Design
ECE 3111	Electronics I
ECE 3122	Electronics II
ECE 3312	Systems and Control
ECE 3511	Signals
ECE 3612	Electric Machines and Design in Sustainable Engergy Sytems
ECE 3821	Electromagnetics I
TME 3313	Managing Engineering and Information Technology Projects
ECE 4040	Electrical and Computer Engineering Design Project (or SWE 4040 or ENGG 4025 or TME 5025)
ENGG 1001*	Engineering Practice Lecture Series
ENGG 1003*	Engineering Technical Communications
ENGG 1015*	Introduction to Engineering Design & Problem Solving
ENGG 4013	Law and Ethics for Engineers
MATH 1003 *	Introduction to Calculus I
MATH 1013 *	Introduction to Calculus II

MATH 1503*	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
MATH 3503	Differential Equations For Engineers
STAT 2593	Probabilty and Statistics for Engineers

* Denotes course in general first year (Engineering I)

In addition to the core courses there is also a requirement to complete six technical elective courses (minimum 24 ch), three complementary studies electives (minimum of 9 ch), and one Science Elective (minimum 3 ch).

Electives

Basic Science Elective

Each student is required to take one 3 ch basic science course chosen from physics, chemistry, and the life or earth sciences.

Complementary Studies Electives

The EE program requires 9 credit hours of Complementary Studies electives. The choice of courses is subject to the Faculty of Engineering regulations for Complementary Studies Electives and the following:

A. At least 3 ch must be from the Humanities and Social Sciences related to technology and society (examples: HIST 3925 Technology and Society, SOCI 2534 Technology and Social Change).

B. An additional 3 ch must come from Humanities and Social Sciences (Anthropology, Classics, Literature, History, Philosophy, Political Science and Sociology).

C. The remaining 3 ch may be taken from: Administration, Technology Management and Entrepreneurship (TME) or the Humanities and Social Sciences. No more than 3 ch of language courses may be used for credit toward the B.Sc.E. Degree.

Students are encouraged to seek out courses of interest and value to them. The final choice of electives is subject to the approval of the Department of Electrical and Computer Engineering.

Technical Elective Courses

Each student is required to take six technical elective courses (miuimum of 24). At least four of the electives must be ECE courses from the following list (minimum 16

ECE 3242	Computer Architecture
ECE 3812	Data Communications and Networking
ECE 3832	Electromagnetics II
ECE 4251	Real Time Systems
ECE 4261	Digital Systems Design
ECE 4273	VLSI Design System
ECE 4823	Communications Network Engineering
ECE 4253	Digtial Communications
ECE 4133	Instrumentation Design
ECE 4143	Electronic Circuit Design
ECE 4173	Devices and Circuits for VLSI
ECE 4323	Industrial Control System
ECE 4333	Robotics
ECE 4343	Haptics
ECE 4523	Communications Design
ECE 4531	DSP I
ECE 4542	DSP II
ECE 4623	Advanced Electrical Machines
ECE 4633	Power System Analysis
ECE 4643	Power Electronics
ECE 4833	Microwave Engineering
ECE 4843	Optical Fiber Communication
ECE 4913	Independent Project
ECE 4914	Topics in Computer Engineering

ECE 4923	Introduction to Biomedical Engineering
ECE 4943	Topics in Computer Engineering

Students are encouraged to take combinations of electives which will permit some degree of specialization in one or more of the major fields of Electrical and Computer Engineering (see table below). Technical electives may be taken in other disciplines, subject to pre-approval by the Department. For instance, a number of courses in Math, Science, Computer Science and other Engineering disciplines are eligible; of the non-ECE electives, at least one must have second year pre-requisite. NOTE: Not all technical electives are offered every year.

Technical Elective Combinations

The following groupings of elective courses will be of value to students who wish to concentrate in speacialized areas of interest. All choices are subject to course availability.

Control & Instrumentation (Robotics, Mechatronics)	Computer Engineering (Digital Hardware, Software, Networking)
ECE 4333 Robotics ECE 4133 Instrumentation Design ECE 4251 Real Time Systems ECE 3242 Computer Architecture ME 4683 Mechatronics Applications ME 2003 Dynamics for Engineers ECE 3812 Data Communications and Networking ECE 4323 Industrial Control Systems ECE 4531 Digital Signal Processing I ECE 4261 Digital System Design ECE 4433 Safety Critical System Design	ECE 3242 Computer Architecture ECE 3812 Data Communications and Networking ECE 4251 Real Time Systems ECE 4273 VLSI System Design ECE 4261 Digital System Design ECE 4253 Digital Communications ECE 4133 Instrumentation Design ECE 4333 Robotics ECE 4531 Digital Signal Processing I ECE 4823 Communications Network Engineering CS 2033 Software Design for Engineers CHE 2501 General Materials Science
Power and Renewable Energy Systems (Electric Machines, Power Devices)	Communications (Wireless, Networking)
ECE 4633 Power System Analysis ECE 4643 Power Electronics ECE 4623 Advanced Electric Machines ECE 4133 Instrumentation Design ECE 3812 Data Communications and Networking ECE 4433 Safety Critical System Design ECE 4531 Digital Signal Processing I	ECE 3832 Electromagnetics II ECE 4833 Microwave Engineering ECE 4523 Communication Systems ECE 4253 Digital Communications ECE 4531 Digital Signal Processing I ECE 3812 Data Communications and Networking ECE 4823 Communications Network Engineering
Signal Processing (Filtering, Sensors)	Biomedical (Myoelectric, signals, prosthetic control)
ECE 4531 Digital Signal Processing I ECE 4542 Digital Signal Processing II ECE 4253 Digital Communications ECE 4523 Communications Systems ECE 4133 Instrumentation Design ECE 3832 Electromagnetics II ECE 4833 Microwave Engineering ME 5653 Predictive Control and Intelligent Sensors	ECE 4923 Introduction to Biomedical Engineering APSC 3953 Basis of Biomedical Engineering ECE 4531 Digital Signal Processing I ECE 4542 Digital Signal Processing II BIOL 1001 Biological Principles ECE 4133 Instrumentation Design ECE 4333 Robotics ECE 4523 Communication Systems

Recommended Program

The program allows completion of degree requirements in eight terms. However, a significant number of students plan to take nine or ten terms to reach graduation, using the extra time to master the material more thoroughly or to take extra courses. Students planning to take longer than eight terms are advised to plan well ahead and to consult with faculty in order to minimize problems arising from timetabling restrictions and prerequisite requirements. The General Regulations of the Faculty of Engineering, including minimum credit hour requirements that are listed under Bachelor of Science in Engineering, apply to the Electrical Engineering program.

FOREST ENGINEERING

Please see Bachelor of Science in Forest Engineering Program information

GEOLOGICAL ENGINEERING

GEOLOGICAL ENGINEERING PROGRAM

General Office:	Head Hall, Room H-124
Mailing Address:	Director, Geological Engineering Program Department of Civil Engineering , University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-5125
Fax:	(506) 453-3568
Email:	GE-Program@unb.ca
Website:	http://www.unb.ca/geological/

General Information

Geological Engineers play key roles in the exploration, protection, and responsible development of Earth's water, mineral, and hydrocarbon resources. They also ensure that structures such as bridges, dams and buildings are designed for long term stability and safety, taking geological conditions and hazards into account. The profession is distinct amongst engineering disciplines for the opportunities it affords for travel and work in the natural environment, and for the atmosphere of adventure and discovery that accompanies geological exploration at all scales.

Geological engineers require skills and tools to "see" beneath the surface and predict the behaviour of highly variable earth materials. To this end, they draw on the field methods, powers of observation, analytical techniques, and remote sensing tools employed by geoscientists, and incorporate engineering approaches to materials testing, modelling, structural design and risk assessment. They must integrate a wide variety of data with knowledge of geological and geotechnical processes in order to make informed recommendations and decisions. As team players, frequently working with geologists or civil engineers, geological engineers also require good communication and people skills.

Examples of engineering works with significant geological engineering components include mines, dams, bridges, building foundations, highways, slope stabilization projects, landfill and wastewater treatment sites, waterways and port facilities. Geological engineers also conduct environmental impact assessments, develop and protect groundwater resources, and remediate contaminated sites. In the oil and gas and mining industries, they are responsible for locating and evaluating resources hidden far below the Earth's surface and for developing hydrocarbon reservoirs and mineral deposits efficiently and responsibly.

Program

The Geological Engineering Program is delivered jointly by the Department of Civil Engineering and the Department of Earth Sciences at UNB and offers three options: Geoenvironmental, Geotechnical, and Mineral Resources. Each option is built on a common core of courses which provides education in the basic sciences and engineering principles required for the profession as well as exposure to important aspects of oral and written communications, engineering design, economics, law, and professional practice. Skills in field work and team work are developed through two geoscientific and one geomatics field school and through a capstone team design project. Students tailor their program of study through the choice of technical and complementary studies electives and, most significantly, by their choice of a program option.

The Geoenvironmental Option involves additional environmentally-oriented courses in civil engineering, geochemistry, biology and geology. Graduates are thus better trained to work in the environmental field on projects such as environmental impact assessments, waste disposal, and the management of surface and ground water quality and supplies.

The Geotechnical Option involves additional courses on the behaviour of earth materials and their impacts on people and infrastructure. Courses designated for this option prepare the student for assessments of geological hazards and groundwater supplies and for involvement in the design of major structures such as bridges, off-shore installations and waste-disposal facilities.

The Mineral Resources Option involves additional courses that address applied scientific, economic and environmental aspects of the discovery, extraction, utilization, and management of mineral deposits.

The Geological Engineering BScE degree program entails 170 credit hours in classes plus an additional 14 credit hours taken in the form of three field camps that are held in the spring or late summer outside the normal teaching terms. The program is intended for completion within 8-9 terms. Students should pay special attention to the course sequences and prerequisites when selecting their courses for any term. Some upper year courses are offered in alternate years. Advice concerning course selection and sequencing should be sought from the Director of the Geological Engineering Program.

Graduates of this program will be eligible for registration in Canadian associations of professional engineers.

Common Core

PHYS 1081	Foundations of Physics for Engineers
CE 1023	Statics for Engineers
CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Lab
CE 2023	Mechanics of Materials
CE 2113	Soil Mechanics I
CE 2703	Introduction to Fluid Mechanics
CE 2973	Civil Engineering Design I
CE 3713	Hydraulics & Hydrology
CE 3933	Numerical Methods for Civil Engineers
CE 3963	Engineering Economy
CE 3983	Civil Engineering Design II
CE 3603	Construction Engineering I
or	
CE 4613	Construction Engineering II
CS 1003	Programming and Problem Solving for Engineers
ECON 1073	Economics for Engineers
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Engineering Technical Communications
ENGG 1015	Introduction to Engineering Design and Problem Solving
ENGG 4013	Law and Ethics for Engineers
GE 1026	Geology Lab for Geological Engineers
GE 2022	Engineering Geology
GE 4973	Team Design Project
GE 5753	Engineering Hydrology
ESCI 1001	The Earth: Its Origin, Evolution and Age
ESCI 2131	Earth Materials I
ESCI 2211	Sedimentology I: Process, Product and Stratigraphy
ESCI 2321	Structural Geology I
ESCI 2602	Principles of Geochemistry
ESCI 2703	Field School
ESCI 3131	Origin of Igneous and Metamorphic Rocks
ESCI 3411	Rock Mechanics
ESCI 4512	Applied Geophysics II
GGE 1001	Introduction to Geodesy & Geomatics
GGE 1803	Practicum for Civil Engineers
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
STAT 2593	Probability and Statistics for Engineers

Geoenvironmental Option

1. Compulsory Courses

BIOL 2113	Ecology
CE 3403	Environmental Engineering
ESCI 3442	Environmental Geology
ESCI 3631	Geochemistry of Natural Waters
ESCI 3713	Environmental Geology Field School

2. Complementary Studies Electives (9 ch)

3. Technical Electives (9ch): Suggested technical electives are listed below. Other courses may be selected subject to approval of the GE Program Director. At least one course must be selected from the list of courses indentified by an asterisk (*).

*CE 5141	Embankments I
*CE 5201 *CE 5212 *ESCI 4501	Road Materials & Structures Pavement Design I Applied Geophysics
GE 5153	Environmental Geotechnics
CE 5421	Water Quality and Treatment
*CE 5432	Wastewater Treatment and Pollution Control
ESCI 4501	Exploration Geophysics I
ESCI 4452	Environmental Impact Assessment
GGE 3342	Remote Sensing

Geotechnical Option

1. Compulsory Courses

CE 3123	Foundation Engineering I
GE 4412	Applied Rock Mechanics
ESCI 3322	Structural Geology II
ESCI 3703	Field School

2. Complementary Studies Electives (9 ch)

3. Technical Electives (9 ch): Suggested technical electives are listed below. Othere courses may be selected subject to the approval of the GE Program Director. At least one course must be selected from the list of courses identicied by an asterisk (*).

*CE 5132	Foundation Engineering II
*CE 5141	Embankments I
*GE 5153	Environmental Geotechnics
*CE 5201	Road Materials and Structures
*CE 5212	Pavement Design
CE 5623	Project Management
ESCI 4501	Exploration Geophysics I
GGE 3342	Remote Sensing

Mineral Resource Option

1. Compulsory Courses

ESCI 3322	Structural Geology II
ESCI 3482	Mineral Resources, Economics and the Environment
ESCI 3703	Field School
ESCI 4461 Or ESCI 3492	Economic Geology Petroleum Geoscience
ESCI 4501	Exploration Geophysics I

2. Complementary Studies Elective (9 ch)

3. Technical Electives: (6ch): Suggested technical electives are listed below. Other courses may be selected subject to the approval of the GE Program Director. At least one course must be selected from the list of geo technical courses identified by an asterisk(*).

*CE 5141	Embankments I
*CE 5201	Road Materials and Structures
*CE 5212	Pavement Design
CE 3123	Foundation Engineering I
GE 5153	Environmental Geotechnics
CE 5623	Project Management
GGE 3342	Remote Sensing

* At least one Technical Elective must be taken from the list of courses marked with an asterisk.

Complementary Studies Electives

A complete Geological Engineering program requires 9 credit hours of complementary studies electives. Course selections are subject to Program Directors approval, and also must meet the Faculty of Engineering, General Regulations for Complementary Studies requirements. At least one of the electives must be chosen from one of the following disciplines: Anthropology, Classics, Literature, History, Philosophy, Political Science, and Sociology.

GEOMATICS ENGINEERING
(Geodesy & Geomatics Engineering)
DEPARTMENT OF GEODESY & GEOMATICS ENGINEERING

General Office:	Head Hall, Room E-54
Mailing Address:	Department of Geodesy & Geomatics Engineering, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4698
Fax:	(506) 453-4943
Email:	gge@unb.ca
Website:	http://gge.unb.ca/

FACULTY
- Al-Tahir, Raid, BSc, (Baghdad), MSc (OSU), PhD (OSU), Adjunct Prof 2012
- Chrzanowski, Adam, Dipl.Eng., MSc, PhD (Krakow), Dr.h.c. (Olsztyn), Dr.h.c. (Krakow), PEng, Prof (1966), Professor Emeritus - 1998
- Coleman, David, BScE, MScE (UNB), PhD (Tas), PEng, Prof and Dean (Engineering) - 1993
- Dare, Peter, BSc (East London), MASc (Erindale College), PhD, (East London), PEng, Prof - 2000
- Faig, Wolfgang, Dipl.Ing. (Stuttgart), M.Sc.E. (UNB), Dr.Ing. (Stuttgart), PEng, Prof (1971), Dean and Professor Emeritus - 1999
- Hamilton, Angus, BASc, MASc (Tor), PEng, Prof (1971), Professor Emeritus - 1987
- Hughes Clarke, John E., BA (Oxf), MSc (S'ton), PhD (Dal), Prof and Chair in Ocean Mapping- 1991
- Kim, Donghyun, BS, MS, PhD (Seoul National), Senior Research Assoc - 2002
  Kingdon, Robert, BScE, MScE, PhD (UNB), Peng, Instructor
 Teaching Associate - 2004
- Komjathy, Attila, Dipl. Eng. (Miskolc), PhD (UNB), Adjunct Prof 2012
- Langley, Richard B., BSc (Wat), PhD (York), Prof - 1981
- McLaughlin, John D., BScE, MScE (UNB), PhD (Wis), PEng, Prof Emeritus and President Emeritus - 1972
- Nichols, Susan, BSc (Acad), MEng, PhD (UNB), PEng, Prof (1992)
- Santos, Marcelo, BSc (Rio de Janeiro), MSc (National Observatory), PhD (UNB), PEng, Prof & Chair- 2000
- Secord, James M., BScE, MScE, PhD (UNB), PEng, Sr Teaching Assoc - 1986
- Stefanakis, Emanuel, DiplEng (NTU Athens), MScE (UNB), PhD (NTU Athens), Assistant Prof - 2011
- Szostak-Chrzanowski, Anna, MSc (Warsaw), MEng (UNB), PhD (Krakow), PEng, Sr. Research Assoc. - 2000
- Vanicek, Petr, Geodetic Eng, PhD (Prague) PEng, Prof (1971), Professor Emeritus - 2001
- Wachowicz, Monica, BSc (Federal University of Parana), MSc (Twente), PhD (Edinburgh), Adjunct Prof - 2012
- Wells, David, BScE (Mt.All), MASc (BrCol), PhD (UNB), PEng, Prof (1980), Professor Emeritus - 1999
- Zhang, Yun, BSc (Wuhan), MSc (East China), PhD (Free University Berlin), PEng, Prof - 2000

GENERAL INFORMATION

The Geomatics Engineering program is offered by the Department of Geodesy and Geomatics Engineering. Interesting and challenging professional careers in land or cadastral surveying, engineering surveying, mapping, photogrammetry and geodesy are open to graduates. They can find positions with federal, provincial and municipal government agencies, with the oil, gas and mining industries and with numerous private organizations, such as photogrammetric mapping firms, geological and geophysical exploration companies and consulting engineers, or they can be self employed as professional engineers or registered land surveyors.

A variant of the concept of cooperative education has been adopted in the Geomatics Engineering Programme. Cooperative education is based upon the principle that a sound academic program combined with relevant technical experience can provide the most effective professional development during the undergraduate years. With this in mind, undergraduate geomatics students are required to obtain at least six months relevant practical experience and to prepare a technical report, normally based on this experience, prior to graduation. Many geomatics organizations have agreed to participate in this program. The Department will make available to the students a list of organizations that provide the opportunity for appropriate experience. Students will then be responsible for selecting and negotiating suitable placement.

Curriculum

With a minimum of 160 credit hours (ch) in the program, students are required to complete:

a. a core of basic engineering subjects;

b. a core of Mathematics, Computer Science, General Science, and geomatics engineering (GGE) subjects;

c. approved technical electives, with at least one GGE 5000 level course;

d. a minimum of 6 ch of approved complementary studies electives; and

e. at least 6 months of relevant practical experience approved by the Department.

Students who have other post-secondary educational efforts are advised to write to the Chair of the Department for information on credits that may be awarded.

Students intending to become registered land surveyors are required to take certain electives in geomatics engineering and other fields and should consult with the Department.

The program has been designed to be completed in 8 terms, with reasonable course loads. Students may proceed at a slower rate but all requirements must be completed within 8 consecutive years. Detailed program information is available from the Department.

Courses

Descriptions of courses offered by the various Departments are given in the "Fredericton Courses" Section of this Calendar.

CORE COURSES:

CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Laboratory
CE 3963	Engineering Economy
CS 1003	Programming and Problem Solving for Engineers
CS 3113	Introduction to Numerical Methods
ECON 1073	Economics for Engineers
EE 1813 ENGG 1001	Electricity and Magnetism Engineering Practice Lectures Series
ENGG 1003	Engineering Technical Communication
ENGG 1015	Introduction to Engineering Design and Problem Solving
ENGG 1001	Engineering Practice Lecture Series
ENGG 1082	Mechanics for Engineers
ENGG 4013	Law and Ethics for Engineers
GGE 1001	Introduction to Geodesy and Geomatics
GGE 2012	Advanced Surveying
GGE 2013	Advanced Surveying Practicum
GGE 3423	Introduction to Geographic Information Systems
GGE 2501	Land Administration I
GGE 3022	Survey Design and Analysis
GGE 3023	Surveying Design Practicum
GGE 3042	Introduction to Global Navigation Satellite Systems
GGE 3111	Introduction to Adjustment Calculus
GGE 3122	Advanced Adjustment Calculus
GGE 3202	Geodesy I
GGE 3342	Remote Sensing
GGE 3353 GGE 3423	Ocean Mapping Introduction to Geographic Information Systems
GGE 4022	Precision Surveying
GGE 4211	Geodosy II
GGE 4313	Airborne Mapping Systems
GGE 4423	Advanced Geographic Information Systems
GGE 4512	Land Administration II
GGE 4700	Design Project and Report
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II

MATH 2513	Multivariable Calculus for Engineers
MATH 3543	Differential Geometry for Geomatic Engineers
PHYS 1081	Foundations of Physics for Engineers
STAT 2593	Probability and Statistics for Engineers
TME 3313	Managing Engineering & Information Technology Projects

TECHNICAL ELECTIVES:

GGE 5011	Oceanography, Tides & Water Levels
GGE 5012	Marine Geology & Geophysics
GGE 5041	Engineering Surveying
GGE 5042	Kinematic Positioning
GGE 5061	Mining Surveying
GGE 5093	Industrial Metrology
GGE 5131	Special Studies in Adjustments
GGE 5222	Gravity Field in Geomatics
GGE 5242	Global Navigation Satellite Systems for Geodesy
GGE 5322	Digital Image Processing
GGE 5341	Advanced Technologies in Remote Sensing
GGE 5402	Geographic Databases
GGE 5403	Geospatial Web
GGE 5405	Introduction to Big Data & Data Science
GGE 5415	Real-Time Mobility Data Analytics
GGE 5521	Survey Law
GGE 5532	Land Economy & Administration
GGE 5813	Urban Planning for Geomatics
GGE 5833	Land Use Planning for Geomatics
GGE 5842	Site Planning for Geomatics
GGE 5701	Special Studies in Geomatics I
GGE 5702	Special Studies in Geomatics II
GGE 5703	Special Studies in Geomatics III

Other technical electives may be taken in engineering, science, computer science, or forestry, subject to Departmental approval.

Students are cautioned that not all technical electives may be offered every year.

In addition to the above list, a minimum of 6 ch of complementary studies electives is also required. These require approval by the Department.

Cadastral Surveying Option within Geomatics Engineering

Students who obtain a Bachelor of Science in Engineering degree in Geomatics Engineering at UNB, and who complete a set of four specified technical electives (CE 5313 , or GGE 5813, CE 5342 or GGE 5842, GGE 5521 , GGE 5532), or two specified technical electives (GGE 5521 and GGE 5833) will have the following notation placed on their UNB transcripts: "COMPLETED CADASTRAL SURVEYING OPTION". This option has been accredited by the Canadian Board of Examiners for Professional Surveyors.

Concurrent Degrees in Geomatics

Engineering and Computer Science

Rewarding career opportunities now emerging in large-scale spatial database management, geomatics systems integration, and custom applications programming demand a deeper foundation in computer science and a stronger understanding of spatial systems and sciences than found in other programs.

The Faculty of Computer Science and the Department of Geodesy and Geomatics Engineering are cooperating to make it possible for a student to graduate with both a BCS degree and a BScE(Geomatics Engg)

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degree in six years. Several specializations are available in both Computer Science and Geomatics Engineering but these may lengthen the period of study.

The concurrent program is designed so that, if a student decides to opt for either degree alone part way through the program, the transition can be made easily.

Students in the concurrent program are able to count many of their courses toward the requirements of both degrees so it is important to select courses carefully from the start. Advising is available at every level from pre-entry inquiries through to graduation.

Students wishing to enter the concurrent degree program of Bachelor of Computer and Bachelor of Science in Engineering (Geomatics Engineering) must meet the current entry requirements of each individual degree.

Diplomas in Geomatics

The Department of Geodesy and Geomatics Engineering offers programs leading to diplomas in the areas of specialization of Cadastral Studies, Engineering and Exploration Surveying, Geodetic Surveying, Land Information Management, and Mapping and Geographic Information Systems (GIS). These programs offer an opportunity for practising surveyors and other technical professionals to gain a thorough understanding of the theory and principles of specific applications of new technologies and methodologies. Each program area consists of selected courses as regularly offered in the undergraduate program. A total of at least 30 credit hours of specified and elective courses is required in each program. All of the courses in these programs are degree-credit courses. Those who successfully complete a diploma program and who are subsequently admitted to a degree program may receive credit for them. Students enrolled in a diploma program will be subject to all relevant university undergraduate regulations and to the General Regulations of the Faculty of Engineering.

It is recommended that applicants to the Diploma programme have successfully completed a programme of technology, of at least two years, which should have included or have been supplemented with courses in calculus, computer science, and probability and statistics at a level equivalent to first year university. It is important that applicants have a working knowledge of these three subject areas and have at least three years of relevant work experience (at least one of which should be as a party chief or equivalent).

Cadastral Studies	
GGE 2501	Land Administration I
GGE 3342	Imaging & Mapping I
GGE 4512	Land Administration II
GGE 5521	Survey Law
CE 3963	Engineering Economy
TME 3313	Managing Enng & IT Projects
Either GGE 5532 and GGE 5813 and GGE 5842	Land Economy and Administration Urban Planning for Geomatics AND Site Planning for Geomatics
OR GGE 5833 and Electives	Land Use Planning for Geomatics At least 4 credit hours
Engineering and Exploration Surveying	
ESCI 4501	Applied Geophysics I
ESCI 4512	Applied Geophysics II
GGE 3022	Survey Design and Analysis
GGE 3111	Introduction to Adjustment Calculus
GGE 3122	Advanced Adjustment Calculus
GGE 5041	Engineering Surveying
GGE 5061	Mining Surveying
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
Geodetic Surveying	
GGE 3022	Survey Design and Analysis
GGE 3111	Introduction to Adjustment Calculus
GGE 3122	Advanced Adjustment Calculus
GGE 3202	Geodesy I
GGE 4211	Geodesy II
GGE 5242	Global Navigation Satellite Systems for Geodesy
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
Land Information Management	
GGE 3423	Introduction to Geographic Information Systems
GGE 2501	Land Administration I
GGE 4423	Advanced Geographic Information Systems
TME 3213	Quality Management
OR	
TME 3413	Technology, Creativity and Innovation
Electives:	At least 14 credit hours
Mapping and Geographic Information Systems	
GGE 3423	Introduction to Geographic Information Systems
GGE 3111	Introduction to Adjustment Calculus
GGE 3342	Remote Sensing
GGE 4313 GGE 4423	Airborne Mapping Systems Advanced Geographic Information Systems
Electives:	at least 6 credit hours

Minor in Geomatics

A Minor in Geomatics is offered to students in programmes of study other than Geomatics Engineering and comprises a minimum of 24 credit hours [ch] of GGE courses. Normally a background in calculus [e.g., MATH 1003 , MATH 1013], statistics [e.g., STAT 2593], linear algebra [e.g., MATH 1503 , MATH 2513 or MATH 2213], and computer science [e.g., CS 1003 or CS 1073] would be a prerequisite to the Minor.

GGE 1001 [5 ch] must be done for the Minor. The remaining minimum of 19 ch may be chosen from other GGE courses with the following collections of courses as recommended areas of concentration. Other combinations of courses may be arranged with approval by the Department prior to starting the Minor.

Land Administration and Information Management: GGE 2423 or GGE 3423, GGE 2501, GGE 4512, plus at least 8 ch of approved GGE course(s).

Mapping and Geographic Information Systems: GGE 2423 or GGE 3423, GGE 3342, GGE 4423, GGE 4313.

Hydrography and Oceanography: GGE 3342, GGE 3353, GGE 5011, GGE 5012, plus at least 1 ch of approved GGE course(s).

Positioning: GGE 2012 , GGE 2013 , GGE 3042 , GGE 3202 , GGE 4211.

MECHANICAL ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

General Office:	Head Hall, Room E-41
Mailing Address:	Department of Mechanical Engineering, University of New Brunswick, P.O. Box 4400, 15 Dineen Drive, Fredericton, N.B., Canada, E3B 5A3
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Email:	meceng01@unb.ca
Website:	http://www.me.unb.ca/

FACULTY

·Afzal, Muhammad, BScEng (UAF, Pakistan), MEng (AIT, Thailand), PhD (Ehime, Japan), PEng, Assoc – 2008

·Biden, Edmund N., BScE (UNB), DPhil (Oxf), Prof and Dean of Graduate Studies - 1987

·Bonham, David J., BSc (Qu), MEng, PhD (McM), PEng, Prof. Emeritus - 1974

·Boudreau, Roger, BEng, MEng (Ecole Polytechnique), PhD (UNB), PEng, Adjunct Prof - 2003

·Carretero, Juan A., BEng (UNAM), MASc, PhD (Victoria), PEng, Prof - 2002

·Chen, Zengtao, BEng (Nanjing UST), MEng, Dr. Eng. (Harbin IT), PhD (Wat), PEng, Adjunct Prof - 2004

·Davies, Huw G., BSc, PhD (Imperial), PEng., Prof. Emeritus – 1975

·Dubay, Rickey, BSc Mech, MSc Mech (UWI), PhD (DalTech), PEng, Prof – 1998

· Garland, Phil, BScE, PhD (UNB), PEng, Asst Prof - 2012

·Gerber, Andrew G., BScE, PhD (UNB), BA (Ambassador), PEng, Prof and Chair - 2000

·Hall, Joseph W., BEng, MASc, PhD (McM), Peng, Asst Prof - 2007

·Hassan, Marwan, BSc (Helwan), MSc (Tuskegee), PhD (McM), PEng, Adjunct Prof – 2001

·Holloaway, Gordon, BSc (UNB), MASc, PhD (Ott), PEng, Prof - 1989

·Hussein, Esam, M.A, BSc, MSc (Alexandria), PhD (McM), PEng, Honorary Research Prof - 1984

·Jeans, Tiger, BScE (UNB), MScE (Toronto), PhD (UNB), PEng, Asst Prof - 2010

·Kember, Guy, HBSc, MSc, PhD (W. Ont), Adjunct Prof - 2003
·Kiani, Amirkianoosh, BEng (IUY, Iran), Msc (NTUU-KPI, Ukraine), PhD (Ryerson), Assistant Prof - 2014
·Losier, Yves G., BScE, MScE, PhD (UNB), PEng, Instructor - 2012
·Lyon, Donald E., BS, MS, PhD (Purdue), PEng, Prof - 1991
·Mohany, Atef, BSc, MSc (Cairo), PhD (McM), PEng, Adjunct Prof - 2012
·Nokelby, Scott, BEng, MASc, PhD (Victoria), PEng, Adjunct Prof - 2009
·Rogers, Robert J., BSc (Calgary), MASc, PhD (Wat), PEng, Prof Emeritus - 1977
· Seto, Mae, BASc, MASc, PhD (UBC), PEng, Adjunct Prof - 2011
·Simoneau, Andy, BEng, MEng, PhD (McM), PEng, Asst Prof - 2009
· Seto, Mae, BASc, MASc, PhD (UBC), PEng, Adjunct Prof - 2011
·Sousa, Antonio, C.M., ME (Lco Marques), MSc, PhD (Manc), Fellow OE (Portugal), Prof Emeritus - 1980
·Venart, James, E.S., BASC (Tor), PhD (Glas), PEng,Prof Emeritus - 1973
·Watt, George, BApSc, PhD (Br. Col), Adjunct Prof - 2004
(Concordia), PEng, Asst Prof - 2008
· Yao, Shengi(Sophie), BEng (Jiangxi), MSc (Dalian UT), PhD

General Information

The Department of Mechanical Engineering provides instruction leading to the degree Bachelor of Science in Engineering (BScE). The program of instruction presents a curriculum suitable to the education of engineers in the art and science of Mechanical Engineering.

The curriculum includes a core of basic Mathematics, Science, Business and Humanities subjects, and is structured around a sequence of essential Mechanical Engineering subjects and design instruction. All this provides for the academic requirements of university graduates qualified to practice Mechanical Engineering professionally; it prepares the student for a career in the profession whether involved in the design, production, or operation of mechanical equipment, industrial or power plant, or the pursuit of post-graduate study.

The central theme behind an education in Mechanical Engineering is the engineered production, transformation, conversion, transmission and control of "mechanical" energy and materials. This may involve any or all aspects of the design, manufacture, fabrication, alteration, installation, selection, specification, testing, maintenance, operation, and control of single components and machines or complete and complex systems. The Department offers some specialization in order to match these extremely broad demands to the interests of its students. In particular there are two program options: Mechatronics, and Biomedical Engineering. These Options are described in detail below.

Curriculum

Core Courses

Students should note the specific academic regulations in the section "General Regulations" as outlined earlier under "Engineering". In addition to the core courses required of all Engineering students, additional required courses are provided in the areas of applied mechanics, materials, thermodynamics, heat transfer, fluid mechanics, manufacturing engineering and system dynamics, as well as the application of these courses to engineering design. The program is designed to be completed in eight academic terms, however the student may arrange for a program that spans a longer time period. Typical term-by-term course sequences may be seen on the web site: http://www.me.unb.ca .

The complete requirements for the degree, including the core courses recommended for the first and second terms, are listed below. A list of Technical Electives follows the program outline. All courses must be passed with a grade of C or better.

CHE 2501	General Materials Science
CHE 2506	Materials Science Laboratory
CHEM 1982 *	General Applied Chemistry
CHEM 1987 *	General Applied Chemistry Laboratory
CS 1003*	Programming and Problem Solving for Engineers
CS 3113	Intro to Numerical Methods (or CE 3933 or CHE 2418 or CHE 3418 or MATH 3413)
ECE 1813*	Electricty and Magnetism
ECE 2683	Electric Circuits and Machines (for non-electricals)
ECE 2701	Electric Circuits and Electronics (for non-electricals) (or ECE 2711)
ENGG 1001*	Engineering Practice Lecture Series
ENGG 1003*	Engineering Technical Communications

ENGG 1015*	Introduction to Engineering Design and Problem Solving
ENGG 1082*	Mechanics for Engineers
ENGG 4013	Law and Ethics for Engineers
MATH 1003 *	Introduction to Calculus I
MATH 1013 *	Introduction to Calculus II
MATH 1503 *	Introduction to Linear Algebra (or MATH 2213)
MATH 2513	Multivariable Calculus for Engineers
MATH 3503	Differential Equations for Engineers
ME 1312	Computer Aided Design
ME 2003*	Dynamics for Engineers
ME 2111	Mechanics of Materials I (or CE 2023)
ME 2122	Mechanics of Materials II
ME 2125	Mechanics of Materials Design Project
ME 2143	Kinematics and Dynamics of Machines
ME 2145	Kinematics and Dynamics Design Project
ME 2222	Manufacturing Engineering I
ME 2352	Design Optimization
ME 3232	Engineering Economics (or CE 3963)
ME 3341	Machine Design
ME 3345	Machine Design Project
ME 3413	Thermodynamics
ME 3415	Thermodynamics Lab
ME 3433	Heat Transfer I (or CHE 3304)
ME 3435	Heat Transfer I Lab
ME 3511	Fluid Mechanics
ME 3515	Fluid Mechanics Lab
ME 3522	Applied Fluid Mechanics
ME 3524	Fluid Systems and Design
ME 3613	System Dynamics
ME 3623	Automatic Controls I
ME 4283	Manufacturing Engineering II
ME 4421	Applied Thermodynamics
ME 4424	Sustainable Energy Systems Design
ME 4613	Mechanical Vibration
ME 4860	Senior Design Project (or ENGG 4025 or TME4025)
ME 4861	Mechanical Healthy and Safety
PHYS 1081 *	Physics for Engineers
STAT 2593	Probability and Statistics for Engineers

Total credit hours of core courses:	143 ch
Complementary Studies Electives:	9 ch
Technical Electives (see section below):	10 ch
TOTAL CREDIT HOURS FOR DEGREE:	162 ch

* These are first year courses, most of which are accepted for credit by other engineering programs.

General Prequisite Note:
The Department of Mechanical Engineering strictly enforces pre-and co-requisites. Therefore, unless students have special permission from the instructor, all students not having the necessary pre-and co-requisite(s) will be removed from the corresponding ME course after the last day to withdraw date. This policy will be strictly enforced for all ME courses.

Electives

Technical Elective Courses

In addition to the core courses, the students select at least 10 credit hours of Technical Elective courses appropriate to their interests. Courses may be selected, as available, from the following list, or any other approved technical course offered outside the Department. The availability of specific technical electives varies; students should see list of planned offerings on web site: www.me.unb.ca . At least 7 ch must be Mechanical Engineering electives. Courses below the 3000 level are not normally considered as suitable technical electives.

ME 4173	Robot Kinematics
ME 4243	Advanced Manufacturing Methods
ME 4622	Human Factors Engineering
ME 4703	Mechanical Engineering Measurements
ME 5173	Advanced Kinematics of Manipulators
ME 5183	Industrial Robotics and Automation
ME 5223	Finite Element Analysis in Engineering
ME 5243	Machining Theory and Practice
ME 5253	Codified Design and Failure Analysis
ME 5283	Micro / Nano Manufacturing
ME 5353	Fracture Mechanics
ME 5373	Nuclear Reactor Engineering
ME 5473	Energy Management
ME 5493	Internal Combustion Engines
ME 5503	App. of Computational Fluid Dynamics to Ind. Processes
ME 5534	Experimental Methods in Fluid Mechanics
ME 5553	Ocean Wave Energy Conversion
ME 5578	Low Speed Aerodynamics
ME 5588	High Speed Aerodynamics
ME 5643	Automatic Controls II
ME 5653	Predictive Control and Intelligent Sensors
ME 5713	Nondestructive Testing
ME 5744	Steam Supply Systems
ME 5754	Steam and Gas Turbines
ME 5813	Special Topics in Mechanical Engineering
ME 5833	Special Topics in Mechanical Engineering
ME 5834	Nuclear Engineering
ME 5913	Biomechanics I
ME 5933	Industrial Ecology

Complementary Studies Electives

In addition to the core courses and technical electives, students select three courses for at least 9 credit hours of Complementary Studies Elective courses. One of the courses has to be either HIST 3925 or SOCI 2534 or equivalent with approval from the Department. At least 3 ch must be "humanities". A very wide range of elective courses is available. Students are encouraged to take a sequence of courses in one area rather than just entry-level courses. See the Faculty of Engineering General Regulations for restrictions in the selection of Complementary Studies Electives. A list of suggested Complementary Studies Elective courses, as well as their regulations, is available on the web site: http://www.me.unb.ca .

Mechatronics Option in Mechanical Engineering

Mechatronics is an integrated approach to mechanical, electronic and computer engineering for the design of "smart" products and "intelligent" manufacturing systems. This option permits interested students to increase their understanding of these subjects by a selection of core and elective courses in mechanical and electrical engineering. The option normally begins in second year but may be started later.
In order to enter this option, students must meet the following qualifications:

1.Successful completion of 35 ch of the regular program in Mechanical Engineering.
2.Approval of the Department. Applications to the Mechatronics Option are normally considered in August each year. Application forms are available from the Department.

Core Courses for Mechatronics Option:
Compared to the standard Mechanical Engineering Program, only one technical elective is required (as opposed to two for the standard program). For the Mechatronics option, ECE 2711 (Electric Circuits) is recommended instead of ECE 2701 (Electric Circuits and Electronics for Non-electricals). Also required are: ECE 2214 (Digital Logic Design), ECE 2215 (Digital Logic Design Lab), ECE 3111 (Electronics I), ME 4673 (Introduction to Mechatronics) and ME 4683 (Mechatronics Applications). The work for the senior design project course, ME 4860 , will provide appropriate experience to suit the option.

Technical Electives for Mechatronics Option:
The normal choice of technical electives is replaced by a directed choice of one elective from the list below.

ECE 3221	Computer Organization	(4 ch)
ECE 4323	Industrial Control Systems	(4 ch)
ECE 4333	Robotics	(4 ch)
ECE 4343	Haptics	(4 ch)
ECE 4923	Introduction to Biomedical Engineering	(4 ch)
ME 4173	Robot Kinematics	(4 ch)
ME 4703	Mechanical Engineering Measurement	(3 ch)
ME 5183	Industrial Robotics and Automation	(4 ch)
ME 5643	Automatic Controls II	(4 ch)
ME 5653	Predictive Control and Intelligent Sensors	(4 ch)
ME 5713	Nondestructive Testing	(4 ch)

Other technical elective courses may be selected with the permission of the Chair of the Department or the Director of Undergraduate Studies.

Biomedical Engineering Option in Mechanical Engineering

The Biomedical Engineering Option program is available to all students in Mechanical Engineering who are approved by the Department. This option will help to prepare students for careers in Biomedical Engineering or Medicine. Students interested in pursuing a career in Medicine should consult with the Assistant Dean in the Faculty of Science about what other courses, such as Biology and Chemistry, would be required in order to apply for admission to a medical school; an appropriate individual study program would then be prepared in consultation with the Director of Undergraduate Studies in the Mechanical Engineering Dept. and the Option Coordinator.

Required Courses: APSC 3953, Basis of Biomedical Engineering (3 ch), (or equivalent), is an additional required course. The work in the senior design project course, ME 4860, will be coordinated to provide appropriate experience to suit the option; students must obtain approval for their project using a form for this purpose.

Elective Courses: The normal choice of technical electives is replaced by a directed course from the two lists below:

A. Choose one of:		
ME 4173	Robot Kinematics	(4 ch)
ME 5713	Nondestructive Testing	(4 ch)
ME 5913	Biomechanics I	(4 ch)
B. Choose two of:		
CS 3003	Biocomputing in Drug Design I	(5 ch)
CS 4965	Computational Biology	(4 ch)
ECE 4923	Introduction to Biomedical Engineering	(4 ch)
ME 5622	Human Factors Engineering	(3 ch)
KIN 3061	Advanced Biomechanics	(4 ch)
KIN 4063	Biomechanical Instrumentation and Data Acquisition	(3 ch)
KIN 4161	Occupational Biomechanics	(3 ch)
KIN 4163	Workplace Ergonomic Design and Analysis	(3 ch)
PHYS 5143	Magnetic Resonance Imaging	(4 ch)

The course not selected from list A could be added to list B. Some electives may require additional prerequisite courses to be taken. Other courses may be selected with the permission of the Chair of the Department or the Director of Undergraduate Studies.

DIPLOMA IN TECHNOLOGY MANAGEMENT AND ENTREPRENEURSHIP

General Information

The Faculty of Engineering offers a program leading to a Diploma in Technology Management and Entrepreneurship, administered by the Dr. J. Herbert Smith/ACOA Chair. The mission of the program is to provide undergraduate and continuing education students opportunities to experience the realities of entrepreneurship and management in technology-based businesses and to develop the knowledge and skills necessary to be successful in business. The Diploma program consists of three core courses and two electives, totalling 15 credit hours. In selecting courses, students will be advised to develop a curriculum that builds skills in three key areas: business management, entrepreneurship, and financial literacy.

Up to twelve credit hours of required courses for the TME diploma can be shared as credit towards a degree. Each department shall determine its own maximum allowable concurrent credit hours, which may be less than, but no greater than twelve credit hours. Students who intend to complete the diploma must obtain both department and TME program approval of the courses which will be applied towards the degree and the diploma.

Applicants are encouraged to apply to the program as early as their first year of study and begin taking elective course. A minimum of 80 credit hours completed, or permission of the TME program Chair, is required to enroll in the TME core courses. Applicants who are not full-time students may still apply for the TME Diploma (or enroll in one or more TME courses). These applicants may be requested to submit the following documents along with their TME Diploma Application:

i. High School Transcript
ii. transcript from post secondary institution
iii. resume/curriculum vitae
iv. cover letter explaining their reasons for wanting to enrol in the TME Diploma program

The TME Diploma is granted to students achieving a grade of C or better in all three core TME course and two appeeved elective courses.

It may be possible to complete some TME course online through the College of Extended Learnings Open Access Learning Program. Please consult the Dr. J. Hebert Smith Centre for more information.

Core Courses

TME3013	Entrepreneurial Finance
TME3113	Business Planning and Strategy in an Entrepreneurial Environment
TME3213	Quality Management
TME3313	Managing Engineering and Information Technology Projects
TME3413	Technological Creativity and Innovation
TME3423	Technological Risk and Opportunity

Students must complete three of these six Core Courses.

Electives

The Dr. J. Herbert Smith Centre has a list of pre-approved electives that relate to the mission of the program. Courses may be chosen to reflect the interests of the student, subject to approval by the Chair. TME program electives offered include:

TME 1001	Introduction to Technology Management and Entrepreneurship
TME3346	Marketing of Technological Goods and Services
TME 3386	Special Topics in Technology Management and Entrepreneurship
TME 3396	Special Topics in Technology Management and Entrepreneurship
TME3913	Experiential Learning - Technology Management and Entrepreneurship
TME 4025	Product Design and Development

Students must complete two approved electives.

BACHELOR OF SCIENCE IN ENVIRONMENT AND NATURAL RESOURCES

Environment and Natural Resources (ENR) is a joint degree between the Faculty of Forestry and Environmental Management and the Faculty of Science.

General Office:	I.U.C. - Forestry, Room 101
Mailing Address:	ENR Program Faculty of Forestry & Environmental Management, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4501
Fax:	(506) 453-3538
Email:	forem@unb.ca
Website:	http://www.unbf.ca/forestry/enr.php

NOTE: For Faculty information please see the Bachelor of Science in Forestry program section.

General Information

The Bachelor of Science in Environment and Natural Resources (BScENR) degree gives students degree options in the interdisciplinary fields of environmental studies and natural resources. The degree offers three majors: Environmental Management, Water Resources Management, and Wildlife Conservation.

BScENR graduates will learn to solve environmental and natural resource problems from a holistic, systems perspective. They will have skills required to characterize, analyze, and predict change in natural systems. Incorporating their knowledge of land, water, air, plants, animals, and people, they will be able to develop comprehensive solutions to environmental challenges that respect multiple perspectives and demonstrate appropriate stewardship of natural resources.

The BScENR program is designed to help students to acquire the following skills and abilities:

- Technical Outcomes

  ·Characterize a resource, environment or system
  ·Analyze a resource, environment or systems
  ·Predict a change over time in a resource, environment or system
  ·Synthesize information into comprehensive solutions

- Professional Outcomes

  ·Information literacy
  ·Structured problem solving
  ·Computer literacy
  ·Communication in a professional manger
  ·Respectful Social Interactions Managing and completing project independently and as a team

Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar to obtain information not covered in the following:

1. A minimum of 143 (Environmental Management major), 142 (Water Resources major) or 142 (Wildlife Conservation major) credit hours and completion of all core courses are required for the BScENR degree.

2. All entering students of the Faculty of Forestry and Environmental Management are required to attend the orientation program as organized by the faculty.

3. Students must consult with the Student Services Coordinator, or other designated advisor, to receive advice on course selection. Students who wish to register for more than 22 credit hours in a term must have a GPA of 3.0 or higher in the previous assessment period and obtain permission from the Assistant Dean.

4. Students will take courses in normal sequence; exceptions require a minimum 3.0 GPA average in the preceding assessment period, and permission of the Student Services Coordinator, or other designated advisor, and the instructor of the course. Courses in which a student is deficient must be taken not later than the next academic year, except by special permission of the faculty.

5. Degree requirements must be successfully completed in not more than 16 terms during a period of 8 consecutive calendar years from the date of first registration in the program. Transfer students will have the time limit prorated on the basis of advanced credit granted.

6. A minimum assessment grade point average (GPA) of 2.0 is required at the end of each year. Assessment is in May following the completion of the spring examination period and includes the preceding intersession, Summer School and Spring Extensions.

7. A student who has been required to withdraw from the program for a cademic reasons once, and who reapplies for admission following the withdrawal period, may be re-admitted to the program. If re-admitted, the student will automatically be on academic probation. Failure to meet the normal academic requirements at the next time of assessment will result in final dismissal from the program. Further applications for re-admission will not be considered.

8. C grade minimum is required for all prerequisite and core courses used for credit towards the BScENR degree.

Curriculum

The core program focuses on a wide range of environmental studies with a blend of courses in basic, biophysical, social, and management sciences. In addition, students select one major from Environmental Management, Water Resources Management, and Wildlife Conservation. Opportunity for students to pursue an education of substantial personal choice is provided by elective courses that can be organized in areas of concentration leading to minors. Students may also elect to follow minors offered by other faculties, or take a general variety of courses of personal interest

Honours Program

Students intending to take the Honours Program must declare their intent to the Assistant Dean prior to the end of the third year of their program and have a CGPA of at least 3.0. All students in the Honours Program are required to complete ENR4991 Honours Project.

To graduate in Honours, students must meet certain minimum standards in the course work beyond second year.

1. Maintain a CGPA of at least 3.0

2. Achieve a minimum grade of B- in ENR 4991 (Thesis)

Core (Required) Courses

Common Core

Core courses common to all BScENR degrees are listed below. Note that

there may be alternative equivalents for introductory chemistry, geology,

english, statistics courses.

BIOL 1001	Biological Principles, Part I
BIOL 1006	Applications in Biology, Part I
BIOL 1012	Biological Principles, Part II
BIOL 1017	Applications in Biology, Part II
BIOL 2003	Introduction to Ecology
CHEM 1001*	General Chemistry I
CHEM 1006*	General Chemistry Laboratory I
ENR 1001	Resource Management Issues, Ethics and Communications I
ENR 1002	Resource Management Issues, Ethics and Communications II
ENR 2004	Social and Cultural Systems
ENR 2021	Natural Resource Management, Institutions, Policy and

ENR 3002	Applied Environmental Management
ENR 4020	Integrated Systems - Management Practicum
ENR 4973	Field Camp
ESCI 1001*	The Earth: Its Origin, Evolution and Age
ESCI 1006*	Introduction to Geology Laboratory I
FOR 1001	Introduction to Forestry
FOR 2006	Management of Natural Systems
FOR 2113	Introduction to Forest Wildlife Ecology
FOR 2505	Soils for Plant Growth
FOR 4545	Biodiversity and Ecosystem Management
FOR 2881	GIS in Forestry I
FOR 2882	GIS in Forestry II
MATH 1823	Calculus for Management Sciences
STAT 2264	Statistics for Biology Students

*Alternative equivalents for course may be available with approval of the Student Services Coordinator or other designated advisor.

Majors

The BScENR program requires that students choose one of three

available majors: Environmental Management, Water Resources Management, and Wildlife Conservation. The required courses for each major are shown below.

Environmental Management Major	
BIOL4233	Conservation Biology
ENR 2425	Plants and Environment
ENR 2531	Introduction to Hydrometeorogical
One of the following two:	
ECON 3755	Environmental Economics
ECON 3766	Economics of Climate Change (A)
ENVS 2003	Introduction to Environmental Studies
ENVS 2023	Climate Change
ENVS 4001	Environmental Impact Assessment and Management
ENVS 4002	Stakeholder Approaches to Environmental Problem Solving
ENVS 5003	Environmental Management Tools
ENR 1611	Engineered Systems in Natural Resources
FOR 3303	Photo-interpretation, Photogrammetry and Remote Sensing in Forestry
FOR 3457	Forest Watershed and Water Quality Management
PHIL 1101	Critical Thinking
SOCI 3553	Sociology and Environment
Water Resource Management Major	
BIOL 3943	Hypothesis testing in biology
BIOL 4741	Fish Biology
ENR 2425	Plants and Environment
ENR 2531	Introduction to Hydrometeorogical Systems
One from the following two:	
ECON 3755	Environmental Economics
ECON 3766	Economics of Climate Change
ENR 3201	Urban Watershed Management
ENVS 2003	Introduction to Environmental Studies
ENVS 2023	Climate Change
ENVS 4001	Environmental Impact Assessment and Management
ENVS 4002	Stakeholder Approaches to Problem Solving
ENR 1611	Engineering Systems in Natural Environments
ENVS 5003	Environmental Management Tools
FOR 3303	Photo-interpretation, Photogrammetry and Remote Sensing in Forestry
FOR 3457	Watershed and Water Quality Management
FOR 4576	Forest Hydrology & Aquatic Habitat

Wildlife Conservation Major

Total number of credit hours from required courses (94ch) and selections from constrained electives (27-34ch) must equal a minimum of 121ch (or 127ch with Honours Thesis). An additional 21 ch of electives is required. Minimum total credit hours needed to graduate is 142.

Required Courses (94ch)

In addition to those listed in the core common to all ENR majors, required courses for the Wildlife Conservation Major include the following.
FOR 2425 Autoecology of Forest Vegetation (5ch)

BIOL 2063 Biological Diversity (3ch)

BIOL 2068 Lab in Biological Diversity (4ch)

BIOL 2013 Evolutionary Genetics (3ch)

BIOL 2018 Lab in Evolutionary Genetics (3ch)

FOR 3445 Populations and Communities (4ch)

BIOL 4191 Wildlife Management (3ch)

BIOL 4233 Conservation Biology (3ch)

Constrained Electives (ranges from 27 – 34 ch, depending on courses taken)

1 of either: CHEM 1012 and Lab 1017 OR

 CHEM 1001 and Lab 1006 OR

 CHEM 1982 and Lab 1987 (all 5ch).

1 of either: ESCI 1012 and Lab 1036 OR

 ESCI 1001 and Lab 1006 (both 5ch).

1 of either: ENGL 1103 OR

 ENGL 1144 OR

 ENGL 1145 (all 3ch).

1 of either: STAT 2263 OR

 STAT 2264 (both 3ch).

Elective List A (for 6-8 credit hours, depending on courses taken)
2 courses from the following:

Critical Thinking (PHIL 1101; 3ch)

Hypothesis Testing (BIOL 3943; 3ch)

Field

Botany (BIOL 3083; 5ch)
Ornithology (BIOL 4723; 5ch)
Mammalogy (BIOL 4732; 5ch)
Fish BIOLogy (BIOL 4741; 2ch) or Advanced Ichthyology (BIOL 4746; 4ch)
Entomology (BIOL 3883; 5ch)
Parasitology (BIOL 3673; 3ch) or Applied Studies in Parasitology (BIOL 4688; 4ch)

Wildlife Certification: Students who take a specific suite of additional courses could apply to the Wildlife Society to become a certified Associate Wildlife Biologist. The additional courses would require an extra term or two. Contact the Faculty representative for details.

Minor Programs
Minors in Environmental Management, Water Resources Management, and Wildlife Conservation are available. No credit hours for courses in a student's major program may be counted towards a minor. Courses substitutions may be made from time to time at the discretion of the Student Services Coordinator or designated faculty advisor.

Minor in Environmental Management
A grouping of courses totaling at least 24 credit hours taken from within from a program-specific core or required electives. Please see the Student Services Coordinator or designated faculty advisor to verify selection of courses.

Required Courses:
ECON 3755 Environmental Economics
ENR 2004 Social and Cultural Systems
ENR 2021 Natural Resource Mgmt., Institutions, Policy, and Governance
ENVS 4001 Environmental Problem Solving

Two courses from:
BIOL 2003 Introduction to Ecology
ENVS 2023 Climate Change
FOR 4545 Biodiversity and Ecosystem Management

Course (other than ENR 4973), or comparable directed studies (either must be approved by counselor; 3-5ch)

Conservation Genetics (FOR 4425; 3ch)

Wildlife Techniques (FOR 4655; 3ch)

Hydrometeorology (ENR 2531; 3ch)

Math Biology (BIOL 4563; 3ch)

Population Genetics (BIOL 3293; 4ch)

PhotoInterp and Remote Sensing (FOR 3303; 3 ch)

Environmental Impact Assessment (ENVS 4001; 3ch)

Elective List B (for 5-10 credit hours, depending on courses taken)

2 courses from the following:

Vertebrate Zoology (BIOL 3703; 5ch)

Invertebrate Zoology (BIOL 3602; 5ch)

Optional list:	
BIOL 3459	Economic Botany
BIOL 4191	Wildlife Management
BIOL 4233	Conservation Biology
BIOL 4352	Climate Change and Environmental Responses
BIOL 4773	Aquatic Biology
CS 3403	Introduction to Environmental Engineering
CE 5421	Water Supply and Wastewater Removal
CHE 5313	Energy and the Environment
ENR 2112	Environmental Physiology
ENR 2114	Water Sustainability: Practice and Technology
ENR 3111	Estuary and Ocean Ecosystems
ENR 3112	Water and Resource Management
ENVS 4002	Stakeholder Approaches to Environmental Problem Solving
ENVS 2003	Introduction to Environmental Studies
FOR 2973	Intro to Computer Software for Data Analysis
FOR 3313	Digital Image Processing in Remote Sensing
FOR 4625	Integrated Management of Insects and Fungi
FOR 4656	Wildlife: Scale and Forest Landscapes
ESCI 3442	Environmental Impact Assessment
ESCI 4452	Environmental Impact Assessment
GGE 5543	Marine Policy, Law and Administration
HIST 5342	Environmental History of North America
HIST 5343	Natural Resources, Indust. and Envir. in Atlantic Canada
PHIL 3221	Selected Topics in Environmental Philosophy
PHYS 2543	Environmental Physics
RSS 4123	Recreation and Environment
SOCI 3553	Sociology and Environment

Minor in Water Resource Management
A group of courses totalling at least 24 credit hours taken from within from a program-specific core or constrained electives, including 4 courses from the following list:

BIOL 4741	Fish Biology
BIOL 4773	Aquatic Ecology
ENR 3532	Ecohydrology
ENR 3111	Estuary & Ocean Ecosystems
ENR 3112	Water Resources Management
ESCI 2602	Principles of Geochemistry
ESCI 3631	Geochemistry of Natural Water

Minor in Wildlife Conservation

Students must pass a minimum of 24ch (approx. 8 courses) taken from the following list of courses. A minimum of 5 courses must be selected from the required list (5 courses = minimum 17ch), as detailed below. The remaining credit hours (approx. 3 courses) can be selected from courses not already taken from the required list, or from the optional list.

Required list:	
BIOL 2093	Zoology
BIOL 4233	Conservation Biology
BIOL 2063	Biological Diversity (3ch)
BIOL 2068	Lab in Biological Diversity (4ch)
Choose two from:	
BIOL 3883	Entomology
BIOL 4723	Ornithology
BIOL 4732	Mammalogy
BIOL 4741	Fish Biology
Choose one from:	
BIOL 4191	Wildlife Management
FOR 4655	Wildlife Investigational Techniques
Optional List:	
BIOL 2013	Evolutionary Genetics (3ch)
BIOL 2018	Lab in Evolutionary Genetics (3ch)
FOR 3445	Populations and Communities (4ch)
BIOL 3083	Botany
BIOL 2003	Introduction to Ecology
BIOL 3541	Plant Ecology
BIOL 3602	Invertebrate Zoology
BIOL 3703	Vertebrate Zoology
BIOL 3873	Ethology
BIOL 4641	Costal Marine Ecology
BIOL 4746	Advanced Studies in Ichthyology
BIOL 4773	Aquatic Ecology
BIOL 4851	Ecology of Marine Birds
BIOL 4863	Environmental Biology
BIOL 4899	Population Analyses
BIOL 6183	River Habitats and Hydraulics
FOR 2113	Introduction to Forest Wildlife Ecology
FOR 3445	Forest Ecology: Populations and Communities
FOR 4425	Resource Conservation Genetics
FOR 4545	Biodiversity
FOR 4625	Integrated Management of Insects and Fungi
ESCI 1001	Earth Systems Geology
RSS 4123	Recreation and Environment

Major Program:

A Major or Secondary Major in any of the programs (Environmental Management, Water Resources Management or Wildlife Conservation) can be arranged between any Faculty at UNB and the Faculty of Forestry and Environmental Management, subject to the conditions given by the home faculty. Consultation and approval of the Program Directors in each faculty is required. Completion of a Major or Secondary Major usually requires between 24 to 48 credit hours of courses.

BACHELOR OF SCIENCE IN FOREST ENGINEERING

Forest Engineering (FE) is a joint degree between the Faculty of Forestry and Environmental Management and the Faculty of Engineering. Graduates qualify for registration as professional engineers (PEng) and, when they complete the RPF option, for registration as Registered Professional Foresters (RPF).

PLEASE NOTE: ADMISSION TO THE BACHELOR OF FOREST ENGINEERING DEGREE PROGRAM AND ALL RELATED MINORS HAS BEEN SUSPENDED EFFECTIVE JUNE 1, 2010. FOR FURTHER INFORMATION PLEASE CONTACT THE DEAN OF FORESTRY AND ENVIRONMENTAL MANAGEMENT.

Forest Engineering Program

General Office:	I.U.C. - Forestry, Room 101
Mailing Address:	Forest Engineering Program Faculty of Forestry & Environmental Management, University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4501
Fax:	(506) 453-3538
Email:	forem@unb.ca
Website:	http://www.unbf.ca/forestry/enr.php

NOTE: For Faculty information please see the Bachelor of Science in Forestry program section.

General Information

The FE program was established at UNB in 1968 and remains the onlyprogram of its kind in Canada. Forest engineers design structures and production systems used in natural resource and industrial settings in ways that ensure environmental, economic and social sustainability. In practice, FEs are operations engineers, forest managers, production engineers, project engineers, business people and entrepreneurs. Their knowledge is broad and their approach to problem solving analytic. They integrate engineering principles, environmental ethics and a concern for human welfare. They are thoughtful in their planning and persistent in achieving excellence in execution, and they communicate and interact with others in clear, confident and respectful ways.

A forest engineering education helps students acquire analysis and design capabilities in the following three areas:

Structures used in natural environments incorporating an informed understanding of ecology. Structures include roads, trails, small bridges, ponds,embankments, small buildings and stand structures;

Production systems used in natural resource and manufacturing settings· Production system designs describe the nature and sequence ofactivities to produce a good or service. In forests, they include the system of machines and the activity of people to plant trees, harvest a stand, build a road etc. In manufacturing settings, they include selecting machines, procedures and people needed to produce lumber, wood composites, furniture, or seedlings in a nursery;

Natural resource management plans that adhere to principles ofsustainability· Strategic natural resource management plans describe whatactivities to use, where, when and how over a large area and along time span, ensuring economic, social, and environmentalsustainability.· In this hierarchical planning system, operational plans toorganize production over near-term planning horizons arerequired to achieve the strategic objectives.

The forest engineering program teaches students to be effective at important professional abilities including structured problem solving, critical thinking, written communication, oral communication, interacting with people, managing projects and global awareness. In terms of attitudes, the program and the faculty encourage FE students to:

- exhibit a willingness to seek out and accept challenge, then strive for success;
- be positive, respectful and ethical;
- be goal oriented;
- have an interdependent work ethic;
- be flexible and adaptable;
- push the limit of their ability; and
- be willing to take on responsibility.

Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar, because that information will apply to points not covered in the following:

1. A minimum of 160 credit hours is required for the BScFE degree, of which 19 are elective courses.

2. Students entering the program who do not have appropriate high school level Chemistry and Physics may be required to take additional credit hours in these subjects. Credit hours for such preparatory courses are not included in the degree requirements.

3. Students must consult with their faculty advisor or the Assistant Dean in Forestry, and other faculty as appropriate, to receive advice on course selection, scheduling, etc.

4. The minimum number of credit hours of electives in the FE program is 19. At least 6 credit hours of electives must be in complementary studies, of which 3 ch must be from the following disciplines: Anthropology, Classics, Literature, History, Philosophy, Political Science and Sociology.

5. A minimum assessment year grade point average (g.p.a.) of 2.0 is required at the end of each year. Assessment is in May following the completion of the spring examination period and includes the preceding Intersession, Summer School and Spring Extensions.

6. A student who has been required to withdraw from the program for academic reasons once, and who reapplies for admission following the withdrawal period, may be re-admitted to the program. If re-admitted, the student will automatically be on academic probation. Failure to meet the normal academic requirements at the next time of assessment will result in final dismissal from the program. Further applications for re-admission will not be considered.

7. C grade minimum is required for all courses used for credit towards the BScFE degree.

8. Degree requirements must be successfully completed in not more than 16 terms during a period of 8 consecutive calendar years from the date of first registration in the FE program. Transfer students will have the time prorated on the basis of advanced credit granted.

Curriculum

Acquiring and demonstrating competence in the FE outcomes is the goal of the curriculum. The curriculum consists of 141 credit hours of core courses (listed below) and 19 credit hours of electives at a minimum. Students can and may need to take more courses to fulfill the requirements of a minor or other specialization. Students are able to choose electives from a broad range of courses offered by forest engineering, engineering, forestry and other departments. See a more detailed description under the section heading ELECTIVES below.

In the first year, many courses are common to all engineering programs, including FE, at UNB. This allows easy transfer between programs. Thereafter, students take courses which increase their engineering sciences and engineering design competence in the 3 technical outcomes described above; basic math and science courses; courses that complement these, and elective courses.

Core (Required) Courses

The core courses required of all Forest Engineering students are shown below.

CE 1023	Statics for Engineers
CE 2023	Mechanics of Materials
CE 2703	Introduction to Fluid Mechanics
CE 3713	Hydraulics and Hydrology
CHE 2501	General Materials Science
CHE 2506	Materials Science Laboratory
CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Lab
CS 1003	Introduction to Computer Programming
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Engineering Technical Communications
ENGG 1015	Introduction to Eng. Design and Problem Solving
ENGG 4013	Law and Ethics
ENR 2004	Social and Cultural Systems
ENR 1973	Fall Field Camp
FE 1611	Engineered Systems in Natural Resources
FE 2113	Introduction to Forest Wildlife Ecology
FE 2703	Forest Operations Concepts
FE 2803	Wood Technology
FE 3033	Analysis of Structures
FE 3143	Natural Resource Geotechnique I
FE 3233	Introduction to Operations Research
FE 3303	Thermal Engineering
FE 3363	Machine Design I
FE 3433	Operations Research for Production Planning
FE 3603	Economic Decision-Making for Engineers
FE 3773	Forest Operation Planning Project I
FE 3853	Processing of Wood Products
FE 4893	Systems Design Project
FE 4995	Structural Design of Forest Engineering Systems
FE 4043	Structural Design in Natural Environments
FOR 1001	Introduction to Forestry
FOR 2281	Introduction to GIS in Forestry
FOR 3005	Silviculture and Stand Intervention Design
ESCI 1001	The Earth: Its Origin, Evolution and Age
ESCI 1026	Geology Lab for Engineers
GGE 1001	Introduction to Geodesy and Geomatics
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
MATH 2513	Multivariable Calculus for Engineers
PHYS 1081	Foundations of Physics for Engineers
STAT 2593	Probability and Statistics for Engineers

Electives

The FE program provides a general engineering education. Electives provide students an opportunity to specialize in any area of their choice. Three credit hours must be taken in Anthropology, Classics, Literature, History, Philosophy, Political Science and Sociology, and an additional 3 ch must qualify as complementary studies. Otherwise, students are free to choose electives that meet their personal and professional aspirations. Students must have their elective choices approved annually by their faculty advisor. Forest Engineering technical elective courses are listed in the course descriptions section of the calendar.

Forest engineering offers a Wood Products Option and a Registered Professional Forester (RPF) Option

Wood Products Option

Those students wishing to obtain competence in subjects related to manufacture, marketing and use of engineered wood products may pursue the combination of elective courses which constitute the wood products option. The option consists of the following courses (15 ch):

ADM 3375	Marketing of Products and Services
ADM 3685	Total Quality Management
FE 3873	Physical and Mechanical Properties of Wood
FE 5863	Wood Engineering
FE 5873	Performance of Structural Wood Systems

Registered Professional Foresters (RPF) Option

Students wishing to fulfill the academic requirements for registration as a Registered Professional Forester must complete the RPF Option along with the FE core program. The option consists of the following courses (24 ch):

FOR 2006	Forest Dynamics and Management
FOR 2435	Physiological Processes in the Forest
FOR 2416	Structure and Development of Woody Plants
FOR 2505	Soils for Plant Growth
FOR 2425	Autecology of Forest Vegetation
FOR 3006	Forest Management
FOR 3456	Forest Watershed and Fire Management
FOR 4625	Integrated Management of Insects and Fungi
FOR 3006	Forest Management

Forest Engineering Minor in BScE Programs

Since Forest Engineering applies industrial engineering, mechanical engineering and civil engineering in forestry settings, opportunities exist for students enrolled in these engineering disciplines to acquire competency in any of the three major FE technical outcomes. The following three concentrations, which are modeled after the three major technical outcomes of the forest engineering program respectively, are recommended. Students will be recognized for this competency in their transcripts with a Forest Engineering Minor if they successfully complete a minimum of 24 ch with a grade C or better from the following customized lists of courses.

Forest Engineering Minor (Forest Operations Management)

FE 2113	Introduction to Forest Wildlife Ecology
FE 3233	Operations Research
FE 3433	Operations Research for Production Planning
FE 2703	Forest Operations Concepts
FE 3773	Forest Operations Planning Project I
FOR 1001	Introduction to Forestry
FOR 3005	Silviculture and Stand Intervention Design
FE 3603	Economic Decision-making for Engineers
FE 3143	Natural Resource Geotechnique I
FE 5761	Transportation of Forest Products

Forest Engineering Minor (Production Systems in Forests and Wood Processing)

FE 2703	Forest Operations Concepts
FE 2803	Wood Technology
FE 3233	Operations Research using Natural Resources Applications
FE 3433	Operations Research for Production Planning
FE 3853	Processing of Wood Products
FE 5622	Human Factors Engineering
FE 4893	Systems Design Project
FOR 1001	Introduction to Forestry

Forest Engineering Minor (Forest Transportation and Structures)

FE 2113	Introduction to Forest Wildlife Ecology
FE 3033	Structural Analysis and Design
FE 3143	Natural Resource Geotechnique I
FE 4043	Structural Design in Natural Environments
FE 4995	Structures Design Project
FE 5143	Natural Resource Geotechnique II
FOR 2281	GIS in Forestry
FOR 4576	Advanced Studies in Forest Soils and Hydrology
ESCI 1001	The Earth: its Origin, Evolution and Age
ESCI 1026	Geology Lab for Engineers
GGE 1001	Introduction to Geodesy and Geomatics
GE 2922	Engineering Geology

BACHELOR OF SCIENCE IN FORESTRY

The Faculty of Forestry and Environmental Management offers the degrees of Bachelor of Science in Forestry.

Faculty of Forestry & Environmental Management

General Office:	I.U.C. - Forestry, Room 101
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Fax:	(506) 453-3538
Email:	forem@unb.ca
Website:	http://www.unbf.ca/forestry/

FACULTY

Dean: Van Lantz, PhD

Assistant Dean : Thom A. Erdle, PhD

Arp, Paul A., BSc (Car), PhD (McG.), Prof - 1978
· Beckley, Thomas, AB (Boudoin), MS, PhD (Wisconsin-Madison), Prof - 2000
· Benoy, Glenn, BSc (Tor), MSc (McGill), PhD (Guelph), Adjunct Prof - 2009
· Bourque, Charles, BSc (Dal), BSc (Alta), MScF, PhD (UNB), Prof - 1994
· Cameron, Stewart, BSc (Mount Allison), MScF (SUNY College of Forestry at Syracuse), PhD (Griffith Univ), Adjunct Prof - 2010
· Chui, Ying Hei, BSc (S'ton), PhD (Brighton Poly), PEng, Prof - 1993
Cunjak, Richard, BSc (Guelph), MSc (Nfld), PhD (Wat), Can. Res. Chair in River
· Ecosystem Science (Joint Biology) - 1997
Curry, Allen, BES (Wat), MSc (Trent), PhD (Guelph), Prof ,
· Canadian Rivers Institute, (Joint Biology) - 1997
· Diamond, Antony W., BA (Cantab), MSc, PhD (Aberd.), Prof, Atlantic Laboratory for Avian Research ,(Joint Biology) - 1994
Erdle, Thom, BScF (UNB), MF (UBC), PhD (UNB), Prof - 1995
· Forbes, Graham, BA(York), MA, PhD (Wat), Prof, (Joint Science) - 1994
Golding, Jason, BScBiol (Dalhousie), MScFE (UNB), BScF (UNB), Senior
· Instructor

- Gong, Meng, BScE, MScE (Nanjing, China), PhD (UNB), Research Associate 2007
- Kershaw, John A., BS, MS (Purdue), PhD (Wash), Prof – 1991
- Klenk, Nicole, BSc, MSc (McGill), PhD (UBC), Adjunct Prof -2013
- Krasowski, Marek, BSc (Academy of Agricultural Sciences), MSc, PhD (Vic), Prof - 1999
- Lantz, Van, BA (Car.), MA (Dal), PhD (S.Fraser), Prof (Joint Economics) - 2000
- LaRocque, Amanda, BSc, MSc, (Sherbrooke), PhD (Montreal), Research Assoc - 2011
- Leblon, Brigitte, Dip Agricultural Eng (Universite Catholique de Louvain), PhD (Ecole Nationale Superieure d'Agronomie), Prof - 1994
- Li, Xiu-Qing, BSc (Shandong Argiculture), MSc, PhD (Paris), Adjunct Prof - 1998
- MacLean, David, BSc, PhD (UNB), Prof - 1999
- Meng, Fan-Rui, BS, MS (Northeast Forestry Univ.), PhD (UNB), Prof and Dir, Ctr for Watershed Mgmt & Conversation Research - 1995
- Methven, Ian, BScF (UNB), PhD (Duke), Prof & Dean Emeritus - 1999
- Needham, Ted, BScF, MScF, PhD (VPI & SU), Prof – 1987
- Powell, Graham R., BSc (Edin), MSc (UNB), PhD (Edin), Professor Emeritus - 1996
- Rajora, Om. BSc, MSc, LLB (India), PhD (Tor) Prof - 2004
- Savidge, Rodney A., BScF, MScF (Tor), PhD (Wales), Prof - 1985
- Sergeant, Brian, BScF (UNB), Sr Teaching Assoc - 1986
- Smith, Ian, BSc (Sund Polyt), MSc (Durh), PhD, (Polyt S Bank), DSc (S Bank), PEng, Professor Emeritus - 1986
- Smith, Ron, BScF (UNB), MScF (Wisconsion), PhD (Maine) - Adjunct Prof - 2012
- Sweeney, Jonathan D, BSc (S.Fraser), PhD (UNB), Adjunct Prof - 1999
- Wang, Brad, Bsc, MEng (Nanjing), MSc, PhD (UBC), Adjunct Prof – 2008
- White, Barry, BScF, MScF, (UNB), PhD (UBC) - Adjunct Prof - 2009
- Whitney, Norman, BSc (Alta), MSc (UWO), PhD (Tor), Professor Emeritus - 1994

General Information

Forests are a source of environmental, economic and social values for all of society. Continued maintenance of these values requires knowledge of natural dynamics at the scale of landscapes, and design skills that extend to large land areas over very long time horizons. The BScF program prepares professionals to work in complex situations where the goals of management must be determined by present society, and the actions to reach these goals must be designed for implementation over time horizons of centuries, in order that future societies will have continued enjoyment of values from forest landscapes. Graduates have the necessary skills to:

a. interact with society to define goals for the forest environment;
b. take a leadership role in the design and implementation of plans to ensure achievement of those goals;
c. help resolve social conflicts associated with issues of environmental and forested landscape management; and
d. assess changes in forested landscapes over time and present this information for public evaluation of progress and review of goals.

Regulations

Students are strongly advised to read the General University Regulations, Section B of this Calendar, for information not covered in the following:

1. A minimum of 146 credit hours is required for the BScF degree.

2. All entering students of the Faculty of Forestry and Environmental management are required to attend the orientation program organized by the faculty.

3. Students must consult with the Student Services Coordinator to receive advice on course selection. Students may only register for 22 or more credit hours in a semester if they have a GPA of 3.0 or higher in the previous assessment period and have obtained permission from the Assistant Dean.

4. FOR 1001 , FOR 2006 , FOR 3006 , FOR 4096 and FOR 4020 cover subject matter that is delivered in increasing degree of complexity; these courses must be taken in sequence.

5. Degree requirements must be successfully completed in not more than 16 terms during a period of 8 consecutive calendar years from the date of first registration in the program. Transfer students will have the time limit prorated on the basis of advanced credit granted.

6. A minimum assessment grade point average (GPA) of 2.0 is required at the end of each year. Refer to the University Regulations section of this calendar, for regulations regarding the Calculation of Grade Point Averages, and standing and promotion requirements.

7. A student who has been required to withdraw from the program for academic reasons, once and who reapplies for admission following the withdrawal period, may be re-admitted, to the program. If re-admitted, the student will automatically be on academic probabtion. Failure to meet the normal academic requirements at the next time of assessment will result in final dismissal from the program. Further applications for re-admission will not be considered.

8. C grade minimum is required for all prerequisites and core courses used for credit towards the BScF degree.

Honours Program

Students intending to take the Honours Program must declare their intent to the Assistant Dean prior to the end of the third year of their program and have a CGPA of at least 3.0. All students in the Honours Program are required to complete FOR 4991 Honours Research Project.

To graduate in Honours, students must meet certain minimum standards in the course work beyond second year.

1. Maintain a CGPA of at least 3.0

2. Achieve a minimum grade of B- in FOR 4991

Curriculum

The core program focuses on forest ecosystem management with a blend of courses in basic, biophysical, social, and management sciences. Opportunity for students to pursue an education of substantial personal choice is provided by elective courses that can be organized in areas of concentration leading to minors. Students may also elect to follow minors offered by other faculties, or they may take a general variety of courses that does not lead to a minor. Twenty-four credit hours are required for a minor in the BScF program.

Core courses are listed below. Students are advised to incorporate electives to balance work loads to a normal load of five or six courses per term.

Observations and experimentation in a forested environment are critical to the education of professional foresters so work in natural settings is an important part of many courses. Extensive use is made of University forests which total 3,000 hectares in area including, the UNB Woodlot, adjacent to the Fredericton campus. To work in these and other areas, students are advised that they will need an approved hard hat (approximate cost $10.00) and approved safety-toed work boots (approximate cost $100.00).

Students will be required to pay for a portion of costs of extended field trips.

The Canadian Forest Service and the headquarters of the New Brunswick Department of Natural Resources and Energy are also adjacent to the campus. Scientists and managers at these institutions commonly undertake collaborative projects with students which provide opportunities for students to learn from the experience of others beyond their professors.

Core Course Requirements

BIOL 1001	Biological Principles, Part I
BIOL 1006	Applications in Biology, Part I
BIOL 1012	Biological Principles, Part II
BIOL 1017	Applications in Biology, Part II
CHEM 1001	General Chemistry I
CHEM 1006	General Chemistry Laboratory I
ENR 1001	Resource Management Issues, Ethics and Communications I
FOR 1001	Introduction to Forestry
ENR 1002	Resource Management Issues, Ethics and Communications II
ENR 2004	Social and Cultural Systems
ENR 2531	Introduction to Hydrometeorological Systems
ESCI 1001*	The Earth: Its Origin, Evolution and Age
ESCI 1036*	Geology Lab for Forestors
ENR 1611	Engineering Systems in Natural Resources
FOR 2006	Management of Natural Systems
FOR 2113	Introduction to Forest Wildlife Ecology
FOR 2505	Soils for Plant Growth
FOR 2281	GIS in Forestry I
FOR 2282	GIS in Forestry II
FOR 2416	Structure and Development of Woody Plants
FOR 2425	Autecology of Forest Vegetation
FOR 2432	Forest Inventory and Growth
FOR 2435	Physiological Process in the Forest
FOR 3005	Silviculture and Stand Intervention Design
FOR 3006	Forest Management
FOR 3101	Forest Economics
FOR 3303	Photogrammetry, Photo-interpretation and Remote Sensing
FOR 3445	Ecology of Popumations and Communities
FOR 3456	Forest Watershed and Forest Fire Management
FOR 4020	Management Practicum
FOR 4096	Forest Landscape and Design Management
FOR 4545	Biodiversity and Ecosystem Management
FOR 4625	Integrated Management of Insects and Fungi
FOR 4973	Forestry Field Camp
FOR 2703	Forest Operations Concepts
FOR 2803	Wood Technology
MATH 1823	Calculus for Management Sciences
MATH 1833	Finite Mathematics for Management Sciences
STAT 2264*	Intro Statistics for Biology

Minors

1. **Forest Environment Minor:** The Forest Environment Minor is a formal way to receive recognition for completing a concentrated, introductory study on forestry issues, forest measurements, forest ecology, social values and policy, and forest management. It is available to students in all degree programs excepting BScF. It prepares students for an awareness of the multiple values that forests provide to society, as well as the processes that conserve and sustain the use of forests for habitat and biological diversity. The Minor requires 24 credit hours (approximately 8 courses) of approved courses as listed below.   Credit hours of core courses in the student's major may not be counted towards the credit hour requirement of this minor. Substitutions may be made at the discretion of the faculty advisor.

Required:	
FOR 1001	Introduction to Forestry
FOR 2006	Management of Natural Systems
Choose one of the following two:	
ENR 2004	Social and Cultural Systems
ENVS 2002	Stakeholder Approaches to Problem Solving
Choose one of:	
FOR 2425	Autecology of Forest Vegetation
FOR 4545	Biodiversity and Ecosystem Management

The remaining credit hours may be selected from from the following list. Additional courses may be added to this last at the discretion of the Faculty Advisor.

FOR 2113	Introduction to Forest Wildlife Ecology
FOR 2425	Autecology of Forest Vegetation
FOR 2432	Forest Inventory and Growth
FOR 2505	Soils for Plant Growth
FOR 2281	GIS in Forestry I
FOR 2282	GIS in Forestry II
FOR 3005	Silviculture And Stand Intervention Design
FOR 2703	Forest Operations Concepts
FOR 3006	Forest Management
FOR 3101	Forest Economics
FOR 3445	Ecology of Populations and Communities
FOR 3456	Water and Fire Management
FOR 4013	Basic Woodlot Management
FOR 4412	Methods in Forest Regeneration
FOR 4425	Resource Conservation Genetics
FOR 4545	Biodiversity and Ecosystem Management
FOR 4625	Integrate Management of Insects and Fungi

2. **Computer Applications Minor:** This minor develops a working level of computer literacy in data handling for geographic information systems and remote sensing as applied to forest inventory and management design.

Required courses: One of the following four:	
CS 1073	Intro to Computer Programming I (in Java)
CS 1003	Programming and Problem Solving for Engineers
FOR 2282	GIS in Forestry II
FOR 3313	Digital Image Processing in Remote Sensing
In addition, student must choose 3 credit hours from among:	
CS 1083	Intro to Computer Programming II (in Java)
CS 2685	C++ Programming for Programmers
CS 2043	Software Engineering I
CS 3043	Software Engineering II
CS 3703	Multimedia Design
FOR 4205	Quantitative Forest Characterization
FOR 4303	Optical, Thermal Infrared and Radar Remote Sesncing
FOR 4304	Image Processing Methods for Radarsat-2 and Polarimetric

GGE 4403	Geographic Information Systems
GGE 2413	Mapping Concepts and Techniques

3. **Wildlife Conservation Minor:** The Wildlife Conservation Minor is a formal way to receiverecognition for focusing your education on wildlife species, their biological characteristics, management, and current environmental issues; all these areas are of increasing importance to the ways society progresses. Requirements for the Wildlife Conservation Minor are listed under the Environmental and Natural Resources program.

Wildlife Certification: Students who take a specific suite of additional courses could apply to the Wildlife Society to become a certified Associate Wildlife Biologist. The additional courses would require an extra term or two. Contact the Faculty representative for details.

4. **Forest Science Minor:** The Forest Science minor provides students the opportunity to complement their forest ecosystem management core program with courses in the general field of forest-related science. Two courses are required. Students may then select a stream of related courses or a more varied range of courses that will give insight into more than one area. Examples of areas include ecology, biodiversity, biotechnology, or the biophysical environment. Students are advised to consult their advisor for guidance in course selection.

The required courses to be taken in years 2 or 3 are:

BIOL 2013	Evolutionary Genetics
FOR 2345	Meteorology and Hydrology
A minimum of 17 credit hours of courses are to be selected from the following list, or approved alternatives (courses offered by the Faculties of Engineering, Forestry or Science). At least three courses are to be at the 3000 level or higher.	
BIOL 1846	Introduction to Vascular Plants of New Brunswick
BIOL 2073	Fundamentals of Microbiology
BIOL 2093	Zoology
BIOL 3301	Taxonomy of the Flowering Plants
BIOL 3521	Plant Function: Physiology and Metabolism
BIOL 3459	Economic Botany
BIOL 4413	Environmental Plant Physiology
BIOL 4723	Ornithology
FOR 3425	Forest Tree Genetics and Genomics
FOR 4303	Optical, Thermal, Infrared and Radar Remote Sensing
FOR 4438	Biochemistry of Trees
FOR 4466	Advanced Studies in Forest Plants and their Environment
FOR 4506	Advanced Studies in Forest Soils and Hydrology
FOR 4602	Ecology of Forest Insects
FOR 4911	Directed Studies

BACHELOR OF SCIENCE IN KINESIOLOGY

Faculty of Kinesiology

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Mailing Address:	Faculty of Kinesiology University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4575
Fax:	(506) 453-3511
Email:	kin@unb.ca
Website:	http://www.unb.ca/Fredericton/Kinesiolgy

FACULTY

Dean: Wayne Albert, BSc, MA, PhD

Assistant Dean (Undergraduate Programs) : Jeff Burkard, BA, MPE

Assistant Dean (Graduate Programs and Research): Usha Kuruganti, BScEE, MScEE, PhD

· Albert, Wayne, BSc (Ott), MA (UWO), PhD (Qu), Prof and Asst Dean - 1999
· Barclay, Katherine, BSc (UNB), MSc (Wat.), PhD (Guelph), Sr. Teaching Assoc (Joint Biology, Nursing) - 2001
· Burkard, Jeffrey, BA (SUC, Brockport), MPE (UNB), Sr Teaching Assoc - 2002
· Chester, Victoria, BScHK (Guelph), MA (Laur), PhD (UNB), Prof - 2002
· Cleave, Shirley, BA, MA (UWO), PhD (Ill), Assoc Prof and Assoc VP Academic - 1979
· Duquette, Greg, BKin (McM), MA (CMU), Sr. Instructor - 2008
· Edwards, Jonathon, BSM (Brock), MA, PhD (Alberta), Asst Prof - 2012
· Kuruganti, Usha, BSc.EE, MSc. EE, PhD (UNB), Assoc Prof - 2004
· Mason, Fred, BA, BPE (MUN), MA (Ott), PhD (UWO), Asst Prof 2006
· McGarry, Timothy, BSc (Liv), MSc (Brad), MPE, PhD (UBC) Assoc Prof - 2000
· McGibbon, Chris, BSc, MSc, PhD(UNB), Prof - 2004
· McKenna, Mary, BSc (McGill), MSc (Cornell), PhD (Nottingham), Prof - 1993
· Reading, Stacey, BSc, MSc, PhD (Guelph), Assoc Prof - 2007
· Scott, David, BA, PGCE (Ulster), MA, MA, PhD (Vic B.C.), Assoc Prof - 1997
· Seaman, Kenneth, BSc (Dal), MSc (UNB), PhD UNB)- Instructor - 2011
· Shannon-McCallum, Charlene, BBA, B of Recr Mgmt (Acad.), MA, PhD (Wat), Assoc Prof - 2002
· Stacey, Cynthia, BSc (Acad.), MSc (Guelph), PhD (Ott), Assoc Prof and Dean of Renaissance College -1995
· Tymowski, Gabriela, BA, BEd, MA (UWO), PhD (Gloucestershire), Assoc Prof - 1999

General Information

The Faculty of Kinesiology offers two undergraduate degree programs: Bachelor of Science in Kinesiology and a Bachelor of Recreation and Sport Studies. **The Bachelor of Science in Kinesiology (BScKin)** is a four year discipline based program of study, with the focus being on applying scientific principles to the study of human movement. The program will prepare students for career opportunities in applied exercise, sport science, and health related professions (e.g. fitness consulting, athletic therapy, ergonomics, human factors) and related careers, as well as for further study in the exercise and sport science disciplines or allied health professions (nutrition, occupational therapy, physiotherapy, medicine).

Students interested in becoming elementary or secondary physical education teachers and coaches in school systems can select either the BRSS or the BScK in degree program. Students who are interested in the Arts and Humanities as a teachable subject, should select the BRSS degree program, while students who are interested in the Sciences as a teachable subject, should select the BScKin degree program.

 High School applicants or first-year students interested in the BEd program at UNB should refer to the Faculty of Education Admission Advantage program in either the Admissions section of this calendar (Item J) or the Bachelor of Education section under Fredericton Degree Programs.

University Regulations

Any point not covered in the following regulations will be governed by the General University Regulations as stated in this Calendar.
Questions concerning the application of regulations should be directed to the Registrar in writing.

Conditions Regarding Admission to the BScKin Program

All admissions are on a competitive basis; satisfaction of minimum requirements does not guarantee admission. Normally, no more than 100 students will be admitted to first year in the Faculty of Kinesiology in any academic year.

Transfer Students

1. Normally a, minimum session grade point average of 3.0 is required for a student to be considered for transfer into one of the Faculty's programs.
2. Normally, a student will not be allowed to transfer into the Faculty mid-way through the academic year.
3. In addition to scholastic record, a transfer applicant's record of participation and interest in the "Kinesiology", "Recreation", and "Sport Science" field is also considered for admission.
4. Students presently registered in the Faculty will continue to be governed by the regulations in effect when they first registered. Students who were formerly in the Faculty and apply for re-admission, if accepted, will be governed by the regulations in effect at the time of their re-admission.

Time Limitation

The maximum time period permitted between the first registration in the BScKin degree program and the completion of the BScKin degree shall be eight (8) years. Normally, BScKin students who are re-admitted within this time frame must complete the degree requirements in effect at the last re-admission.

BScKin as a Second Degree

In addition to the University's regulations for a second undergraduate bachelor's degree as specified in the UNB Undergraduate Calendar, the Faculty of Kinesiology requires that any student accepted into the BScKin degree program as a second undergraduate bachelor's degree be required to: (a) Complete at least thirty (30) credit hours of courses, and (b) Complete the requirements of the BScKin program.

General Regulations

Grade Point Averages

1. The method of calculating grade point averages is explained in section H of this Calendar.
2. To earn a BScKin degree, a student must have successfully completed a minimum 120 ch of approved courses.
3. Students should refer to Section B of this Calendar for regulations regarding academic probation and withdrawal.

Policy on Grades

BScKin students must obtain a grade of "C" or better in required degree program courses. These courses include:

a. all first year required courses

b. all required core courses

Note: KIN1001 is considered to be pre-requisite or co-requisite to all other KIN and RSS courses. Students receiving a final grade of "D" in KIN1001 may repeat KIN1001 as a co-requisite to other second year KIN and RSS courses.

Repeating Courses

1. Regulations pertaining to repeating courses can be found in Section B of this Calendar.

2. Any required courses not successfully completed during a given year must be attempted not later than the next academic year, except by special permission of the Director of Undergraduate Studies.

Summer Term Courses

BScKin students who wish to take Summer Term courses that are to

be credited towards their degree should first consult with their Faculty Advisor.

Practica and Directed Studies

1. Normally, students may elect a maximum of twelve (12) ch from practica/internship courses, i.e., RSS 3913 (3), RSS 3914 (3), KIN 3950 (6), RSS 4910 (6), KIN 4950 (6), and RSS 3100 (12).

2. Normally, students may elect a maximum of six (6) ch from directed study courses, i.e., KIN 4903 (3), KIN 4904 (3), KIN 4800 (6) and from Special Activity courses, i.e., KIN 2831 (1), KIN 2832 (1), KIN 3831 (2), KIN 3832 (2), and from Leadership courses, i.e., KIN 2861 (1), KIN 2862 (1), KIN 3861 (2), and KIN 3862 (2).

Approval of Elective Courses

Advice concerning elective courses will be provided by members of the Faculty. All elective courses require approval of the Faculty.

Normal Workload

The maximum student workload is considered to be 20-22 ch per term, or 40-44 ch per year (not including Summer Term).
Permission from the Director of Undergraduate Studies is required to exceed 22 ch per term or 44 ch in any given academic year.

BScKin Year Designation Based On Credit Hours

For the purposes of on-line registration and administrative operations BScKin students shall be considered as in:

1. Second year after the student has successfully completed 30 ch toward their BScKin

2. Third year BScKin after the student has successfully completed 60 ch toward their BScKin

3. Fourth year BScKin after the student has successfully completed 90 ch towards their BScKin

Curriculum

General Notes

1. It is the students responsibility to complete the degree program curriculum for the year in which they enrol.

2. In the BScKin degree program activity lab courses are not required but may be taken as General KIN/RSS Electives up to a maximum of 6 credit hours.

3. The minimum credit hour total to graduate with a BScKin is 120.

4.

Year 1: (38 ch)		
Required Core		
KIN 1001	Introduction to Kinesiology	3ch
One of the following three courses:		3ch
	RSS 1042 : History of Sport and Recreation	
	RSS 2081 : Health and Wellness I	
	KIN 2093 : Introduction to Philosophy of Kinesiology	
KIN 2032	Introduction to Sport and Leisure Psychology	3ch
KIN 2160	Laboratory Methods in Kinesiology	3ch
BIOL 1001	Biological Principles, Part I	3ch
BIOL 1012	Biological Principles Part II	3ch
BIOL 1711	Human Anatomy I	4ch

BIOL 1782	Human Physiology I	4ch
MATH 1003	Introduction to Calculus I	3ch
MATH 1503	Linear Algebra	3ch
Choose 6 ch from the following: (3ch may be taken in Year 2)		6ch
	ANTH, ARCH, ECON, POLS, PSYC, SOCI	
Year 2 (36 ch)		
Required Core		
BIOL 2812	Human Anatomy II	4ch
BIOL 2721	Human Physiology II	4ch
RSS 2023	Sociology of Sport, Physical Activity & Leisure	3ch
KIN 2062	Introductory Biomechanics	3ch
KIN 2072	Introduction to Motor Control and Learning	3ch
KIN 2082	The Physiologic Basis for Physical Activity	3ch
STAT 2263 or 2264	Statistics for Non-Science Majors or Statistics for Biology or Equivalent	3ch
ENGL	1103 or 1144 or 1145 (may be taken in Year 1)	3ch
Choose 1 of the following:		
	CHEM 1001 / 1006 and CHEM 1012 / 1017	10ch
or	PHYS 1071/1091 and PHYS 1072/1092	10ch
Year 3 and 4 (46 ch)		
Required Core to be completed in 3rd year		
KIN 3001	Introduction to Research Methods in Kinesiology	3ch
KIN 3282	Physical Activity, Health and Wellness	3ch
KIN 3252	Functional Human Anatomy	4ch
Kin or Non-Kin Electives	(Choose 12 ch)(see Note 1 & 2 below)	12ch
TOTAL		120CH

Notes:

Note 1: of the 36 ch of KIN and NON-KIN electives in 3rd and 4th year at least 24 must be at the 3000/4000 level)

Note 2: see Faculty advisor for suggested KIN and NON-KIN electives.

Note 3: Laboratory Requirement - for the 5 core areas of Biomechanics, Exercise Physiology, Motor Learning/Control, Psychology of Physical Activity, and Human Anatomy, students must take a minimum of 1 course in 1 core areas. See Faculty advisor for applicable laboratory courses.

Honours Program: BScKin

1. The Honours program provides students with the opportunity to undertake academic research and be recognized as one of the Faculty's top students. Upon successful completion of the program, "Honours" is printed on the student's official academic transcript. See the Faculty for application procedures.

2. Application requirements include: minimum CGPA of 3.7, must be in one's final year of study, must identify a faculty member willing to serve as one's Honours Research Project supervisor.

3. Once accepted into the program, students must: outline the required deliverables and expectations of the Honours project which will be approved by the Honours supervisor before being submitted to the Director of Undergraduate Studies no later than Oct. 15th. This outline (one or two pages) briefly describes: i) the nature of the study being conducted, ii) timelines, iii) deliverables and expectations. This outline serves as a course contract between the student and the supervisor.

To graduate with a BScKin Honours, students must meet the following requirements: maintain a minimum CGPA of 3.5 throughout one's undergraduate degree; successfully complete KIN 4900 Honours Research Project .

Pre-Professional Programs in Kinesiology

The BScKin degree program provides a variety of courses for students who are interested in pursuing a professional degree such as: Medicine, Chiropractic, Athletic Therapy, Physiotherapy, Occupational Therapy, and Massage Therapy. Experience has shown, where possible, that it is highly desirable for the pre-professional student to obtain a bachelors degree before applying for entrance to the professional school. Each professional school has its own specific entrance requirements and it is necessary that the student ascertain these requirements in order to be sure of qualifying as a candidate for admission to that particular school. Interested students should meet with the undergraduate program director before selecting their courses.

Minor in Ergonomics

The Minor is suspended for the 2014-15 academic year due to limited resources. The Faculty will review the delivery of the minor to determine the most efficient manner in meeting the educational requirements outlined by the Canadian certification body (Canadian College for the Certification of Professional Ergonomists - CCCPE). Students interested in Ergonomics-related courses are advised to contact the Faculty.

The Minor in Ergonomics is designed for students from inside and outside the Faculty of Kinesiology interested in a coherent package of Ergonomics related courses. Students interested in the minor, must apply through the Undergraduate Degree Program. Enrolment is limited.

Students enrolled in the Minor will be required to take 15 ch of required courses and 9 ch of elective courses chosen in consultation, and in advance, with the Faculty of Kinesiology. A grade of C or better is required in each course used towards the Minor.

REQUIRED COURSES (15 credits)

1. KIN 3161 Human Factors in Ergonomic Design (3 ch)
2. KIN 4161 Occupational Biomechanics (3 ch)
3. KIN 4163 Workplace Design & Analysis (3 ch)
4. ADM 2513 Organizational Behaviour (3 ch)
5. KIN 4903 Directed Study in Ergonomics (3 ch) - an ergonomics project.

ELECTIVES (9 ch) - select from the following (highly recommend: 1, 2, 3, 6)

1. KIN 4165 Occupational Physiology (3 ch)
2. KIN 4162 Occupational Health and Safety for Ergonomists (3ch)
3. ADM 3573 Organizational Design (3 ch) [PREQ = ADM 2513]
4. ADM 3875 Labour Relations (3 ch)
5. ADM 3815 Human Resource Management (3 ch) [PREQ = ADM 2513]
6. ADM 4826 Employment Law (3 ch)
7. ME 3232 - Engineering Economics (3 ch)

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING

General Office:	Department of Electrical and Computer Engineering Head Hall, Room D36 and/or Faculty of Computer Science Information Technology Centre, Room ITC314
Mailing Address:	Program Coordinator, Software Engineering Program Faculty of Engineering / Faculty of Computer Science University of New Brunswick, P.O. Box 4400, Fredericton, N. B., Canada, E3B 5A3
Phone:	(506) 453-4561 or (506) 453-4566
Fax:	(506) 453-3589 or (506) 453-3566
Email:	swe@unb.ca
Website:	http://www.unb.ca/swe

General Information

Software Engineering was established at UNB as a separate discipline in 2000. The BScSwE is administered jointly by the Department of Electrical and Computer Engineering and the Faculty of Computer Science. The program educates professionals who apply engineering techniques to the design, implementation, testing and maintenance of software products. Students graduating from the program will be eligible for registration as a Professional Engineer and an Information Systems Professional.

The BScSwE is designed as a four-year program or five years if undertaken in conjunction with the Co-op or Professional Experience Program. Students entering the program are strongly encouraged to participate in either Co-op or PEP, as it is widely recognized that the experience gained is a valuable component of a Software Engineering background. A description of these Cooperative Education Programs is foun in the Bachelor of Computer Science and Bachelor of Science in Engineering degree program descriptions.

The Faculty of Computer Science also offers the following degree programs:

· Bachelor of Computer Science
· Bachelor of Information Systems

The Faculty of Engineering also offers the following degree program:

· Bachelor of Science in Engineering

Curriculum

The program is designed to be completed in 8 study terms. Because the BScSwE is considered an engineering degree, the General Regulations, including minimum credit hour requirements that are listed under Bachelor of Science in Engineering, apply to the BScSwE program.The program consists of required "core" courses, basic science electives, technical electives and complementary studies electives. The first year of the program is common with other Engineering programs allowing transfers without penalty after one year. Students transferring from New Brunswick Community Colleges will be eligible to receive up to one year of credits toward the Software Engineering degree. A minimum grade of C is required for all courses used for credit towards the BScSwE degree.

Core Courses

CHEM 1982	General Applied Chemistry
CHEM 1987	General Applied Chemistry Laboratory
CS 1003	Programming and Problem Solving for Engineers
CS 1073	Introduction to Computer Programming I (in Java)
CS 1083	Introduction to Computer Programming II (in Java)
CS 1303	Discrete Structures
CS 2043	Software Engineering I

CS 2253	Machine Level Programming
CS 2333	Computability and Formal Languages
CS 2383	Data Structures and Algorithms
CS 3383	Algorithm Design and Analysis
CS 3413	Operating Systems I
CS 3503	Systems Analysis Design and Project Management
CS 3613	Programming Languages
ECE 1813	Electricity and Magnetism
ECE 2213	Digital Systems
ECE 2412	Simulation and Engineering Analysis or CS 3113[2] Introduction to Numerical Methods
ECE 2701	Electric Circuits and and Electronics (for non-electricals)
ECE 3221	Computer Organization
ECE 3232	Embedded Systems Design
ECE 3812	Data Communications and Networking or CS 3873[1] Net-Nentric Computing
ENGG 1001	Engineering Practice Lecture Series
ENGG 1003	Engineering Technical Communications
ENGG 1015	Introduction to Engineering Design & Problem Solving
ENGG 4013	Law & Ethics for Engineers
INFO 1103	Data and Information Management
MATH 1003	Introduction to Calculus I
MATH 1013	Introduction to Calculus II
MATH 1503	Introduction to Linear Algebra
ME 3232	Engineering Economics or CE 3963 Engineering Economy
PHYS 1081	Foundations of Physics for Engineers
STAT 2593	Probability and Statistics for Engineers
SWE 4040	Software Engineering Design Project or [TME] 4025 Product Design and Development
SWE 4103	Software Quality and Project Management
SWE 4203	Software Evolution and Maintenance
SWE 4403	Software Architecture and Design Project

Notes:

1. CS 3873 is a prerequisite for the technical elective, CS 5865.

2. **ECE 2412 or CS 3113 may be taken interchangeably.
3. Permission from program coordinator is required to take ENGG 4025 or TME 4025 in lieu of SWE 4040

Electives

Electives

BASIC SCIENCE ELECTIVES
Core courses in Basic Science include CHEM 1982 and CHEM 1987. A minimum of 8 ch of other Basic Science courses must be chosen from Physics, Chemistry, and the life or earth sciences. Students with credit in APSC 1013 and APSC 1023 may drop the basic science minimum to 6 ch.

TECHNICAL ELECTIVES
Each student is required to take a minimum of 12 ch of technical elective courses, chosen from the following list. Other senior level courses may be taken subject to approval by the Software Engineering Coordinator.

CS 2053	Introduction to Game Development
CS 3025	Human-Computer Interaction
CS 3043	Software Engineering II
CS 4405	Operating Systems II

CS 4725	Introduction to Artificial Intelligence
CS 4735	Computer Graphics
CS 4745	Introduction to Parallel Processing
CS 4815	Advanced Computer Architectures
CS 4905	Introduction to Compiler Construction
CS 4935	Advanced Algorithmic Techniques
CS 4998	Open Source Project
CS 5725	Neural Networks
CS 5865	Advanced Data Communications and Networking II
ECE 4433	Safety-Critical System Design
ECE 4823	Communication and Network Engineering
ECE 4913	Inependent Project
ECE 4923	Introduction to Biomedical Enginering
ECE 4943	Topics in Computer Engineering
INFO 3103	E-business Software
INFO 3303	Enterprise Information Systems
INFO 3403	Information System Administration
SWE 4303	Performance Analysis of Computer Systems
SWE 4913	Independent Project

Complementary Studies Electives

The program requires 9 credit hours (typically three 3 credit hour courses) of Complementary Studies Electives (CSE). The choice of courses is subject to the following restrictions:

A. Three credit hours must be a humanities and social sciences course addressing the impact of technology on society. A list of appropriate courses is available from the BScSwE program coordinator.

B. The remaining three credit hours may be taken from Administration, Technology Management and Entrepreneurship (TME) or the Humanities and Social Sciences. No more than three credit hours of language courses may be used for credit toward the BScSWE Degree.

C. At least three additional credit hours must be in the Humanities and Social Sciences (HSS). This includes courses from Classics, English, History, Philosophy, World Literature and Culture Studies (WLCS), Anthropology, Political Science, Psychology and Sociology

Students are encouraged to seek out courses of interest and value to them. Other complementary studies courses may be taken subject to approval by the Software Engineering Coordinator.

GENERAL NOTES
1. UNIV 1001 will not be counted for credit toward degree programs offered by the Faculty of Computer Science.

Entrance Program for BScSwE
.
Applicants who do not meet the current admission requirements for the BScSwE program but who offer an admission average of 70% may, at the discretion of the Faculty of Computer Science and the Faculty of Engineering, be considered for admission to the Bachelor of Science in Software Engineering Entrance Program. This program enables accepted students to attend UNB for one year to demonstrate their aptitude and interest in Engineering through registration in a series of standard first year Software Engineering courses. Admission to the Entrance Program will be granted only to the extent that capacity allows. Students admitted to the Entrance Program will be individually counselled to select a reduced course load consisting of a maximum of 32 credit hours for the first year of study.

Students must achieve a grade point average of at least 2.0 for the year to be successful in the Entrance Program, regardless of the total number of credit hours completed in the year. Students successfully completing the Entrance Program will be admitted to the Bachelor of Science in Software Engineering degree program. Students who are not successful will normally not be permitted to continue in any degree program offered by the Faculty of Computer Science or the Faculty of Engineering.

FREDERICTON COURSE DESCRIPTIONS

Standard Course Abbreviations

Aboriginal Education	ABRG	Law in Society	LINS
Academic ESL	AESL	Linguistics	LING
Anthropology	ANTH	Mathematics	MATH
Applied Science	APSC	Mechanical Engineering	ME
Arabic	ARAB	Media Arts and Cultures	MAAC
Archaeology	ARCH	Medical Laboratory Science	MLS
Arts	ARTS	Multimedia Studies	MM
Astronomy	ASTR	Nursing	NURS
Biology	BIOL	Philosophy	PHIL
Bridging Year for Aboriginal Students	BY	Physics	PHYS
Business Administration	ADM	Political Science	POLS
Comparative Cultural Studies	CCS	Psychology	PSYC
Chemical Engineering	CHE	Recreation and Sports Studies	RSS
Chemistry	CHEM	Renaissance College	RCLP
Chinese	CHNS	Russian	RUSS
Civil Engineering	CE	Russian and Eurasian Studies	RSST
Classics and Ancient History	CLAS	Sociology	SOCI
Computer Engineering	CMPE	Software Engineering	SWE
Computer Science	CS	Spanish	SPAN
Drama	DRAM	Statistics	STAT
Earth Sciences	ESCI	Technology Management and Entrepreneurship	TME
Economics	ECON	Womens Studies	WS
Education	ED		
Electrical Engineering	EE		
Engineering	ENGG		
English	ENGL		
Environment and Natural Resources	ENR		
Environmental Studies	ENVS		
Fine Arts	FA		
Forestry	FOR		
Forest Engineering	FE		
French	FR		
French Linguistics	FR/LING		
Family Violence Issues	FVI		
Geodesy and Geomatics Engineering	GGE		
Geography	GEOG		
Geological Engineering	GE		
German	GER		
German Studies	GS		
Greek	GRK		
History	HIST		
International Development Studies	IDS		
Japanese	JPNS		
Kinesiology	KIN		
Latin	LAT		
Law	LAW		

Courses Numbers

Although the University is on a course credit system and has tended to move away from the idea of a rigid specification with respect to which year courses should be taken, yet there is some need to provide information as to the level of the course. The various disciplines and the courses which they offer are presented in alphabetical order.

The Course numbers are designated by four digits:

First Digits designates the level of the course
1   Introductory level course
2   Intermediate level course which normally has prerequisites
3, 4 and 5 Advanced level course which requires substantial background.
6   Postgraduate level course

Second and Third Digits designate the particular course in the Department, Division or Faculty.

Fourth Digit designates the duration of the course:

Departments may assign specific meanings to these digits; consult the department listings.

Students should consult the official **Web Timetable** (www.unb.ca/schedules/timetable) to find when courses are offered in a particular year and when they are scheduled. Not all courses are given every year.

Codes

The following codes are used in course descriptions:

A-	alternate years	R-	reading course
ch or cr -	credit hours	S-	seminar
C-	class lecture	T-	tutorial
L-	laboratory	[W] -	English writing component
LE -	limited enrollment	WS -	workshop
O-	occasionally given	*-	alternate weeks

For example, 6 ch (3C 1T, 2C, 2T) designates a course with 6 credit

hours: 3 class lecture hours and 1 tutorial hour per week in the first term; 2 class lecture hours and 2 tutorial hours per week in the second term.

Combinations of class lectures, laboratories, seminars, etc., are indicated by a slash line, e.g., 5C/L/S. Before registration, check all course offerings in the official Timeta-ble. Not all courses listed are given every year

FIRST NATIONS STUDIES

Includes courses reserved for students registered in courses by the Mi'kmaq-Maliseet Institute for First Nations Students.

Finite Mathematics
ABRG 1411   **3 ch**

Introductory mathematics for students with a limited background in mathematics. Topics include algebra, coordinate geometry, matrices and systems of linear equations, linear programming concepts, and elementary probability (for students registered in courses administered by Mi'kmaq Maliseet Institute only).

ABRG 1412   Elementary Calculus 3 ch

Polynomial, logarithmic and exponential functions. Limits and derivatives. Simple integration. Applications to business and economics (for students registered in courses administered by Mi'kmaq-Maliseet Institute only).

ABRG 3055   First Nations Leadership Foundations   3 ch
Examines First Nations theories and models of leadership. Explores best practices for leadership at the individual and community levels and considers how to balance both traditional First Nations values and contemporary needs of First Nations communities.

ABRG 3056   Practicing Leadership in First Nations Community Projects 3 ch
Exposes learners to leadership models in the context of diverse First Nations communities and national First Nations organizations. Prepares learners to initiate, plan, execute and close a leadership project.

ABRG 3109   Independent Studies   3 ch
Students will normally be limited to 6 ch of independent study. Prerequisite: Permission of an instructor is required before registration.

**ABRG 3114   Introduction to Workplace Learning in First   3 ch
                        Nations Communities**
Provides learners with an appreciation of the origins and trends in workplace learning. The course examines the workplace as a learning environment. Various approaches to adult learning within the changing context of work will be examined with specific focus on First Nations communities.

ABRG 3363   Communications: Speaking Practice   3 ch
Writing and presentation of a speech. Students prepare, present, analyze and criticize a variety of speeches, relating skills to classroom teaching (for students in the Bridging Year or BEd for First Nations students only).

ABRG 3684   Aspects of Maliseet and Mi'kmaq Culture   3 ch
Historical and contemporary perspectives on changes that have affected Mi'kmaq and Maliseet cultures and societies since the time of contact; emphasis on issues relating to education, economic development, spirituality, self-government, land claims.

ABRG 3685   Mi'kmaw Language   3 c h
Elements of Mi'kmaq: phonology, morphology, syntax. Field methods. Instructional materials and approaches.

ABRG 3686   Maliseet Language   3 ch
Elements of Maliseet: phonology, morphology, syntax. Field methods. Instructional materials and approaches.

ABRG 3686   Wolastoqey Latuwewakon   3 ch
'Ciw wen ketuwokehkimsit eluwehket wolastoqey latuwewakon, tan eltaqahk naka tan eluwikhasik. 'Ciw wen ketuwokisit naka ketuwewestaq.

ABRG 3688   Contemporary Canadian First Nations Children's Literature 3 ch
Books for primary and elementary children written by Canadian First Nations authors. Examines the Native voice in Native and non-native worlds in relation to traditional beliefs and current cultural concerns.

ABRG 3695   Intermediate Mi'kmaq Language   3 ch
Further studies in Mi'kmaq. Prerequisite: 3 ch in Mi'kmaq Language.

ABRG 3696   Wolastoqey Latuwewakon II   3 ch
'Ciw wen keti ankuwokehkimsit wolastoqey latuwewakon, tahalu eluwikhasik, elewestuhtimok naka atkuhkewakonol. 'Ciw yukt kisi wihqehtuhtit ABRG 3686, 3687, kosona wolitahatok nutokehkikermit.

ABRG 3696   Intermediate Maliseet Language   3 ch
Second-level course in Maliseet, focused on syntax, conversation, storytelling. Prerequisite: ABRG 3686 or 3687 or permission of instructor.

ABRG 3922   Technology in Governance and Leadership   3 ch
Examines critically the use of software, hardware, and web-based services in First Nations community governance and leadership. The emphasis is on application of, and real-world issues surrounding, the internet, productivity software, social media, as well as computer hardware and system maintenance in overcoming current technological and community administrative challenges.

ABRG 4109   Independent Studies   3 ch
Students will normally be limited to 6 ch of independent study. Prerequisite: Permission of an instructor is required before registration.

ABRG 4194   Land Claims   3 ch
Examines the reconciliation of Aboriginal rights with the modern Canadian state through the presentation of claims, and negotiation and adjudication of specific and comprehensive land claims agreements including recognition of Aboriginal self-government.

ABRG 4664   First Nations Entrepreneurship   3 ch
An introduction to the theory behind successful entrepreneurship; principles and practical application of starting and maintaining a small business within a First Nations government. Guest speakers from local First Nations businesses, government agencies, funding institutions.

ABRG 4665   First Nations Perspectives and Organizational Behaviour   3 ch
Introduction to the Medicine Wheel and how the values inherent in its teachings can be applied to groups, organizations, and communities. Students will relate ideas and concepts behind the Medicine wheel to organizational structures in both mainstream and First Nations societies.

ABRG 4696   Advanced Maliseet I: Grammer   3 ch
Focus on grammar, word and sentence formation, in speaking and listening, through storytelling, conversation, and songs. Prerequisite: 6 ch in Maliseet Language or permission of instructor.

ABRG 4696   Wolastoqey Latuwewakon III   3 ch
'Ciw yut wen keti ankuwi skicinuwatuwet naka wen keti piyemi woli 'sotok atkuhkakonol, mecimiw elewestuhtimkopon naka elewestuhtimok, kapiw 'kaneyal naka pileyal lintuwakonol. 'Ciw yukt kisi wihqehtuhtit kinaq neqcikotok, kosona wolitahatok nutokehkikemit.

ABRG 4697   Advanced Maliseet II: Conversation and Composition   3 ch
Focus on vocabulary development, fluency in speech, literacy skills. Prerequisite:

9 ch in Maliseet Language or permission of instructor.

ABRG 4697   Wolastoqey Latuwewakon IV   3 ch
'Ciw yut wen keti ankuwi kcicihtaq skicinuwatuwewakon, pciliw eluwikhasik, wolama 'tawi olonuwatuwe. 'Ciw yukt kisi wihqehtuhtit kinaq neqcikotok cel epahsiw, kosona wolitahatok nutokehkikemit.

ACADEMIC ESL

English as a Second Language for
AESL 1011   Academic Purposes   3 ch (3C) [W]

A practical course in the written and spoken use of language designed to meet the requirements of students whose first language is not English. Students are placed in groups based on placement testing results, subsequent interviews and in-class assessment procedures. Specialized curriculum is designed and delivered according to the needs of the students as assessed at the beginning of each term. Students may enroll in both AESL 1011 and AESL 1012 as they are not sequential in nature. Students are required to use only English during each three-hour class period. Prerequisite: All students must take a placement test to determine specific language needs. NOTE: Students who already have credit for ENGL 1011 cannot obtain credit for AESL 1011.

**AESL 1012   English as a Second Language for   3 ch (3C) [W]
                Academic Purposes**

A practical course in the written and spoken use of language designed to meet the requirements of students whose first language is not English. Students are placed in groups based on placement testing results, subsequent interviews and in-class assessment procedures. Specialized curriculum is designed and delivered according to the needs of the students as assessed at the beginning of each term. Students may enroll in both AESL 1011 and AESL 1012 as they are not sequential in nature. Students are required to use only English during each three-hour class period. Prerequisite: All students must take a placement test to determine specific language needs. NOTE: Students who already have credit for ENGL 1012 cannot obtain credit for AESL 1012.

**AESL 2011   Exploration of Literary English for   3 ch (3C) [W]
                Non-Anglophones**

More advanced than AESL 1011 and AESL 1012. Exclusively for students whose first language is not English. Encompasses examination of prose and poetry, and extensive composition. Emphasis is given to consideration of sophisticated English expression. Each students level of proficiency is determined through testing, subsequent interviews and in-class assessment procedures. Students may enroll in both AESL 2011 and AESL 2012 as they are not sequential in nature. Prerequisites: Successful completion of AESL 1011, AESL 1012 or equivalent proficiency. All students must take a placement test to determine specific language needs. NOTE: Students who already have credit for ENGL 2011 cannot obtain credit for AESL 2011.

**AESL 2012   Exploration of Literary English for   3 ch (3C) [W]
                Non-Anglophones**

More advanced than AESL 1011 and AESL 1012. Exclusively for students whose first language is not English. Encompasses examination of prose and poetry, and extensive composition. Emphasis is given to consideration of sophisticated English expression. Each students level of proficiency is determined through testing, subsequent interviews and in-class assessment procedures. Students may enroll in both AESL 2011 and AESL 2012 as they are not sequential in nature. Prerequisites: Successful completion of AESL 1011, AESL 1012 or equivalent proficiency. All students must take a placement test to determine specific language needs. NOTE: Students who already have credit for ENGL 2012 cannot obtain credit for AESL 2012.

ANTHROPOLOGY

ANTH 1001 The Human Experience: Socio-Cultural Approaches 3 ch (3C)
What makes us different from each other? What makes us similar?Exploring and comparing practises of kinship, politics, economics and religion in societies from around the world give us powerful insights into the unique human capacity to create cultures, and into the ways in which culture is fundamental and essential to our shared human experience.

**ANTH 1002 Biological Anthropology: Evolution Fossils, 3 ch (3C) [W]
                Genes and Diversity**
This course introduces the discipline of biological anthropology. The mechanisms of micro-and macroevolution are taught in order to understand the evolution of all primates including humans. This includes the study of living and extinct primates, human evolution, the advent of agriculture, and human diversity.

ANTH 1300   Archaeology Summer Camp (A)   6 ch (3S)
                (Cross-Listed: ARCH 1300)
This course offers an overview of the hands-on components of archaeology by providing students with an introduction to experimental archaeology, human material culture, and the archaeological record, as well as basic archaeological recovery methods. These are presented in two broad components, one focused on creating and using ancient tools and technology and exploring past ways of life, and the other on excavating these with formal archaeological techniques.

ANTH 1303   The Human Past: Archaeological Approaches   3 ch (3C) [W]
                (Cross-Listed: ARCH 1303)
This course traces the historical development of Archaeology from its earliest beginnings to recent advances in archaeological science, and introduces the theories and methods used by archaeologists to investigate and understand past human cultures. Examples are drawn from studies of Paleolithic, Mesolithic, Neolithic, Indigenous and Historical cultures.

ANTH 2114 Human Systems of Exchange: Nature and Culture 3 ch (3C) [W]
Examines foragers, horticulturalists, pastoralists, and peasants and investigates their systems of exchange with each other and with the environment Prerequisite: Any introductory anthropology course or permission of the instructor.

ANTH 2144   Organising Society   3 ch (3C) [W]
Explores diverse small-scale societies, with a focus on their kinship and political systems. Prerequisite: Any introductory anthropology course or permission of the instructor.

ANTH 2174   Society and the Sacred   3 ch (3C) [W]
Examines a wide range of belief systems in order to introduce students to the study of religions from an anthropological perspective. Prerequisite: Any introductory Anthropology course or permission of the instructor.

ANTH 2302   Prehistoric Archaeology: Paloelithic Cultures   3 ch (3C) [W]
Introduces archaeological methods and theories through an examination of the paleolithic cultures of Africa, Europe and Asia. Prerequisite: ANTH/ARCH 1303 or permission of the instructor.

ANTH 2303   Exploring the World of Archaeology   3 ch (3C) [W]
                (Cross-Listed: ARCH 2303)
This course addresses central dynamic tensions in Archaeology and their impact on archaeological practice, including culture history versus cultural process; materialist versus idealist approaches to the past; processual versus post-processual archaeologies; archaeology as a study of the archaeological record versus archaeology of as a study of past human cultures; academic archaeology versus cultural resource management; archaeology and Aboriginal peoples.

ANTH 2313   Archaeological History of New Brunswick (A)   3 ch (3C)
People have lived in what is now New Brunswick for at least 10,000 years. This course presents an archaeological perspective on the rich and fascinating past of the province, from the earliest archaeological evidence through to the nineteenth century. It is intended for a general audience, as well as students of anthropology.

ANTH 2504   Introduction to Medical Anthropology   3 ch (3C) [W]
This course is designed to introduce students to the discipline of medical anthropology, which is accomplished by focusing on the ways in which illness, health, and healing are embedded within social, political, and cultural systems. Selected case studies are used to examine i) how different medical systems define health and illness, and how they treat categories of disease? ii) What happens when western medicine confronts folk understandings of illness in such a way that the two clash? iii) How anthropologists investigate and respond to the study of pain, illness, suffering, and healing in specific contexts? iv) How do seemingly local and global cultural processes shape aspects of our bodies, such as illness, sex, and death? This course also explores biomedicine as a powerful cultural belief system that is global in its scope, creates disease categories, and produces authoritative knowledge. Finally, medical pluralism and pertinent case studies are examined to understand the integration of western and traditional medical systems.

ANTH 2505   Biological Anthropology and the Human 3 ch (3C) [W]
                                                          Skeleton
Biological anthropologists attempt to reconstruct the lives of people using human remains from both forensic and archaeological contexts. In this course, students are introduced to the application of biological anthropology to past human populations through analysis of their biological remnants (bones, teeth and preserved soft tissues). Topics include: determining and understanding population demographics (age, sex, ancestry, and stature), health and disease, chemical and genetic analysis, and quantitative methods and population studies.

ANTH 3014   Issues in Anthropological Theory (O)   3 ch (3C) [W]
Examines landmark theories and enduring debates in order toencourage students to evaluate anthropological theories and to thinkmore critically about the nature of theory in the social sciences.Prerequisites: Any 2000-level anthropology course or permission of the instructor.

ANTH 3051   Work-Study in Anthropology (O)   3 ch (3L)
This course allows students to receive university credit for experience insocial science research gained under the supervision of a university-seated researcher or from a non-university organization. Registration:Students may only register after making arrangements for supervision and grading with the department.

ANTH 3052   Anthropology and Statistics and Methods   3 ch (2L 1S) [W]
This course addresses quantitative anthropological research design and statistical analysis. The course guides students through the process of anthropological research: formulating a research question, choosing a methodology, collecting and analysing data, and producing a project report. Students can incorporate archaeology , social anthropology, and medical anthropology, research interests into their research projects. Prerequisites:Any 2000-level anthropology course or permission of the instructor.

ANTH 3114   Gender, Sex, and Culture   3 ch (3C) [W]
How do human gender roles vary from culture to culture and over time?How has anthropology attempted to explain these variations? What arethe implications for the nature/nurture debate? Examples are drawn from archaeology, biological anthropology and socio cultural studies. Prerequisite:Any 2000-level anthropology course or permission of the instructor.

ANTH 3284   Rules, Social Order, and Conflict (A)   3 ch (3S) [W]
Examines how human societies have solved disputes, regulated sexuality, and organized property, including the changes brought about under colonialism and globalization.

ANTH 3301   The Prehistory of North America (A) 3 ch (3C) (LE) [W]
This course surveys of the cultural history of North America through an in-depth examination of the origins and development of the Native cultures of North America, from the earliest traces to European contact. Prerequisite: ANTH 2303 or permission of the instructor.

ANTH 3303   The Archaeological Traditions 3 ch (3C) (LE) [W]
                                            of North America (A)
This course presents a detailed examination of the historical, theoretical and methodological development of Americanist Archaeology. Prerequisite: ANTH 2303 or permission of the instructor arrangements for supervision and grading with the department.

ANTH 3341   Work-Study in Museum Studies   3 ch (3L)
and Material Culture Analysis (O)
Allows students to receive university credit for experience gained in museum studies, collections management and/or material culture analysis gained outside the university setting. Prerequisite(s): 3 ch of archaeology. Registration: Students may register only after making

ANTH 3342   Archaeological Lab School I (O)   3 ch (3S) (LE) [W]
The lab school offers an introduction to archaeological analytical techniques through participation in a lab-based research project. This section emphasizes systematic approaches to research, recognition and cataloguing of archaeological materials, and basic data recovery. Prerequisite: 3 ch of third-level archaeology and permission of the instructor. Offered concurrently with ANTH 3343. Students who receive credit for ANTH 3340 cannot receive credit for ANTH 3342.

ANTH 3343   Archaeological Lab School II (O)   3 ch (3L) (LE) [W]
The lab school offers an introduction to archaeological analytical techniques through participation in a lab-based research project. This section emphasizes quantitative methods, data manipulation and presentation, and technical analyses. Prerequisite: 3 ch of third-level archaeology and permission of the instructor. Offered concurrently with ANTH 3342. Students who receive credit for ANTH 3340 cannot receive credit for ANTH 3343.

ANTH 3344   Ancient Technology (O)   3 ch (3L) (LE)
This course explores ancient technologies from the view of experimental archaeology and replication of specific tools. Various materials, such as stone, clay, metal and cloth are examined, and particular tool classes, such as weapons, containers, and transport vessels are considered.

ANTH 3345   Acquiring an Archaeological 3 ch (3S) (LE) [W]
                  Perspective (O)
This seminar examines the domain and nature of archaeological inquiry, and the relationships among archaeology and other disciplines in the social, physical and natural sciences. Prerequisite: 3 ch of third- level archaeology and permission of the instructor.

ANTH 3346   Public Archaeology (A)   3 ch (3S) (LE)
This course offers an introduction to public and community-based archaeology and provides an overview of archaeology as public outreach. Topics include public engagement and education, the role of museums, universities, and field projects, and the ethical issues around public education focused on excavation. Students participate in the development and implementation of a public archaeology project, including creating a display or showcase on archaeological practices. The course also involves interacting with the public, with other students, and with the university community, and involves mentoring and teaching others about archaeological practice. Prerequisites: ANTH/ARCH 1303, ANTH/ARCH 2303 or permission of instructor.

ANTH 3351   Work-Study in Archaeological Field Research (O)   3 ch (3L)
Allows students to receive university credit for experience gained in archaeological field research outside the university setting. Prerequisite(s): 3 ch of archaeology. Registration: Students may register only after making arrangements for supervision and grading with the department.

ANTH 3352   Archaeological Field School I (O)   3 ch (3S) (LE) [W]
The field school offers an introduction to archaeological field techniques through participation in a field research project. This section emphasizes safety in the field, systematic approaches to research, site survey, recording, testing and excavation techniques. Prerequisite: 3 ch of third-level archaeology and permission of the instructor. Offered concurrently with ANTH 3353. Students who receive credit for ANTH 3350 cannot receive credit for ANTH 3352.

ANTH 3353   Archaeological Field School II (O)   3 ch (3L) (LE)
The field school offers an introduction to archaeological field techniques through participation in a field research project. This section emphasizes recognition and recovery of archaeological materials, recording of basic field procedures and recovery of materials for technical analyses. Prerequisite: 3 ch of third-level archaeology and permission of the instructor. Offered concurrently with ANTH 3352. Students who receive credit for ANTH 3350 cannot receive credit for ANTH 3353.

ANTH 3362   African Prehistory   3 ch (3C) [W]
This course introduces the multi-disciplinary approach required in the study of the Earlier Stone Age in Africa. Topics include: Oldowan and Acheulean stone tool technology, hominid evolution, site formation studies, relative and absolute dating techniques, and palaeo-environmental reconstructions. Prerequisite: 3ch of 3000 level archaeology or permission of the instructor.

ANTH 3434   Cross-Cultural Communication (A) 3 ch (3S) [W]
Examines nonverbal communication through the exploration of recentinterdisciplinary approaches in the social and behavioral sciences inorder to provide the necessary theoretical and content knowledge for cross-cultural communication.

ANTH 3502   Medical Anthropology and Public Health   3 ch (3C) [W]
Medical anthropology is playing an increasingly important role in public health. This course builds on basic concepts introduced in ANTH 2504 with an emphasis on the contributions of medical anthropological theories and concepts towards an understanding of complex health-related behavior. This course examines why public health policies and interventions are more likely to be effective if the beliefs and behavior of people are understood and taken into account. Some examples of particular health problems are examined, such as HIV/AIDS, cancer, cardiovascular diseases, diabetes, malaria and other communicable and non-communicable diseases to show how an anthropological approach can contribute to both a better understanding of health and illness and to more culturally appropriate public health measures. Prerequisite: ANTH 2504 or permission of the instructor.

ANTH 3521   Exploring the World of Primates (O)   3 ch (2C 1L) [W]
In this course students are introduced to the major primate taxa (i.e. prosimians, New World monkeys, Old World Monkeys, and apes) to illustrate the great variety in the anatomy, physiology, behaviour, and ecology within the Primate Order. The biological and social adaptations of primates are explored as well as basic evolutionary concepts, current trends and theories in primatology. The following topics are addressed: evolutionary history, taxonomic classification, diet, predation, communication, social systems, kin selection, reproductive strategies, cognition, and conservation. Prerequisite: ANTH 1002 or permission of the instructor.

ANTH 3522   Human Variation and Adaptation   3 ch (3L) [W]
This course explores our biocultural evolution. It introduces students to human biological diversity, our similarities and differences and why these exist. How did humans in different parts of the world adapt and survive in their specific environments? What selective pressures were exerted on population genetics to produce modern variations? Topics include human adaptations: micro- and macro-evolution, skin pigmentation, growth and development, demography, aging and senescence, genetic variations, disease prevention and susceptibility. Prerequisite: ANTH 2505 or permission of the instructor.

ANTH 3523   Forensic Anthropology: 3 ch (1.5C 1.5L) [W]
Identifying the Missing and Murdered (A)
This course introduces the field of forensic anthropology, which involves the application of biological anthropology methods to a medico-legal context. To identify human remains, forensic anthropologists assist law enforcement by determining age, sex, ancestry, stature, and unique features from the skeleton. Using decomposition rates, they can provide an estimate of the postmortem interval. Course topics include: establishing a forensic context, methods of scene recovery, estimating the postmortem interval, reconstruction of demographic information, and identification of bone pathology and trauma. Prerequisite: ANTH 3520 or permission of the instructor.

ANTH 3524   Paelopathology: Ancient Disease   3 ch (2S 1L) [W]
and Origins (O)
This course focuses on the study of ancient human diseases and their origins through examination of their remains in the archaeological record. Only a few diseases leave their marks on bone and tooth enamel, the most common remnants of ancient populations. Students are taught how to identify these abnormalities and assess their potential implications for the health of a living person/population, and to interpret the bioarchaeological evidence to gain insight into the health of past populations. Prerequisite: ANTH 3520 or permission of the instructor.

ANTH 3525   Bones: The Human Skeleton (A)   3 ch (1C 2L)
Human skeletal anatomy and biology are fundamental to the study of forensics and biological anthropology. This course emphasizes a hands-on learning process for the identification of individual bones, and their morphological features, siding, and anatomical orientation. Relevant techniques for the reconstruction of past populations and the assessment of human biological variation are introduced (age at death, sex, growth and development). Prerequisite: ANTH 2505 or permission of the instructor. ANTH 3525 cannot be taken for credit as well as ANTH 3520

ANTH 3662   Canada's First Nations (A)   3 ch (3C) [W]
Explores the distinctiveness of Canada's Aborginal peoples through their varied societies and cultures and how these have withstood centuries of colonial impact to confront the many shared challenges of living in contemporary Canadian society.

ANTH 3665   The Circumpolar World (A)   3 ch (3C) [W]

Nunavut has grown out of an intensive debate about Inuit self-governance. A large part of this debate has been shared with Inuit and Eskimoic groups living in other parts of the Arctic whose cultures and societies often reflect similarities with Canadian Inuit, yet whose administrative and political experiences have differed widely. Here, the cultural world of the Arctic becomes the starting point for understanding the various management strategies adopted by different countries in relation to the circumpolar north and the peoples who live there.

ANTH 3694   Latin America   3 ch (3C) [W]
Relates specific ethnographic studies of Latin American societies to the analysis of colonialism, imperialism and underdevelopment.

ANTH 3704   South Asia   3 ch (3C) [W]

Introduces basic concepts for the analysis of South Asian society, including class, caste, ethnic groups, local and national state and economic relations, in an historical context of colonialism and underdevelopment. Debates surrounding these issues are addressed.

ANTH 4024   Anthropology and Ethics (O)   3ch (3S) [W]

The ethical codes of many national anthropological associations recommend that teachers impress upon students the ethical challenges involved in every phase of anthropological work, as well as encouraging them to reflect upon available ethical codes. They also encourage dialogue with colleagues on ethical issues. This seminar provides a forum for extended discussions of complex ethical challenges that face anthropologists in their professional work. Prerequisite: Any introductory anthropology course or permission of the instructor.

ANTH 4114   Culture and Environment   3 ch (3S) [W]
Examines how culture mediates the relationship between humans and their environment, including traditional ecological knowledge and/or local knowledge systems. Prerequisite: ANTH 2114 or permission of the instructor.

ANTH 4202   Selected Topics in Social Anthropology (O) 3 ch (3S) [W]
Offers and in-depth analysis of one of a range of potential topics in socio-cultural studies. Prerequisites: Any 2000-level anthropology course or permission of the instructor.

ANTH 4204   Gender, Kinship, Marriage (O)   3 ch (3S) [W]
Examines the wide diversity of gender roles, kinship forms and maritalarrangements in human cultures of all scales. Prerequisite: ANTH 3114 or permission of the instructor.

ANTH 4224   Religion in Practice (A)   3 ch [W]

Explains the cultural and social roots of religious beliefs as well as the diversity of religious understandings and practices throughout the world. Prerequisite: ANTH 2174 or permission of the instructor.

ANTH 4244   Ethnopolitics and Identity (O)   3 ch [W]
Identity is often as much about politics as it is about cultural heritage. Current and classic examples of the politicization of cultural heritage and ethnic identity are explored in light of political action.

ANTH 4304   Archaeology of Atlantic Canada (A) 3 ch (3S) (LE) [W]

In this seminar, students examine the 11,000 years of prehistory in the Atlantic region, emphasizing changes in material culture, ecological adaptations, and social interaction. Prerequisite: ANTH 3301 or permission of the instructor.

ANTH 4305-9   Selected Topics in Archaeology (A)   3 ch (3S) (LE) [W]

This course provides an in-depth examination of an archaeological topic selected by the instructor. Examples of topics that may be selected include: geoarchaeology, prehistoric human ecology, hunter-gatherer studies, consulting archaeology, or diet and subsistence. Prerequisite: ANTH 3303 or permission of the instructor. Students who received credit for ANTH 5314 cannot receive credit for ANTH 4305; students who receive credit for ANTH 5353 cannot receive credit for 4506.

ANTH 4502   Issues in Medical Anthropology (A)   3 ch (3S) [W]

A course designed to evaluate the application of medical anthropology in understanding and improving human health problems. A selection of case studies reflecting the various dimensions of medical anthropology in different cultural contexts are considered. The course begins with an introduction to the research methods used in medical anthropology. The important theoretical constructs that have influenced the field of medical anthropology and their application in research problems are examined. Prerequisite: ANTH 2504 or permission of the instructor.

ANTH 4522   Human Evolution (O)   3 ch (3L) [W]

Examines the genetic basis of human evolution. With the advent of modern genetic technologies, it has been possible to compare and contrast evolutionary relationships at the genetic level. The current debate in biological anthropology surrounds the origin of anatomically modern Homo sapiens based on DNA evidences. An in-depth examination of fossil evidences along with the genetic picture are considered. Prerequisite: ANTH 1002 or ANTH/ARCH 1303 or permission of the instructor.

ANTH 4523   Forensic Analysis of Human Teeth (O)   3 ch (2C 1L) [W]

This course provides students with a detailed introduction to the methodology used in the study of human teeth in forensics, biological anthropology, and archaeology. Students are taught how to use teeth in establishing a biological profile for human remains using anatomical aspects of human dentition as well as morphological variation, pathology, and changes with age and development. Topics selected for study represent areas of current research that address important questions in the study of forensic identification, human biological variation, bioarchaeology, and human origins. Prerequisite: ANTH 2505 or permission of the instructor.

ANTH 4524   Bioarchaeology: Archaeology Human Remains (O)   3 ch (3S) [W]

In this course students are introduced to the discipline of bioarchaeology, the application of biological anthropological techniques to reconstruct the lives of past populations from an archaeological context using their skeletal remains. Specific topics include patterns of subsistence, diet, disease, demography, and physical activity. Prerequisite: ANTH 2505 or permission of the instructor.

ANTH 4602   Genes and People: Anthropological Applications (O)   3 ch (3L) [W]

This course introduces the basic concepts of human genetics and examines its application in anthropological research. Topics covered include: human genetic variability and its role in disease prevention and susceptibility; the use of DNA in reconstructing the biological profile of human remains from forensic contexts; and using ancient DNA to trace population migrations and resolve issues of human origins. Ethical questions and implications pertaining to the human genome project and human genetic research are also addressed.

ANTH 4603   Selected Topics in Biological Anthropology (O)   3 ch (3S) [W]

This course provides an in-depth examination of a biological anthropological topic selected by the instructor. Examples of such topics include: human demography and human growth and development. Prerequisite: ANTH 1002 or permission of the instructor.

ANTH 4702   Gender and Health (A)   3 ch (3S) [W]

A course designed to evaluate the gender dimension of health and disease, and addresses the articulation of gender roles and ideology with health status, the organization of health care, and health policy in a cross-cultural perspective. Gender is a cultural construct, and cultural ideas about women's health and women's bodies differ between social groups and historical periods. Gender issues pertain to men as well, and male gender roles and expectations are also culturally constructed. There are biomedical consequences to the cultural constructions of gender differences. The course examines how expressions of gender and power can play a role in prevention and treatment strategies. Prerequisite: ANTH 2504 or permission of the instructor.

ANTH 4704   Selected Topics in Biomedical Anthropology (O)   3 ch (3S) [W]

This course provides an in-depth examination of a biomedical anthropological topic selected by the instructor. Examples of such topics include: infectious diseases and biomedical genetics. Prerequisite: ANTH 1002 or permission of the instructor.

ANTH 5303   Theory and Method (Archaeology)   3 ch (3S) (LE) [W]

Students explore the research process through conducting individual archaeological research projects developed in conjunction with the instructor. Prerequisite: Open only to honours students, or with permission of the instructor.

ANTH 5684   The Anthropology of Knowledge (O)   3 ch (3S) [W]

Education is quintessentially a cultural matter. Regardless of the context -- be it in the formal education systems found around the world or the many informal ways of passing on skills and knowledge, with the attendant social position, prestige and power -- education is centred in culture. A systematic comparison of learning institutions and practices across a range of different cultural settings reveals surprising insights about social understandings of teaching, learning, and the management of knowledge. Prerequisite: Restricted to upper-level students, or permission of the instructor.

ANTH 5701   Doing Anthroplogy: Method and Theory   3 ch (3S) [W]

Examines contemporary theoretical approaches and develops research skills in socio-cultural anthropology. Prerequisite: Open only to anthropology honours or qualifying students, or permission of the instructor.

**ANTH 5704   Biological/Medical Anthropology   3 ch (2S 1L) [W]
                    (Theory and Method)**

This course explores the research process through conducting individual biological anthropology research projects developed in conjunction with the instructor. Prerequisite: Open only to honours or qualifying students, or with permission of the instructor.

APPLIED SCIENCE

NOTE: See Courses-> Saint John or Fredericton -> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

APSC 2023   A Survey of 19th and 20th Centruy Physics   3 ch (3C)
An introduction to ideas developed in Physics over the last two centuries. Topics will be drawn from Thermodynamics, Geometrics, and Physical Optics, Relativity, Quantum Mechanics, and Atomic Physics. Prerequisites: PHYS 1081 or equivalent, MATH 1013 or MATH 1063.

APSC 2028   Survey of 19th and 20th Century Physics   2 ch (3L)
Laboratory
A series of laboratory excersises illustrarting the ideas and central to the development of Physics over the last two centuries. Co-requisite: APSC 2023.

APSC 3953   Basis of Biomedical Engineering   3 ch
This course introduces the general aspects of Biomedical Engineering, which is the application of engineering principles to study biology, medicine, behaviour and health. A number of areas are covered by this broad topic, including anatomy, muscle physiology, biomedical instrumentation, biomechanics, and prostehetics. It will also introduce students to the idea of Biomedical Engineering as a career choice. Prerequisite: EE1813, 80 ch in an engineering program plus ENGG 1082 or CE 1023 or permission of the instructor.

ARABIC

ARAB 1013   Introdcutory to Arabic I   3 ch (3C)
An introductory course to develop a basic knowledge of and foundation in standard Arabic writing and sound systems. Identify and produce Arabic sounds, write Arabic letters in various positions. To achieve basic proficiency in speaking, reading, writing and understanding the language. Read and comprehend simple Arabic texts, participate in simple conversations and discussions. To learn some basic aspects of Arab culture and civilization. Not open to native speakers. No prerequisites.

ARAB 1023   Introdutory to Arabic II   3 ch (3C)
A continuation of ARAB 1013 . Not open to native speakers. ARAB 1013 .

ARTS

Note: See beginning of Section H for abbreviations, course numbers and coding.

ARTS 1000   Development of Western Thought   6 ch
This course explores the significant concepts that have shaped the development of Western civilization from the time of Ancient Greece to the present day. Registration for this course is limited to students in the BA degree program.

ARTS 1100   Development of Western Thought 9 ch (2L 2T) [W]
(for Academic Success)
This course shares lectures, academic content, and format with ARTS 1000, exploring the significant concepts that have shaped the development of Western civilization from the ancient world to the present day. ARTS 1100 students participate in an additional tutorial per week (beyond the usual one per week ARTS 1000) in which critical reading and thinking and effective writing skills are strengthened through the use of small learning communities. Students work closely with tutorial leaders and peers to develop the skills necessary for further study and academic success in Arts. Students cannot obtain credit for both ARTS 1000 and ARTS 1100.

ARTS 3000   Faculty of Arts Internship   6 ch (LE)
This two-term internship combines formal education with service in the larger community by providing work experience useful for the career and professional profile of individual students as well as bringing the skills and talents of Arts students to community organizations. Students are registered following a meeting with the Director of Internship Program. Limited enrolment. Open only to students in the Faculty of Arts. Students taking ARTS 3000 cannot take ARTS 3001 or 3002.

ARTS 3001   Faculty of Arts Internship   3 ch (LE)
This one-term internship combines formal education with service in the larger community by providing work experience useful to the career and professional profile of individual students as well as brining the skills and talents of Arts students to community organizations. Students are registered following a meeting with the Director of the Internship Program. Limited enrolment. Open only to students in the Faculty of Arts. Students cannot take both ARTS 3002 and ARTS 3000.

ARTS 3002   Faculty of Arts Internship   3 ch (LE)
This one-term internship combines formal education with service in the larger community by providing work experience useful for career and professional profile of individual students as well as bringing the skills and talents of Arts students to community organizations. Students are not registered following a meeting with the Director of the Internship Program. Limited enrolment. Open only to students in the Faculty of Arts. Students cannot take both ARTS 3002 and ARTS 3000.

ARTS 4000   Community Learning   6 ch (LE)
For fourth year students in the Faculty of Arts, this course links formal education training with service in the larger community. This linkage provides work experience useful for career and professional profile of the individual student and brings the skills and talents of Arts students into the community organizations. Limited enrolment.

ARCHAEOLOGY

Note: See beginning of Section of H for abbreviations, course numbers and coding.

ARCH1303	**The Human Past: Archaeological Approaches (Cross-Listed: ANTH 1303)**	**3 ch (3C) [W]**

This course traces the historical development of the discipline of Archaeology from its earliest beginnings to recent advances in archaeological science, and introduces theories and methods used by archaeologists to investigate and understand past human cultures. Examples are drawn from studies of Paleolithic, Mesolithic, Neolithic, Indigenous and Historical cultures.

ARCH1323	**Discovering Ancient Civilizations (Cross-Listed: CLAS 1323)**	**3 ch (3C) [W]**

 Through the lens of archaeology, students explore the sites, monuments, and artifacts of civilizations (in Mesopotamia, Anatolia, Egypt, the Indus Valley, Greece, Italy, and Roman Britain) that shaped Western society. The Tomb of King Midas, the pyramids of Egypt, the Greek theatre, and Roman amphitheater are among the topics covered.

ARCH2302	**Prehistoric Archeology: Paleolithic Cultures (O)**	**3 ch (3C) [W]**

Introduces archaeological methods and theories through an examination of the Paleolithic cultures of Africa, Europe, and Asia. Prerequisite: ANTH/ARCH 1303 or permission of the instructor.

ARCH2333	**"To Dig is to Explore": Approaches to Classical Archaeology (Cross-Listed: CLAS 2333)**	**3 ch (3C) [W]**

This course includes a brief survey of the history of archaeological investigations and the scientific methods used in identifying and excavating a site and analyzing the material remains. Representative examples that illustrate the above scientific advances are drawn from major Mediterranean civilizations: Mesopotamian, Anatolian, Egyptian, Persian, Greek, Etruscan, and Roman. A lab component includes cataloguing 'ancient shards' from Greece and Turkey, and copies of Greek and Roman vessels.

ASTRONOMY

NOTE: See Courses-> Saint John or Fredericton -> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

The following courses cover basic astronomy. No university level mathematics or physics is required but high school math and science courses are an asset.

ASTR 1013   Elementary Astronomy   3 ch (3C)

Topics may include: introduction to the sky; the structure of space; properties of stars; interstellar and intergalactic space; quasars, galaxies, and a brief introduction to cosmology.

BIOLOGY

Students should note that in the Science Faculty the minimum acceptable grade in a course that is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is being taken for the first time in the final year.

Note: See Courses-> Saint John or Fredericton -> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers, and coding.

BIOL 1001 Biological Principles, Part I   3 ch (3C)
Surveys principles of biology from the molecular level to the cell. Topics include an introduction to the structure, function and synthesis of biological molecules, major cellular structures and processes such as proliferation, energy capture and metabolism, and reproduction and heredity . Examples are presented from both eukaryotic and prokaryotic cells.

BIOL 1006   Applications in Biology, Part I   2 ch (3L) [W]
Instruction and laboratory work dealing with applications of Biology at the level of biological molecules and the cell. Pre- or co-requisite: BIOL 1001.

BIOL 1012   Biological Principles, Part II   3 ch (3C)
Evolution provides the theoretical framework within which biologists work. Through a quantitative lens, this course 1) discusses the mechanisms of evolution and speciation; 2) surveys the biological diversity that results from these processes; and 3) describes a variety of metabolic, behavioural, and ecological processes that relate to survival and reproduction. Note: Students intending to major in Biology must also take BIOL 1017. Prerequisite: BIOL 1001.

BIOL 1017 Applications in Biology, Part II   2 ch (3L) [W]
Instruction and laboratory work dealing with applications of Biology at the level of organisms and their ecological interactions. Prerequisites: BIOL 1001, 1006. Pre- or co-requisite: BIOL 1012.

BIOL 1621   Topics in Biology I: Life on a Changing Planet   3 ch (3C)
This course will introduce students to the biodiversity, ecology, and evolution of life on Earth through exploration of the ever-changing nature of Earth's ecosystems. We will address topics such as major groups of plants and animals through the history of life; responses of individual organisms, populations, and species to changing environments; climate change in past, present and future; and human impacts on the biosphere. Note: This course is not equivalent to BIOL 1001 or 1012, and is restricted to students who have not received prior credit for Biology 1001 or 1012.

BIOL 1622   Topics in Biology II: Life on Smaller Scales   3 ch (3C)
This course will introduce students to biological concepts that apply to everyday life. Topics will be chosen to help students understand the molecular interactions that are essential for life, the cellular processes that are required for survival and reproduction, and the importance of these to human health, industry, and the environment. Note: This course is not equivalent to BIOL 1001 or 1012, and is restricted to students who have not received prior credit for Biology 1001 or 1012.

BIOL 1711   Human Anatomy I   4 ch (3C 2L) (LE)
This course is a general study of human anatomy which will include the following systems: integumentary, skeletal, muscular, nervous (including eye and ear), cardiovascular, lymphatic, urinary, digestive, respiratory, and reproductive. Limited enrollment; priority given to students in Kinesiology, Nursing and Biology-Chemistry (Pre-Health Professions stream). Co-requisite: BIOL 1001 or permission of the instructor. Credit will not be given for both BIOL 1711 and 1719.

BIOL 1719 Human Anatomy I - Online   4 ch (C/L)
This course is the online version of BIOL 1711. Kinesiology students must first take BIOL 1711. BIOL 1719 is available to students prior to enrolment in Nursing, and current Nursing and Kinesiology students with permission of the instructor. This course is also available to other students (e.g. from Science). The course is a general study of human anatomy which will include the following systems: integumentary, skeletal, muscular, nervous (including eye and ear), cardiovascular, lymphatic, urinary, digestive, respiratory, and reproductive. Co- or prerequisite: BIOL 1001, or permission of the instructor. Credit will not be given for both BIOL 1711 and 1719

BIOL 1782 Human Physiology I   4 ch (3C 2L)
An introduction to the various systems that comprise the human body. Emphasis will be on integration of these systems for maintenance of homeostasis. Limited enrollment; priority given to Nursing and Kinesiology students. Biology majors and minors cannot count this course as a Biology Credit, only as an elective. Prerequisite: BIOL 1711.

BIOL 1789   Human Physiologyl - Online   4 ch (C/L)
This course is the online version of BIOL 1782. Kinesiology students must first take BIOL 1782. BIOL 1789 is available to students prior to enrolment in Nursing, and current Nursing and Kinesiology students with permission of the instructor. This course is also available to other students (e.g., from Science) as an elective. The course is an introduction to the various systems that comprise the human body. Emphasis will be on integration of these systems for maintenance of homeostasis. Prerequisite: BIOL 1711 or 1719. Credit will not be given for both BIOL 1782 and 1789.

BIOL 1846 Introduction to the Vascular   4 ch (C/L)
           Plants of New Brunswick
An intensive seven day course, normally offered in the intersession or summer semester, exploring the floristic diversity of NB concentrating on the southern region. There will be an emphasis on plant identification and an introduction to botanical classification. The program for each day consists of morning lectures and lab work, afternoons in the field, and evenings with more lectures and lab work. Biology majors and minors cannot count this course as a Biology Credit, only as an elective.

BIOL 2003 Introduction to Ecology 3 ch (3C)

Ecology is the study of organisms and their interactions with the environment. We begin by introducing the physical environment as a template for evolved structures, processes, traits, and systems. The discussion then moves to adaptations of evolved systems across scales from photo/chemosynthesis to individual organisms to populations to communities to ecosystems, and emphasizing energy flow and nutrient cycling. An overall theme is the effects of human activities on ecosystem structures and functions. Students are also introduced to statistics for ecology.Prerequisites: BIOL 1001, 1006, 1012, 1017. Co-requisite: BIOL 2008 or equivalent.

BIOL 2008   Laboratory in Ecology 3 ch (1C 3L)[W]
This course is a companion course to BIOL 2003. In this course, students use laboratory experiments to investigate core concepts in energy and nutrient acqustions by terrestrial and aquatic organisms. Prerequisites: BIOL 1001, 1006, 1012, 1017. Co-requisite: BIOL 2003.

BIOL 2013   Evolutionary Genetics   3 ch (3C)
The overarching goal of this course is to provide students with an understanding of the genetic basis for evolutionary change, integrating molecular and populations scales. Topics include: molecular evolution, the genetic basis for evolutionary change, population quantitative and speciation genetics, and evolution and culture. Prerequisites: BIOL 1001, 1006, 1012, 1017. Co-requisite: BIOL 2018.

BIOL 2018   Laboratory in Evolutionary Genetics 3 ch (3L)
This course is a companion course to BIOL 2013. In this course, students use laboratory experiments and computer stimulations and analyses to investigate core concepts in population, quantitative and speciation genetics. Prerequisites: BIOL 1001, 1006, 1012, 1017. Co-requisite:BIOL 2013.

BIOL 2023   Introductory Biochemistry 3 ch (3C)
An overview of the processes required for life from biochemical, molecular, genetic and cellular perspectives. Major topics will include the structure and function of biological macromolecules, and the pathways and mechanisms of gene expression, enzymes, and cell signaling. Prerequisites: BIOL 1001, 1006, 1012, 1017; CHEM 1001, 1006, 1012, 1017, or CHEM 1001, 1006, 1982, 1987. Co-requisite: BIOL 2028. Pre- or Co-requisite: CHEM 2401 or 2421 or permission of the instructor. Chemistry (Majors and Honours) students and Chemical Engineering students are not required to have taken BIOL 1006 and BIOL 1017.

BIOL 2025   Research Foundations in 4 ch (1C 3L) (LE) [W]
Cellular Biology
Includes techniques and approaches to the study of life at the cellular level; topics in Biochemistry, Molecular Biology and Genetics. Limited enrollment. Prerequisites: BIOL 1001, 1006, 1012, 1017; and CHEM 1012, 1017, or CHEM 1982, 1987.

BIOL 2028   Laboratory in Biochemistry 3 ch (3L)
This course teaches experimental techniques used to investigate processes required for life from biochemical, molecular, genetic and cellular perspectives. Topics will include the quantitative analysis of biological macromolecules, gene expression, enzyme kinetics, and cell signaling. Prerequisites: BIOL 1001, 1006, 1012, 1017; CHEM 1001, 1006, 1012, 1017, or CHEM 1001, 1006, 1982, 1987. Co-requisite: BIOL 2023. Pre- or Co-requisite: CHEM 2401 or 2421 or permission of the instructor. Chemistry (Majors and Honours) students and Chemical Engineering students are not required to have taken BIOL 1006 and BIOL 1017.

BIOL 2033   Biochemistry   3 ch (3C)
An introduction to the molecular nature, chemical properties and activities of the major biological macromolecules: nucleic acids, amino acids, proteins, enzymes, carbohydrates and lipids. Prerequisites: BIOL 1001, 1006, 1012, 1017; and CHEM 1001, 1006, 1012, 1017, or CHEM 1001, 1006, 1982, 1987. Pre- or Co-requisite: CHEM 2401 or CHEM 2421 or permission of the instructor. Chemistry (Majors and Honours) students and Chemical Engineering students are not required to have taken BIOL 1006 and BIOL 1017.

BIOL 2053 Genetics   3 ch (3C 1T)
Basic concepts of classical genetics including Mendelian genetics, gene interactions, sex linkage, linkage mapping and recombination, complementation are introduced. These are integrated with current topics including gene and chromosome structure and function, mutation, gene expression, transposable elements, extra nuclear genetics, quantitative and population genetics. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 2063   Biological Diversity 3 ch (3C)
Biological diversity, life on planet Earth, is an interconnected continuum in time and space. All life is connected through genetic ancestry, but also through interactions in and with changing environments. The course provides students with a well-rounded understanding of biological, the innovations underlying the large biological diversity on our planet, a broad overview of biological diversity on our planet in the past and present, and importance of biological diversity to humans and the biosphere we inhabit. Prerequisites: BIOL 1001, 1006, 1012, 1017. Co-requisite: BIOL 2068.

BIOL 2068   Laboratory in Biological Diversity 3 ch (3L)
This course is a companion course to BIOL 2063. It provides training generating and interpreting phylogenetic trees; provides exposure to molecular and morphological data (in extant and extinct organisms)to identify organisms and test hypotheses about their relationships; provides exposure to a variety of different organisms to explore key innovations that have led to changes in biological diversity; and teaches techniques to study organisms and biological diversity; and teaches

BIOL 2073   Fundamentals of Microbiology   5 ch (3C 3L) (LE) [W]
An introduction to the physiology, ecology and biotechnology of micro-organisms. Topics include bacterial structures and their function, metabolic diversity, interactions of bacteria with their environments including their impact on human health, and the exploitation of microbes by industry. Fundamental aspects of viral infection will be introduced with an emphasis on prokaryotic viruses. Limited enrollment. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 3083 Botany   5 ch (3C 3L) (LE) [W]
During the course of their lives, plants must perform all of the same functions as animals to survive: find a suitable place to live, acquire resources, find a mate, and defend themselves from enemies. However, plants are at an apparent disadvantage in comparison to most animals because they must perform all of these activities without the benefit of mobility. Yet, it is a green world and so this handicap is more apparent than real. This course explores the great diversity of plants, and examines their form in relation to function to understand how plants manage to meet the challenges faced by all organisms. Limited enrollment. Prerequisites: BIOL 2003, 2008, 2063, 2068.

BIOL 2093 Zoology   5 ch (3C 3L) (LE) [W]
Classification, functional morphology, development and evolution of the major animal groups. Limited enrollment. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 2105   Research Foundations in 4 ch (1C 3L) (LE) [W]
Ecology/Populations
Techniques and approaches to the study of life at the populations level. Includes topics in Ecology, Population Biology and Evolution. Limited enrollment. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 2113 An Introduction to Ecology   3 ch (3C)
Introduces concepts of ecology common to terrestrial, freshwater and marine ecosystems. Major themes studied are adaptations by species and the ecology of populations, communities, and ecosystems. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 2143 Evolution 3 ch (3C)
An introduction to the development of a body of theory explaining biological diversity, from pre-Darwinian ideas to current issues in evolutionary biology. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 2251 Clinical Microbiology   3 ch (3C)
This course (i) covers aspects of the biology of microorganisms from a clinical perspective, (ii) provides an introduction to the fundamental concepts of infectious disease microbiology, and (iii) discusses microbial diseases affecting the skin, nervous system, cardiovascular system, respiratory system, digestive system, and urinary and reproductive systems. Note: This course is not equivalent to BIOL 2073, and is restricted to students who have not received prior credit for BIOL 2073. As well, Biology majors and minors cannot count this course as a Biology Credit, only as an elective.

BIOL 2289 Work Term   Cr
A written report on the scientific activities of the work term in a field of Biology as part of the Co-operative Education Program in Science. Credit for the course is dependent in part on the employer's evaluation of the student's work. (Students must have a GPA of 2.7 or better for BIOL Co-op placement.)

BIOL 2501 Pathophysiology I   3 ch (3C) (LE)
Introduces students to the study of the disruption of the normal balance of selected systems of the human body by disease and other perturbations. Limited enrollment. Nursing students and BMLS students have first priority; others need permission of the instructor. Biology majors and minors cannot count this course as a Biology Credit, only as an elective. Prerequisite: BIOL 1782. Credit will not be given for both BIOL 2501 and 2509.

BIOL 2509   Pathophysiology I - Online 3 ch (3C)
This course is the online version of BIOL 2501. BIOL 2509 is available to students prior to enrollment in Nursing, and current Nursing and BMLS students with permission of the instructor. This course is also available to other students (e.g. from Science) as an elective. The course introduces students to the study of the disruption of the normal balance of selected systems of the human body by disease and other perturbations. Prerequisite: BIOL 1782 or 1789. Credit will not be given for both BIOL 2501 and 2509.

BIOL 2513   Pathophysiology II   3 ch (3C) (LE)
A continuation of BIOL 2501 with emphasis on perturbations to the normal functioning of organ systems. Limited enrollment. Nursing students and BMLS students have first priority; others need permission of the instructor. Biology majors and minors cannot count this course as a Biology Credit, only as an elective. Prerequisite: BIOL 2501 or 2509. Credit will not be given for both BIOL 2513 and 2519.

BIOL 2519   Pathophysiology II – Online 3 ch (3C)
This course is the online version of BIOL 2513, and is a continuation of BIOL 2501 (or BIOL 2509) with emphasis on perturbations to the normal functioning of organ systems. BIOL 2519 is available to current Nursing and BMLS students with permission of the instructor. This course is also available to other students (e.g. from Science) as an elective. Prerequisite: BIOL 2501 or 2509. Credit will not be given for both BIOL 2513 and 2519.

BIOL 2721   Human Physiology II   4 ch (3C 2L) (LE)
This course is a continuation of BIOL 1782 with emphasis on metabolism, muscle and bone physiology, immune responses and healing. Limited enrollment; Kinesiology students have first priority. Biology majors and minors cannot count this course as a Biology Credit, only as an elective. Prerequisite: BIOL 1782.

BIOL 2761 Human Physiology – Metabolism   3ch (3C)
This is an introductory level course in human physiology. Selected topics covered include metabolism, muscle and bone physiology, the immune system, healing and homeostasis. Students cannot get credit for both this course and BIOL 2721. Prerequisites: BIOL 1001, 1006.

BIOL 2792 Human Physiology - Systems   3 ch (3C)
This course will introduce students to the various systems that comprise the human body with emphasis on the integration of these systems for maintenance of homeostasis. The systems that will be covered in detail are the cardiovascular system, pulmonary system, renal system, endocrine system, gastro-intestinal system and the nervous system. Students cannot get credit for both this course and BIOL 1782.

BIOL 2812 Human Anatomy II   4 ch (3C 2L) (LE)
This course is a continuation of BIOL 1711 which will study human anatomy from a regional perspective, and will expand especially upon the musculoskeletal, nervous, and cardiovascular systems. Limited enrollment; Kinesiology students have first priority. Prerequisite: BIOL 1711 or 1719.

BIOL 3031 Cell Signaling   3 ch (3C)
Examines the principles of gene expression and cellular regulation. The perception of extra- and intracellular signals, intracellular signal transduction pathways and the control of cell function will be examined while emphasizing experimental approaches. Prerequisite: BIOL 2033 or BIOL 2023. Recommended: BIOL 2053 or BIOL 2013.

BIOL 3043 Cell Biology 3 ch (3C)
A detailed look at the structure and function of pro- and eukaryotic cells, focusing on the molecules and molecular mechanisms mediating the activities of membranes, cellular compartments, protein and vesicular transport and targeting, cytoskeletal construction and dynamics, the cell cycle, regulation of cell size, cell-cell and cell-matrix adhesion, cellular differentiation and the development of multicellular organisms. Prerequisites: BIOL 2033, 2053, or BIOL 2013, 2023. Strongly recommended: BIOL 2025 or BIOL 2028.

BIOL 3058 Genetic Analysis Laboratory   4ch (2C/L/T) (LE)
An exploration of gene inheritance, mutation, regulation of gene expression, and genetic interactions. The laboratories involve the use of model eukaryotic organisms to ask questions about physiology and development at the organismal, cellular and molecular levels. Limited enrollment. Prerequisites: BIOL 2025, 2053, or BIOL 2013, 2018.

BIOL 3073 Biochemistry of Gene Expression 3 ch (3C)
The structures and functions of all biological entities are dependent upon regulated gene expression. In this course, we will explore selected topics in gene expression from a molecular genetic and biochemical perspective. Topics may include: genome and gene structure, the processes of transcription and translation in prokaryotes and eukaryotes, the structures and functions of RNA polymerase and the ribosome, the fine scale structures of gene promoters, and a detailed mechanistic examination of how gene expression is regulated in the cell. Prerequisites: BIOL 2033, 2053, 2073, or BIOL 2013, 2023, 2063. Recommended: BIOL 2025 or BIOL 2028.

BIOL 3102 Somatic Cytology and Histology (O)   4 ch (2C 3L) (LE)
A study of cell structure using prepared slides. Normally offered in intersession or summer session. Limited enrollment. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 3113 Evolutionary Ecology 5 ch (3C 3L)
This lecture and lab-based course explores key ideas about ecological causes of evolutionary change. Topics will include natural and sexual selection, life histories, phenotypic plasticity, mating systems, evolutionary conflict, and co-evolution. Prerequisites: BIOL 2113, 2143, or BIOL 2003, 2008, 2013, 2018.

BIOL 3133 Selected Topics in Biochemistry I (A)   3 ch (3C)
Principles of intermediate metabolism with particular reference to physical exercise and selected biomedical topics. Prerequisites: BIOL 2033, 2043.

BIOL 3149 Independent Studies 3 ch (R) [W]
Allows academically strong, highly motivated students to write a report on a subject of interest. The student should discuss the topic with the staff member best qualified to give approval of the subject matter and to give guidance during the year. Application is made to the Director of Undergraduate Studies (Biology Department).

BIOL 3173 Marine Biology Field Course   4 ch (C/L/T) (LE)
Introduces the study of the seashore and coastal waters. Emphasizes nature and ecology of littoral flora and fauna and practical methods of study. Held at the Huntsman Marine Science Centre in St. Andrews, N.B. Twelve days in length, given immediately after spring examinations. A charge for accommodation is required. Enrollment limited, selection based on CGPA. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 4182 Embryology   4 ch (2C 3L) (LE)
A laboratory investigation of the dynamics of embryonic development in animals. Students will observe and manipulate the development of living and fixed embryos representing a variety of invertebrate and vertebrate species, focusing on developing a conceptual understanding of the establishment of embryonic axes, origins of tissues and organs, the spatial and temporal relationships between structures, and the technological approaches to investigating the cellular and molecular mechanisms underlying developmental specification and morphogenesis. Advanced microscopy and image processing, micro-dissection, histochemical and molecular biological techniques will be applied. Students will be required to develop and demonstrate a novel laboratory investigation elucidating some aspect of animal development and/or develop a technique or teaching tool that can be applied to the investigation of embryonic development. Limited enrollment. Prerequisites: BIOL 3043. Pre- or co-requisite: BIOL 3162.

**BIOL 3206 Advanced Microbiology   4 ch (2C 3L) (LE) [W]
          Laboratory**
Biochemical, molecular and genetic methods are applied to the study of bacteria and their viruses. Projects examine cell structure, function and physiological responses of bacteria, and the life cycle, genetics and assembly of bacteriophage T4. Limited enrollment. Prerequisites: BIOL 2025, 2033, 2053, 2073, or BIOL 2013, 2018, 2023, 2028, 2063, 2068. Pre- or co-requisite: BIOL 3261. Recommended: BIOL 3043, 3493.

BIOL 3242 Molecular Evolution   3 ch (3C)
The course provides a synthesis of our understanding of evolution at the molecular level. It covers the dynamics of evolutionary change (i.e., rates and patterns), the driving forces behind the evolutionary process, the effects of various molecular mechanisms and processes on the structure and evolution of genes and genomes. Prerequisites: BIOL 2033, 2053, or BIOL 2013, 2018, 2023. Recommended: BIOL 2143.

BIOL 3261 Microbial Physiology   3 ch (3C)
Principles of prokaryotic physiology including synthesis and function of cellular components, metabolism and growth, and regulation of cellular processes. Topics include the response of bacteria to environmental factors, the physiology of bacterial-host interactions, bacterial genetics, and molecular and genomic tools to study microbial physiology. Prerequisites: BIOL 2033, 2053, 2073, or BIOL 2013, 2023, 2063, 2068.

BIOL 3279 Work Term Report II   Cr
A written report on the scientific activities of the work term in a field of Biology as part of the Co-operative Education Program in Science. Credit for the course is dependent in part on the employer's evaluation of the student's work. (Students must have a GPA of 2.7 or better for BIOL C0-op placement.) Prerequisite: Work Term II in a field of Science).

BIOL 3289 Work Term Report III Cr
A written report on the scientific activities of the work term in a field of Biology as part of the Co-operative Education program in Science. Credit for the course is dependent in part on the employer's evaluation of the student's work. (Students must have a GPA of 2.7 or better for BIOL Co-op placement.) Prerequisite: Work Term II in a field of Science.

BIOL 3293 Population Genetics   4 ch (3C 2L)
An introduction to the branch of evolutionary biology concerned with the genetic structure of populations and how it changes through space and time. Topics will include the main evolutionary forces and their effects on patterns of phenotypic and molecular variation within and among populations, molecular markers and their applications in evolutionary and conservation biology, and an introduction to unifying concepts such as the genetics of speciation, molecular evolution, and population genomics. Laboratory sessions will emphasize the use of different computer packages for the analysis and interpretation of the data encountered in population genetics.   Prerequisites: BIOL 2053, 2143, or BIOL 2013, 2018; STAT 2264 or equivalent. Recommended: BIOL 2113 or BIOL 2003

BIOL 3301 Taxonomy of the Flowering Plants (O)   5 ch (3C 3L)
Why is it that the flowering plants are the most recently evolved of all the major plant groups yet they are by far the most diverse and abundant? The diversity of flowering plants and their identification, description and classification will be emphasized in relation to the flora of New Brunswick and major flowering plant families of the world. Prerequisites: BIOL 2083, or BIOL 2063, 2068.

BIOL 3311 Immunobiology   3 ch (3C)
Production and function of the immunoglobulins, characteristics of immunogens, prevention of infectious disease, hypersensitivity and allergy, transplantation and autoimmune diseases. Prerequisite: BIOL 2033 or BIOL 2023, or permission of the instructor. Recommended: BIOL 3043.

BIOL 3383 Research Foundations in Field Ecology 4 ch (C/L/T) (LE)
Introduces field biology with emphasis on the organism, population and ecosystem levels of complexity. Based on direct observation, field techniques and analysis. Held just prior to the beginning of the academic year - 6 days in length. Further work must be completed during the Fall term. Enrollment is limited, based on CGPA. The location of this course may vary. Depending upon the location, accommodation will be required. Please refer to notices posted in the Biology Department. Prerequisite: BIOL 2113, or BIOL 2003, 2008 or equivalent.

BIOL 3423 Forest Tree Genetics and Genomics (A) 3 ch (3C)
Principles of variation and inheritance in forest trees will be introduced. Then, various genetics, genomics, biotechnology and breeding concepts and principles and their applications in tree biology, tree improvement, silviculture, conservation of genetic resources and sustainable forest management, will be discussed. The topics will include: basic principles of quantitative, molecular, population and conservation genetics; genetic variation, differentiation and evolution of populations; reproductive biology; ecophysiological genetics of adaptation; tree improvement concepts, methods and programs; silvicultural practices and genetic resource conservation; discovery and functional analysis of genes; organization and mapping of genomes; marker-assisted selection and molecular breeding; and genetic engineering of forest trees. This course is cross-listed as FOR 3425; students cannot receive credit for both BIOL 3423 and FOR 3425. Prerequisite: BIOL 2053 or permission of the instructor.

BIOL 3441 Ecology of Populations and Communities 4 ch (3C 3L)
To understand and link processes acting on individuals, populations and communities in space and time. To predict the response of individuals, populations and communities to disturbance, and to understand the implications of such responses for management of populations, communities and ecosystems. This course is cross-listed as FOR 3445; students cannot receive credit for both BIOL 3441 and FOR 3445. Prerequisites: BIOL 2083, 2113, or BIOL 2003, 2008, or FOR 2113.

BIOL 3459 Economic Botany (O) 3 ch (3C)
Discusses concepts and principles that can be derived from the biological, sociological and economic impact of the use of plants for food, shelter, landscaping and general well-being. Considers the different methods and reasons why various plants are cultivated and/or utilized by humans. Prerequisites: BIOL 1001, 1006, 1012, 1017.

BIOL 3493 Introduction to Virology 3 ch (3C)
This course covers the fundamental features of virology including the structure and classification of viruses. We will examine the processes of viral attachment, replication, expression and assembly, and discuss various virus-host interactions including transmission, latency, evolution and disease. Modern advances in virology will also be addressed such as antivirals, vaccines, prion diseases and viral ecology. Prerequisites: BIOL 2033 or BIOL 2023. Recommended: BIOL 2073, or BIOL 2063, 2068.

BIOL 3521 Plant Function: Physiology and Metabolism 5 ch (3C 3L)
The course will focus on the mechanisms underlying the uptake, transport and use of carbon, water, and mineral nutrients to provide an introduction to how plants make a living. Photosynthesis, respiration, water and mineral relations are discussed at the biochemical, cellular, whole-leaf and whole-plant scales. The relationship between primary metabolism and global atmospheric climate change will be discussed. Additional topics include the effect of abiotic environmental stresses on plants, including herbivory, extreme temperature, drought, flooding, and pollution. Prerequisites: BIOL 2025, 2033, or BIOL 2023, 2028.

BIOL 3541 Plant Ecology (A) 5 ch (3C 3L)
A course on the factors affecting the distribution and abundance of plants, how pattern and structure at the level of populations and communities can be described quantitatively, and how these arise from the interaction of abiotic (climate, fire, soil) and biotic (competition, herbivory) factors. Prerequisites: BIOL 2003, 2008.

BIOL 3593 Introductory Histology 4 ch (2C 3L)
Histology, or micro-anatomy, is the study of cells, tissues, and organs using microscopic techniques. The aim of this course is to integrate both the form of and function of animal tissues, and examine why tissues and cells are arranged the way they are. At the end of the course, students should be able to identify and describe to histiological images and understand how the cellular arrangement of organs enables them to perform specialized functions. This couse is intended for upper level undergraduate having at least some knowledge of cell biology, and will be of particular interest to students wanting a career in biomedical sciences and health professions. Prerequisite: BIOL 2033 or BIOL 2023. Pre- or co-requisite: BIOL 3043.

BIOL 3603 Invertebrate Zoology (A) 5 ch (3C 3L)
A study of the invertebrate phyla, emphasizing evolutionary origins, adaptive morphology and physiology, while covering anatomical ground plans and basic developmental patterns. Laboratory exercises include numerous dissections, and students doing an anatomical atlas of an invertebrate animal of their choice. Prerequisite: BIOL 2093, or BIOL 2063, 2068.

BIOL 3633 Biological Oceanography 3 ch (3C)
This course considers how oceans, which cover more than 70% of the earth's surface, act as a dominant environmental force. It examines the processes regulating the abundance, diversity, distribution and production of microbes, phytoplankton, zooplankton and higher trophic levels. By exploring the influences of physical factors (i.e. tides, waves, upwelling, light), we will see how temporal and spatial scales are critical for understanding the living ocean. Prerequisites: BIOL 2113, or BIOL 2003; and CHEM 1001, 1006, 1012, 1017. Recommended: two of BIOL 2073, 2083, or 2093; or BIOL 2063, 2068. Note: Students planning to take the Marine Block Semester should take BIOI 3633 in advance.

BIOL 3673 General Parasitology 3 ch (3C)
The biology of parasites of humans, animals of veterinary significance, and wildlife species. This course serves to integrate parasite life history, epidemiology, molecular interactions at the host-parasite interface, mechanisms of infection, host immune responses, parasite immune evasion mechanisms, pathology, diagnostics, control strategies, and therapeutics. Prerequisite: BIOL 2033 or BIOL 2023. Recommended: BIOL 2093, or BIOL 2063, 2068.

BIOL 3703 Vertebrate Zoology 5 ch (3C 3L) (LE)
Stresses interrelationships between structure and function particularly as responses to a variable environment. Considers phylogeny and taxonomy of major groups. Limited enrollment. Prerequisites: BIOL 2093, or BIOL 2063, 2068.

BIOL 3801 Animal Physiology 3 ch (3C)
This course examines, at a fundamental level, the ways by which animals function, with an emphasis on physiological adaptations to the environment. Topics covered include respiration and circulation, metabolism and bioenergetics, thermal adaptation, ionic and osmotic regulation, and integrative neuromuscular, endocrine, and sensory physiology. Prerequisites: BIOL 2033, or BIOL 2003, 2023. Strongly recommended: BIOL 2093 or BIOL 2063.

BIOL 3833 Thanatobiology 4 ch (3C 2L 1S)
Death is inevitable for all organisms; yet we are fascinated by death because, for most of us, it remains a mystery. The process by which humans sustain life, through both natural and artificial means, has been exhaustively studied by medical professionals. While most people think of death as instantaneous event, it is in fact a chain of biological and chemical events. This individualised process depends on a wide range of variables,yet with the same inevitable result. This course will examine the science behind the process of dying in humans, and the changes that occue in the body before, during and after death, with an introduction to forensic sciences. Prerequisites: One of BIOL 2003, 2013, 2023, 2033, 2053, 2113, 2753, 2812, or ANTH 1002, or permission of the instructor. Recommended: ANTH 2504, 2505.

BIOL 3873 Ethology 3 ch (3C)
Considers physiological foundations of behaviour and deals with topics of motivation, displacement behaviour, hormones, evolution and learning. Prerequisites: BIOL 2143 or BIOL 2013.

BIOL 3883 Entomology (O) 5 ch (3C 3L)
Ecology, evolution, taxonomy, and diversity of insects, both terrestrial and aquatic. This course studies the most diverse group of animals on Earth: the Insecta. Topics include insect body plans, growth, and development; major evolutionary groups of insects; ecological and economic importance of insects; insect collection and identification. Students will make and curate insect collections (this will be accomplished most easily by students who begin the summer before taking the course; interested students should contact the instructor for more information). Prerequisite: BIOL 2093 or permission of the instructor.

BIOL 3908 Laboratory Studies in 3 ch (1C 3L) (LE) [W]
Vertebrate Physiology
A study of selected physiological concepts via laboratory experimentation, with emphasis on presentation and interpretation of data in relation to the literature. Limited enrollment. Prerequisites: BIOL 2025, or BIOL 2003, 2008, 2023, 2028. Pre- or co-requisite: BIOL 3801..

BIOL 3943 Hypothesis Testing in Biology 3ch (C/L/S)
This course provides an introduction to methods that Biologists use to address, develop and test hypotheses in biology. We will ask: How do students, researchers, and professionals in biology set up questions for their research and/or assess evidence? How do they design their experiments? What traps and pitfalls do they know to look out for? How do we know if a scientific study is flawed? This course focuses more on ideas about why we do statistics and how to interpret them, rather than the mathematical details of different tests. Examples will range from cell biology to community ecology. Students will be exposed to a range of computer software necessary to explore, interpret and understand data and test hypotheses. This course will be important for students taking upper-year lab or field courses and Honours by thesis. Prerequisite: Stat 2264 or equivalent.

BIOL 4082 Advanced Genetics 3 ch (3C)
Selected topics in genetics that include both classical and molecular approaches, such as genome organization, biochemical genetics, developmental genetics, behavioural genetics, and regulation of cell growth. The process of research, particularly experimental design and interpretation of results is emphasized. Prerequisites: BIOL 2033, 2053, 2073, or BIOL 2013, 2023, 2063, 2068, or equivalent. Recommended: BIOL 3043.

BIOL 4090 Honours Thesis Project   6 ch [W]

Honours students in Biology or in an interdepartmental program with Biology (e.g. Biology-Chemistry) who wish to undertake a thesis project in Biology are encouraged to make their wishes known to individual members of faculty. If a potential supervisor is found, the student will obtain an instruction sheet from the Undergraduate Biology office and make application to the Chair of Biology for admission into BIOL 4090 before preregistration at the end of the third year. This course involves preparation, design and execution of a research project under the direct supervision of a member of the Department as well as the preparation of a formal thesis and defense of the thesis in a seminar presentation. Note: Minimum CGPA for acceptance is 3.0. A student cannot receive credit for both BIOL 4090 and 4149.

BIOL 4123 Selected Topics in Evolution   3 ch (3C)

"Nothing makes sense except in the light of evolution" (Dobzhansky, 1964). This course discusses the most important developments in modern evolutionary biology, and includes topics such as the origin of life; the evolution of cells; the evolution of multicellularity, development and cancer; the evolution of individuality and complexity; the evolution of cooperation and altruism; the evolution of sex and death; the evolution of societies and languages. In addition, the course examines specific evolutionary mechanisms, forces and consequences, such as mutation and selection, symbiosis, life history traits, germ-soma separation and cell differentiation. Prerequisites: BIOL 2053, 2143, or BIOL 2013, 2018. Recommended: BIOL 3043.

BIOL 4149 Senior Research Project   5 ch [W]

Gives academically strong and highly motivated students in Year IV an opportunity to do a literature or research project on a subject of interest. The student should discuss the topic with the staff member best qualified to give approval of the subject matter and to give guidance during the year. Application is made to the Biology Director of Undergraduate Studies. A student cannot receive credit for both BIOL 4090 and 4149.

BIOL 3162 Developmental Biology of Animals   3 ch (3C)

In-depth discussion and analysis of animal development emphasizing biochemical and molecular aspects of the phenomena involved using selected examples. Prerequisites: BIOL 2033, 2053, 2093, or BIOL 2013, 2023, 2063. Strongly recommended: BIOL 3043.

BIOL 4191 Wildlife Management (A)   3 ch (3C)

Studies biological, economic, and human factors affecting wildlife populations. Prerequisite: BIOL 2113 or BIOL 2003, or permission of the instructor.

BIOL 4221 Diversity, Evolution and Ecology of   5 ch (C/L/S) (LE)
                              Marine Plants

This course will survey the diversity of marine plants (seaweed and phytoplankton) relative to one another and the other key lineages of life; exploring their diverse anatomical, cytological, life history and ecological attributes. In the laboratory students will use microscopy to explore vegetative and reproductive features of the various marine plants in our area. A significant component of the laboratory portion of the course will derive from work in the field collecting specimens for personal herbaria and completing biodiversity assessments (a cost may be associated with this trip). Prerequisite: BIOL 2083 or BIOL 2063, 2068 or permission of the instructor. Limited enrollment. Normally taken in the same term as BIOL 4641, 4851, 4991 as part of the Marine Biology Concentration.

BIOL 4233 Conservation Biology 3 ch (3C/L)

An overview of the theory and practice of maintaining biological diversity at genetic, species, and ecosystem levels. The course focuses on scientific principles and technical tools in conservation biology. Pre- or co-requisite: BIOL 2113 or BIOL 2003 or permission of the instructor.

BIOL 4272 Communication in the Biochemical 3 ch (4S) (LE) [W]
                              Sciences

A project-oriented course for students in their last year of study in the Biology-Chemistry program. Students will select, investigate , discuss and communicate (written and oral) the important principles of their topic to different target audiences. The topic will have a biochemical focus, but students are expected to explore the political, social, economic, and ethical aspects consider the impact on society as a whole. Limited enrollment; students in Biology may enroll with permission of the instructor and availability of space. Prerequisites: BIOL 3031, 4082.

BIOL 4289 Work Term IV   Cr

A written report on the scientific activities of the work term in a field of Biology as part of the Co-operative Education program in Science. Credit for the course is dependent in part on the employer's evaluation of the student's work. (Students must have a GPA of 2.7 or better for BIOL Co-op placement.) Prerequisite: Work Term III in a field of Science.

BIOL Microbial
4302 Biotechnology   3 ch (C/S)

For thousands of years, even long before they were known to exist, microorganisms have been employed by humans to produce and preserve food and to protect human health. Today, knowledge of the biochemistry, genetics, and molecular biology of microorganisms has accelerated the development of new and improved biological products and processes. In this course we will examine the production and application of microbial biotechnology products that can solve problems in agriculture, medicine, industry, and the environment. This will include an exploration of the economic, social, and safety concerns associated with the commercialization of these products. Prerequisite: BIOL 3261.

BIOL 4352 Climate Change and Environmental Response 3 ch (3C)

Examines theories and patterns of climate change since the last Ice Age. A variety of paleoecological techniques applied to a number of fossil organisms will be discussed in relation to the information they yield about past environments. Prerequisite: Introductory course in anthropology, biology, or geology. May only be taken by students who have completed two years of their program.

BIOL 4413 Environmental Plant Physiology (O)   3 ch (3C/S)

An advanced seminar-style course emphasizing the responses of photosynthesis and other key aspects of plant metabolism to short - and long - term environmental variation. Among the topics that may be considered are the effect of changing atmospheric CO_2, the acclimation to elevated temperatures, the physiological adaptations that influence plant energy balance, and the regulation of photosynthesis. Prerequisite: BIOL 3521 or permission of the instructor.

BIOL 4423 Conservation Genetics (A)   3 ch (3C)

This class will examine the application of genetic principles, concepts and biotechnologies in conservation, sustainable management and restoration of natural and managed resources. The topics will include: concepts of genetic resources, genetic biodiversity and other population genetic parameters, demography, conservation, sustainable management, ecological restoration, and minimum viable population size; indicators for population viability; exploration, evaluation, utilization, and conservation of genetic resources; genetic consequences of habitat fragmentation, resource management practices, domestication, climate change, and natural disturbance; and challenges, opportunities and strategies for conservation and sustainable management of genetic resources. This course is cross-listed as FOR 4425; students cannot receive credit for both BIOL 4423 and FOR 4425. Prerequisite: BIOL 2053 or 2143, or BIOL 2013, 2018, permission of the instructor.

BIOL 4443 International Ecology Field Course (A)   4 ch (C/L/T) (LE)

This course allows students an on-site exposure and understanding of ecological interactions of soil, climate, plants and animals in a region outside of the Maritimes. A 10-14 day field trip to the region is required. Weekly seminars will be held in the period before the field trip. Students will be charged for travel and costs associated with the course. Limited enrollment. Open to biology and forestry students with permission of the instructor.

BIOL 4533 Bioinformatics: Computational Analysis 4ch (2C 4L) (LE)
                              of Genes and Genomes

Explores computational methods used in sequence analysis of genomes, genes, RNAs, and proteins. Topics include sequence alignment, genome database searching, gene prediction, RNA and protein structure, DNA and protein sequence comparison, and phylogenetic analysis. These topics will be integrated into the context of research in genetics and molecular biology. Limited enrollment. Prerequisites: BIOL 2025, 2033, 2053, or BIOL 2013, 2018, 2023, 2028.

BIOL 4563 Mathematical Biology (A)   3 ch (3C)

Overview of the field of mathematical biology. Development, simulation and analysis of simple mathematical models describing biological systems. Equal emphasis is placed on developing simple models and case studies of successful models. The principal mathematical tools are differential and difference equations, finite mathematics, probability and statistics. This course is intended for students in their third or fourth year having an interest in biological research. Prerequisites: a course in statistics, MATH 2003, 2013 or equivalent, or permission of the instructor. This course is cross-listed as MATH 4563. Credit may not be obtained for both MATH 4563 and BIOL 4563.

BIOL 4641 Coastal Marine Ecology   5 ch (C/L/S) (LE)

This course examines the ecology of shorelines, with a focus on the Atlantic coast. Topics include the setting (continental drift, sea level, species origins, water movement), primary and secondary production, reproduction and recruitment, patterns (zonation) and processes (competition, mutualism, predation, disturbance), and main habitats (rocky shores, mudflats, salt marshes) There may be an additional charge for one-day field trips. Limited enrollment. Prerequisites: BIOL 2093, 2105, 2113, or BIOL 2003, 2008, 2063, 2068. Normally taken in the same term as BIOL 4221, 4851, 4991 as part of the Marine Biology Concentration.

BIOL 4688 Applied Studies in Parasitology 4 ch (C/L/S) (LE) [W]

Designed as a follow up to a general lecture-based course in Parasitology, and to be offered during intersession or summer session. This course emphasizes the hands-on study of animal parasites and will incorporate both field investigations and laboratory work. Students will receive training in postmortem examination, microscopy, histology, diagnostics (morphological, molecular, and immunological), experimental design, scientific writing and data presentation. There may be an additional charge for field trips (e.g. to aquaculture sites, domestic livestock farms). Limited enrollment. Prerequisite: BIOL 3673 or permission of the instructor.

BIOL 4723 Ornithology(A)   5 ch (3C 3L) [W]
Studies birds; natural selection, morphological adaptations, migration, behaviour, and reproduction, in an ecological way. Prerequisites: BIOL 2093, or BIOL 2063, 2068, or permission of the instructor.

BIOL 4732 Mammalogy   5 ch (3C 3L)
Studies mammals, covering taxonomy, adaptations, reproduction, populations, physiology, behaviour and ecology. Prerequisites: BIOL 2093, or BIOL 2063, 2068.

BIOL 4741 Fish Biology(A)   2 ch (2C)
A comprehensive study of fishes from the Agnatha to specialized teleosts. Topics covered include functional morphology, phylogeny, reproduction, predator-prey relations, behaviour, populations and communities, aquatic ecosystems, and conservation biology. Prerequisites: BIOL 2093, 2113, or BIOL 2003, 2063, 2068, or permission of the instructor. Recommended: BIOL 2105, 2143, or BIOL 2008, 2013, 2018. Credit will not be given for both BIOL 4741 and BIOL 4981.

BIOL 4746 Laboratory Studies in Fish 4 ch (L/S) (LE) [W]
                Biology (A)
An intensive course that stresses laboratory and field investigations of aspects of ichthyology covered in BIOL 4741. Field trips to freshwater and marine sites will focus on assessing population size, species diversity and environmental impacts. Laboratory exercises will include ageing, fish taxonomy, and comparative functional morphology. Work will incorporate both group study and individual projects with an emphasis on scientific analysis and interpretation of data including a formal seminar presentation. Limited enrollment. Prerequisites: BIOL 2093, or BIOL 2063, 2068. Co-requisite: BIOL 4741 or permission of the instructor. Credit will not be given for both BIOL 4746 and BIOL 4981.

BIOL 4773 River and Lake Ecosystems (A) 3 ch (3C)
Provides a foundation of understanding of ecosystem processes in streams, lakes, and wetlands. Physical and biological components of such systems will be presented, and concepts and theories defining freshwater ecology will be discussed. Prerequisite: BIOL 2113 or BIOL 2003.

BIOL 4823 Life in Extreme Environments   3 ch (3C)
This course will examine the morphology, physiology and (where applicable) behaviour of organisms that thrive in environments that most living things could not survive. Collectively referred to as "extremophiles", these organisms will be studied in relation to (1) the type of extreme environment they exist in, (2) why the particular conditions are so difficult for other life forms, and (3) how the particular extremophile has evolved and/or adapted to allow it to exist under the conditions described. Prerequisites: BIOL 2143 or BIOL 2013; two of BIOL 2073, 2083, 2093, or BIOL 2063, 2068; and one of BIOL 3261, 3521, 3801.

BIOL 4851 Ecology of Marine Birds(A)   5 ch (C/L/S) (LE)
This course treats seabirds as important components of marine food-webs. Fundamental adaptations (structure, function, physiology, life-history) of seabirds will be linked to the ecological processes driving them. The influence of major oceanographic patterns (bathymetry, currents, upwellings) on seabird distribution and numbers will be explored. Through exploration of the role of seabirds as predators of other marine biota, and in nutrient transfer between marine and terrestrial systems, students will gain a thorough understanding of the roles played by seabirds in marine and coastal systems. Course includes an overnight field trip to Grand Manan Island, for which there may be an extra cost. Examples will be drawn from current seabird research especially in Atlantic Canada. Limited enrollment. Prerequisite: BIOL 2093, or BIOL 2063, 2068 or permission of the instructor. Recommended: BIOL 3633. Offered in alternate years; normally taken in the same term as BIOL4221, 4641, 4991 as part of the Marine Biology Concentration.

BIOL 4863   Environmental Biology 4 ch (5C/L/S) (LE) [W]
Examines the effects of human activity upon the environment, both locally and globally. There may be an additional charge for field trips. Limited nrolment. Pre- or co-requisite: BIOL 2113 or BIOL 2003 or equivalent.

BIOL 4981 Biology of Freshawater and 5 ch (C/L/S) (LE)
                Marine Fishes
An intensive course that combines lecture material on select taxonomic, organismal and process-oriented aspects of fish biology with laboratory and field investigations of applied fisheries science. Field trips to freshwater and marine sites will focus on sampling methods, assessing population size, species diversity, ecology and environmental impacts. Laboratory exercises will include ageing, fish taxonomy, development and comparative functional morphology. Work will incorporate both group study and individual projects with an emphasis on scientific analysis and interpretation of data, including a formal seminar presentation. There may be an additional charge for field trips. Limited enrollment. Prerequisites: BIOL 2093, 2105, 2113, 2143, or BIOL 2003, 2008, 2013, 2063, 2068. Offered in alternate years; normally taken in the same term as BIOL 4221, 4641, 4991 as part of the Marine Biology Concentration. Credit will not be given for both BIOL 4981 and BIOL 4741/4746.

BIOL 4991 Aquaculture in Canada   5 ch (C/L/S) (LE)
Aquaculture is the aquatic equivalent to terrestrial agriculture. We are in the midst of a global transition from hunting and gathering wild aquatic organisms to farming them. This course examines the biological principles and constraints of commercial and pilot-scale aquaculture in Canada, with emphasis on the Atlantic region. Although the focus of the course is on fish culture, consideration is also given to bivalve and seaweed culture. Topics covered include controlled reproduction, genetics and biotechnology, nutrition and feeding, stress and disease, and sustainability. Includes an overnight field trip to the Bay of Fundy to visit commercial and research facilities (a cost may be associated with this trip). Limited enrollment. Prerequisite: BIOL 2093, or BIOL 2063, 2068, or permission of the instructor. Normally taken in the same term as BIOL 4221, 4641, 4851 as part of the Marine Biology Concentration.

BIOL 5473   Experimental Design and Data Analysis   3 ch (3C)
                Biology and Forestry
Introduces students who have previously taken a formal class in statistics to the practice and pitfalls of experimental design and data analysis in biology and forestry. It is intended for both graduate students and final year undergraduates (enrolled in an honours or senior research project). It will be jointly taught by faculty members from the Departments of Mathematics/Statistics, Biology and/or Forestry. Topics will be selected from sampling designs, experimental designs, parametric and non-parametric analysis, power analysis, and regression. The course will include discussion of examples in the literature. Students will also be analysing and interpreting data sets arising from their field of research. Prerequisite: STAT 2264 or equivalent.

BIOL 6000 Series courses:
    (Graduate courses offered by the Department of Biology)
Graduate courses are open to undergraduates who can show that a course is of special value to them in their area of specialization. For details of courses offered consult the Calendar of the School of Graduate Studies and Research.

BRIDGING YEAR FOR FIRST NATIONS STUDENTS

For details of the Bridging Year program, see First Nations Student Services and Progams: Mi'kmaq-Maliseet Institute.

Study Skills Development Courses

Non-credit courses in study skills development. Involve the use of on-campus services, non-credit training sessions, and special tutoring sessions.

BY 103N Study Skills Development I

BY 104N Study Skills Development II

Non-Credit Makeup Courses

Non-credit makeup courses in academic areas in which the student's attainments are below an acceptable standard for university study. May entail the use of provincial secondary school curricula or enrolment in secondary classes as such.

BY 105N   Secondary Education I: English

BY 106N   Secondary Education II: Mathematics

BY 107N   Secondary Education III: Biology

BY 108N   Secondary Education IV: Chemistry

BY 109N   Secondary Education V: Physics

BY 110N   Secondary Education VI: Economics

BUSINESS ADMINISTRATION

This section contains course descriptions for students entering the program after September 2001. For students who entered the program prior to September 2001, please contact the Faculty of Business Administration or see the 2001-2002 Web version of theUndergraduate Calendar for BA course descriptions.

Course Numbering System

The Faculty of Business Administration uses the following number system for courses offered by the Faculty.

a.   The first digit

1	designates an introductory level course.
2	designates an intermediate level course which normally has a prerequisite specified in the course description.
3	designates an advanced level course which has one or more prerequisites specified in the course description.
4	designates an advanced level course with several prerequisites and which normally is taken during the final year of studies.

b.   The second digit identifies the nature of the course, as follows:

1 general	6 quantitative analysis
2 accounting	7 information technology
3 marketing	8 employment relations
4 finance	9 independent study
5 organizational behaviour and management	

c.   The third and fourth digits differentiate courses in the same field.

ADM 1015   Introduction to Business   3 ch (3C)

Introduces business topics to students from other disciplines who do not intend to major in business. Topics include business history, forms of organizations, sources and use of business information. Introduces the functional areas of business including: accounting, financial management, marketing, production control, human resources management, and special topics. Not available for BBA degree credit. Credit will not be given for both this course and ADM 1113.

ADM 1113   Administration   3 ch (3C) [W]

Introduces the process of administration and the functional components of profit and nonprofit organizations. Considers the environmental framework of management, including societal issues and the distinctive features of Canadian business. This course is restricted to s tudents registered in the Faculty of Business Administration or Bachelor of Information Systems. BBA students normally take this course during the first term of study. Credit will not be given for both this course and ADM 1015.

ADM 1165   Business Communications I   3 ch (3C)

Examines the "real" world of business communications from writing effective e-mail and business letters to planning and delivering informative presentations. Focus is on acquiring business writing and presentation skills. Other communication variables such as non-verbal messages, group dynamics, and interpersonal skills also covered. Prerequisite: Open only to BBA students.BBA students normally take this course during the first term of study. Cerdit will not be given for both this course and ADM 2165.

ADM 2166   Business Communications II   3 ch (3C)

Examines contemporary strategies for successful written and oral communications in business. Theories of written and oral communication and their application to the real-world context covered with a focus on the practical applications of business contexts including: conducting interviews and surveys, writing formal business reports and proposals, and delivering persuasive arguments. Prerequisite: ADM 1165 or 2165. BBA students must complete this course during the first 75 ch.

ADM 1213   Financial Accounting   3 ch (3C)

Examines the identification, measurement, recording, and communication of financial information for managerial decision-making. Reviews basic principles and concepts to convey the conceptual framework of the accounting discipline. BBA students normally take this course in the second term of study. Credit will not be given for both this course and ADM 2213.

ADM 2223   Managerial Accounting   3 ch (3C)

Emphasizes the role of the accounting function in managerial decision-making. Traditional job costing and activity-based costing stressed. Appraises the use of standard costing and variance analysis as tools for management control. Examines flexible budgets, break-even analysis and contribution costing in decision-making. Prerequisite: ADM 1213 or 2213.

ADM 1313   Principles of Marketing   3 ch (3C)

Provides a foundation of marketing theory and analysis necessary to approach the decision-making process and issues related to the marketing function. BBA students normally take this course in the second term of study. Credit will not be given for both this course and ADM 2313.

ADM 2413   Principles of Finance   3 ch (3C)

Analyses the basic tools and concepts of finance and illustrates their application to practical problems faced by managers. Topics include: the time value of money, term structure of interest rates, valuation of financial securities, financial statement analysis, financial planning, working capital management and short-term and long-term sources of financing. Provides an introduction to the techniques of capital budgeting and the concepts of risk and return on options. Prerequisites: ADM 1213 or 2213.

ADM 2513   Organizational Behaviour   3 ch (3C)

Introduces the contributions of the applied behavioral sciences to the study of work in organizations. Covers the fundamentals of individual and group behaviour, as well as selected topics in motivation, leadership, communication, conflict and organizational change. Prerequisites: 30 ch.

ADM 2623   Business Statistics 3 ch (3C)

(Cross-Listed: ECON 3601)

Introduces the methods of data presentation and analysis, and their applications to business problems, including measures of data description, probability concepts and distributions, and statistical decision theory. Also considers sampling theorem, hypothesis testing using different techniques. Prerequisites: 30 ch, MATH 1823 and 1833 or equivalents.

ADM 2624   Management Science 3 ch (3C)

(Cross-Listed:ECON 3602)

Presents a variety of applications of optimization models to business problems such as allocation, blending, and scheduling. Introduces concepts of production planning, inventory control, network models and sequencing. Prerequisite: ADM 2623. BBA students must complete this course during the first 75 ch.

ADM 2815   Human Resources Management 3 ch (3C) [W]

Introduces human resource management and its role in corporate strategy. Topics include: human resources planning; recruitment and selection; employee training and development; performance appraisals; and compensation. Note: Credit will not be given for both ADM 2815 and 3815.

ADM 3123   Business Law I   3 ch (3C) [W]

Examines the impact of law on business decisions and activities. Includes an introduction to the Canadial legal system, the law of contract and the law of torts. Emphasis given to the identification, evaluation, and management of legal risks in a business context. Prerequisite: 33 ch.

ADM 3124   Aboriginal Business Law   3 ch (3C)

Examines the unique aspects of business law as it applies to Aboriginals. Topics include constitutional framework; self-government; bands, band councils and reserves; commercial relations; taxation; and employment relations.

ADM 3155   International Business   3 ch (3C) [W]

Examines issues and problems which arise when business operations transcend national boundaries. Topics include the dimensions of the contemporary international economy, theories of trade and foreign direct investment, the strategic and operational character of international firms and the controls adopted to achieve these goals. Prerequisites: ADM 1313 or 2313, 2413, and 2513.

ADM 3215   Intermediate Accounting I   3 ch (3C)

Presents in-depth coverage of selected topics in financial accounting. Commences with a review of the theoretical foundation for financial reporting, providing the conceptual background necessary to understand generally accepted accounting principles and alternatives to these principles. Specific emphasis given to the major asset categories found on corporate balance sheets through extensive coverage of cash, receivables, inventories, and capital assets. Prerequisite: ADM 1213 or 2213, ADM 2223 and ADM 2413.

ADM 3216   Intermediate Accounting II   3 ch (3C)

Continues the examination of the balance sheet commenced in ADM 3215 with extensive coverage of liabilities and shareholders' equity. Specific emphasis directed to several current and controversial topics in accounting - corporate income taxes, earnings per share, and leases. Concludes with an overall look at financial statements and disclosure issues. Prerequisite: ADM 3215.

ADM 3225 Cost Accounting   3 ch (3C)

Examines cost accounting information and its use in managerial control. Deals in detail with cost accumulation, job and process costing, standard costing, and variance analysis. Supplements the material covered in ADM 2223. Reviews the use of costing techniques in other than manufacturing situations. Prerequisites: ADM 2223.

ADM 3315   Marketing Management   3 ch (3C) [W]

Covers the application of theory and analytical tools from the marketing management perspective. Focuses upon the analysis and solution of complex marketing problems in the contemporary environment. Prerequisite: ADM 1313 or 2313.

ADM 3316   Services Marketing and Management   3 ch (3C)

Building on basic marketing elements, introduces the unique opportunities and challenges associated with the marketing of services. Topics include service and experience design and management; service delivery and capacity management; the service encounter; service failure and recovery; customer participation in service processes; satisfaction and loyalty; and customer relationship management. Prerequisite: ADM 3315.

ADM 3345   Marketing Research   3 ch (3C)

Examines the design and conduct of research for marketing decision-making. Includes problem formulation, obtaining and organizing data, advanced analytical techniques, questionnaire design, market testing, and analysis of results. Prerequisites: ADM 3315.

ADM 3375   Marketing of Technological Services 3 ch (3C)
and Products
(Cross Listed: TME 3346)

Provides an in-depth approach to the marketing of technology focused on industrial products and services. Includes essentials of marketing, along with aspects of product development, promotional design, distribution, pricing/budgeting determination, strategic analysis, communication skills, client/customer relations, and considerations for the small business environment. Not available for BBA degree credit.

ADM 3415   Corporate Finance   3 ch (3C)

Examines portfolio theory and valuation capital, capital expenditure decisions, long-term financing decisions, cost of capital, financial structure, dividend policy, and external expansion. Prerequisites: ADM 2413, 2623.

ADM 3435 Financial Markets and Institutions (O)   3 ch (3C)

Examines the role of financial markets and institutions in the transfer of funds in Canada. Reviews the nature of assets and liabilities of financial institutions in the current regulatory framework. Considers the management of assets and liabilities of key depository and non-depository organizations, illiquidity risk, funding risk, default risk, and regulatory risk. Prerequisite: ADM 2413.

ADM 3445   Personal Financial Planning   3 ch (3C)

Based upon the theory of financial decision-making applied to personal finance, covers the financial planning techniques used in professional practice. Topics include: financial goal setting, the life cycle model of financial planning, budgeting, tax planning, cash management, personal credit, investment choices, risk management, and retirement planning.

ADM 3573   Organization Design   3 ch (3C) [W]

Examines the factors considered in the structural design of an organization. Special attention is given to the organization's external environment and internal decision structures and processes. Prerequisites: ADM 2513, 2623.

ADM 3626   Managerial Decision Analysis 3 ch (3C)

Deals with the analysis of decision problems under uncertainty, partial information, risk and competition. Considers the analytic hierarchy process, outranking procedures, and multi-attribute utility theory. Examines the construction and use of indifference curves for the solution of multi-stage decision problems, and the numerical determination of stable solutions for problems with two competitors. Prerequisite: ADM 2623.

ADM 3628   Advanced Statistics for Finance   3 ch

Examines theory behind statistical techniques such as analysis of variance, simple and multiple regression, non parametric methods of estimation and hypothesis testing, and time series analysis. Examines the application of these techniques to problems in finance and other areas of business administration. Prerequisite: ADM 2623.

ADM 3685   Total Quality Management   3 ch (3C)

Provides a fundamental coverage of total quality management. Includes the basic principles and practices of TQM, the tools and techniques of TQM, and case studies of the implementation of TQM in the manufacturing and service industries. Prerequisite: ADM 2623.

ADM 3713   Management Information Systems   3 ch (3C)

Covers the dynamics of change in computer technology and design of systems as well as the organizational and social consequences of automated decision systems. Prerequisites: Computer literacy requirement, 60 ch.

ADM 3875   Labour Relations   3 ch (3C) [W]

Introduces industrial relations with particular reference to unionized workplaces. Topics include: industrial relations theory; the development, structure and functions of organized labour in Canada; collective bargaining; strikes and industrial conflict; the grievance and arbitration process.

ADM 4115   Management of Innovation and   3 ch (3C)
**   Technology**

Examines the strategic management of high technology and other organizations. Emphasizes innovation and the development or commercialization of intangible assets. Introduces tools and techniques for the implementation of appropriate strategies. Prerequisites: ADM 1313 or 2313, ADM 3573.

ADM 4125   Business Law II   3 ch (3C) [W]

Introduces the law that affects various functional aspects of a business. Topics include: law of business associations including partnerships and corporations; property including real, personal and intellectual; employment including hiring and termination; finance including debtor/creditor, banking and bankruptcy; and marketing including advertising and sales. Emphasis given to the management of legal risks. Prerequisite: ADM 3123.

ADM 4143   Strategic Management   3 ch (3C)

Examines the process of strategy formation for the business enterprise as an integrated organization. Emphasizes the problems of defining organizational mission, analyzing the dynamics of competitive rivalry, and the determinants of success or failure for alternate types of business strategies based upon a thorough company/industry analysis. Prerequisites: 96 ch, ADM 1313 or 2313, 2413, 3573.

ADM 4165   Corporate Communications   3 ch (3C)

Appraises how an organization communicates with internal and external audiences. Introduces principles, theories, and practices used to generate and maintain positive relationships with non-consumer audiences and to handle the diverse communication challenges found in the workplace. Prerequisite: ADM 2513.

ADM 4175   Venture Start-up & Entrepreneurship 3 ch (3C) [W] (LE)

Considers the problems associated with starting and operating a small enterprise. Focuses upon actual small business successes and failures. Prerequisite: 60 ch.

ADM 4176   Management of New Enterprise   3 ch (3C) [W] (LE)

Focuses upon the development of a project proposal for starting a new business or a case study of an existing enterprise. Prerequisite: 96 ch.

ADM 4177   New Product Development   3 ch (3C)

Examines concepts related to the management of new product development (NPD) and the role of NPD in the strategy of contemporary companies. Reviews concepts for development of winning solutions, approaches useful in organization of design process, and methods for selection/evaluation of projects. Considers concepts related to development of new services, as well as the refinement of innovative ideas and their implementation. Prerequisite: ADM 3345.

ADM 4182   Outsourcing (O)   3 ch (3C)

Examines situations where outsourcing major portions of a firms activities makes sense and appraises how to manage the resulting contract. Topics include: measuring outsourcing relationships, measuring performance, and driving value. Prerequisite: ADM 2513.

ADM 4195   Management Internship   3 ch

Provides extensive practical experience in the professional world through the successful completion of 3 co-op work terms. For each work term, a report must be completed and receive a minimum grade of C. The Faculty will register the student for this course at the start of the final year. A student will be awarded CR (credit) for this course. Prerequisites: 2 previous successful work terms with passing work term reports.

ADM 4215   Advanced Financial Accounting I   3 ch (3C) [W] (LE)

Examines the accounting and financial reporting for inter-corporate investments and business combinations, including the preparation of consolidated financial statements for parent and subsidiary entities. Also covers segmented reporting. Prerequisites: ADM 2223 and 3216.

ADM 4216   Advanced Financial Accounting II   3 ch (3C) [W] (LE)

Examines the accounting and financial reporting issues for the translation of foreign currency transactions and statements, non-business organizations, partnerships and businesses in financial difficulty. Also covers the conceptual framework for accounting and alternative accounting measurement models. Discusses current financial reporting issues. Prerequisites: ADM 2223 and 3216.

ADM 4218   Financial Statement Analysis   3 ch (3C)

Appraises the role of financial reporting in operating, financing, and investing decisions. Develops appropriate skills in the area of financial statement analysis. Reviews generally accepted accounting principles in Canada and elsewhere, as well as financial statement analysis of companies in different industries or geographic areas. Prerequisites: ADM 2223 and ADM 3415.

ADM 4245   Accounting Theory   3 ch (3C) [W]

Focuses on accounting literature, especially with respect to financial reporting, and accounting standard setting. Prerequisites: ADM 2223 and ADM 3216.

ADM 4275   Auditing   3 ch (3C)

Introduction to the concepts and procedures underlying contemporary auditing. Topics include ethics, legal liability, internal control, audit evidence, audit reports. Prerequisites: ADM 2223 and ADM 3216.

ADM 4295   Internship in Accounting   3 ch [W]

Involves approved work for 80 hours in a term for an accounting department of an organization and under the supervision of a faculty member. Requires work on a project that is evaluated for academic assessment. Note: Open to Honours BBA candidates with a major in accounting. Subject to faculty and placement availability.

ADM 4296   Independent Study in Accounting   3 ch [W]

Preparation of an empirical or theoretical study in accounting under the supervision of a faculty member. Application required at least 30 days prior to the term in which work will be undertaken. Note: Applicants must have completed 96 ch and have attained a cumulative GPA of at least 3.0.

ADM 4315   Salesforce Management   3 ch (3C) [W] (LE)

Applies theory relating to salesforce management from a managers point of view. Requires reading and discussion of articles, which present research in the area. Entails the completion of several assignments designed to facilitate interaction with the business community. Prerequisite: ADM 3315.

ADM 4316   Professional Selling   3 ch (3C)

Provides an introduction to and application of the principles of personal selling for persons pursuing any vocation, as well as those aspiring to careers in Marketing. Introduces basic concepts of professional selling including: customer analysis, communication skills, effective openings and closings, and customer relations. Emphasizes the development of selling skills via sales exercises, role-plays and presentations. Prerequisite: ADM 3315.

ADM 4317   Customer Relationship Management 3 ch (3C)

Examines customer relationship management (CRM) as a key strategic process for organizations. Addresses benefits and problems of CRM strategy and implementation, culminating in the completion of a CRM strategic plan. Includes case analysis, student expert presentations, online discussions and applied appraisals. Prerequisite: ADM 3315.

ADM 4325   Consumer Behaviour   3 ch (3C)

Appraises concepts and their interrelationships in order to develop an understanding of consumer decision-making processes. Includes basic individual determinants of consumer behaviour, environmental influences on consumers, purchase processes, post-purchase processes, market segmentation, brand loyalty, fear appeals. Prerequisite: ADM 3345.

ADM 4326   Customer Satisfaction and Loyalty   3 ch (3C) (LE)

Examines issues relevant to customer satisfaction and loyalty. Topics covered include the marketing concept, continuous improvement, quality, complaint behaviour, expectations, measurement, and relationship marketing. Prerequisite: ADM 3315 or consent of the instructor.

ADM 4335   Contemporary Marketing Issues   3 ch (3C) [W]

Considers contemporary issues in marketing. Taught as a seminar-based course and requires readings and detailed discussions of articles relevant to the selected topics of enquiry. Prerequisite: ADM 3315.

ADM 4336   Market Orientation   3 ch (3C)

Examines theory and practice of market orientation for the creation and generation of enterprise growth or sustainability. Reviews variables that shape market orientation and appraises the value and role of the entrepreneur in development initiatives. Prerequisite: ADM 3315.

ADM 4345   Integrated Marketing   3 ch (3C)
**   Communications**

Examines forms of marketing communications, emphasizing their role in the Canadian environment. Includes basic communications theory related to basic consumer behaviour theory, media availability and selection, promotion channels, personal selling, industry self-regulation, role of government regulation. Prerequisite: ADM 3345.

ADM 4346   Social Media Marketing   3 ch (3C)

Examines different platforms in the social media environment. Identifies and explores online marketing opportunities for individuals, marketers, and enterprises. Prerequisite: ADM 3315.

ADM 4353   Export Market Entry   3 ch (3C)

Appraises how to plan and implement export tactics and strategy. In addition to the study of global marketing concepts, theories, and analytical tools, students will be expected to prepare a market entry plan. Atlantic-based organizations will participate in the course as case studies. On a competitive basis students will be selected to attend a trade mission. Prerequisites: ADM 3315.

ADM 4355   Global Marketing   3 ch (3C) (LE)

Examines marketing decision-making in an international environment. Identifies and explores marketing problems facing enterprises undertaking expansion beyond domestic market boundaries. Prerequisite: ADM 3315.

ADM 4395   Internship in Marketing   3 ch [W]

Involves approved work for 80 hours in a term for a marketing department of an organization and under the supervision of a faculty member. Requires work on a project that is evaluated for academic assessment. Note: Open to Honours BBA candidates with a major in marketing Subject to faculty and placement availability.

ADM 4396   Independent Study in Marketing   3 ch [W]

Preparation of an empirical or theoretical study in marketing under the supervision of a faculty member. Application required at least 30 days prior to the term in which work will be undertaken. Note: Students must have completed 96 ch and have attained a cumulative GPA of at least 3.0.

ADM 4415   Working Capital Management   3 ch (3C)

Considers areas relating to various components of working capital. Examines practical issues and analytical models for the efficient management of cash, accounts receivable, and inventories, along with the critical appraisal of various sources of short-term funds. Prerequisite: ADM 2413.

ADM 4416   Applied Financial Management   3 ch (LE)

Employs actual and simulated corporate financial cases related to financial planning and control, working capital management and capital budgeting, cost of capital and optimal capital structure, dividend policy, mergers and acquisitions, and international financial management. Prerequisite: ADM 3415.

ADM 4421   Mergers and Acquisitions   3 ch (3C)

Covers the theory and practice of mergers and acquisitions. Topics include: valuation techniques and their applications; Economic forces and timing of merger activity; motives for mergers and acquisitions; market for corporate control; valuing synergies; valuing (target) firms for takeover; accounting for mergers; practical issues in mergers and acquisitions; hostile takeovers; forms of payment; M strategies; the role of the board of directors; best practices; empirical tests and stock market evidence of the benefits of mergers and acquisitions. Prerequisite: ADM 3415.

ADM 4425   Investments   3 ch (3C) (LE)

Covers the investment environment, basic investment concepts, analysis and strategy. Considers investors attitudes toward risk; the Markowitz portfolio theory; capital market theory and its application; the efficient markets hypothesis; expected inflation and yields on securities; options markets; securities markets, technical and fundamental analysis. Entails simulated trading using the Internet. Prerequisites: ADM 2624 and ADM 3415.

ADM 4426   Introduction to Financial Derivatives 3 ch (3C) (LE)

Covers forward contracts, futures, options and swaps. Introduces the markets for each of these financial derivatives and explains their market valuations. Illustrates the application of market valuations of derivative products through numerical problems. Also covers the use of financial derivatives in hedging risk. Prerequisites: ADM 2624 and ADM 3415.

ADM 4435   Entrepreneurial Finance   3 ch (3C)

Examines the theory and practice of financing entrepreneurial firms. Topics include: financial planning and option analysis, firm valuation at different stages of development, financial fundraising with asymmetric information, fundraising alternatives and venture organization. Prerequisites: ADM 2413 and ADM 3415.

ADM 4437   Principles and Practice of Value   3 ch (3C)
**   Investing**

Covers concepts and principles of fundamental analysis, financial statement analysis and common stock valuation models; examines the evidence that value investing is a viable strategy that has consistently produced above average returns. Students apply the concepts, principles and methodologies used by successful value investors to select and analyse common stocks and to make value investment decisions; practical application of value investment strategies is a significant part of this course. Prerequisite: ADM 3415; or with permission of the instructor.

ADM 4445   Theory of Finance   3 ch (3C)

Provides theoretical underpinnings of the concepts and decision-making frameworks in corporate finance. Covers theories of choice of consumption/saving, portfolio investment, real investments, and financial structure. Also covers models of pricing risk, along with the concepts of market efficiency and inefficiency. Prerequisite: ADM 2624, ADM 3415; ADM3628 or equivalent.

ADM 4450   Student Investment Fund   6 ch (LE) [W]

Presents experiential learning of the actual financial investment process and portfolio management. Students, under the guidance of faculty advisors, manage over a $1,000,000 portion of the pension assets of the New Brunswick Investment Management Corporation (NBIMC), within the investment policies and procedures of that enterprise. Requires detailed analysis of macroeconomic, industry, and company fundamentals. Entails preparation, on a regular basis, of up-to-date reports and presentations of portfolio analysis, selection, and management. Open only to BBA students. Eligible candidates are required to complete an application form and go through an interview. Prerequisites: ECON 1013, ECON 1023, ADM 2223, ADM 2624, ADM 3415, ADM 4425.

ADM 4455   International Financial Management 3 ch (3C) (LE)

Reviews the concept of balance of payments, foreign exchange markets, and exchange rate systems. Examines exchange rate risk and the economics of currency exposure and the international arbitrage process. Topics include: international portfolio management, capital flows including direct investment, the financial of international enterprises, taxation and transfer pricing, capital budgeting, and the cost of capital in an international setting. Prerequisite: ADM 3415.

ADM 4475   (MATH 4853) Mathematics of   3 ch (3C)
**   Financial Derivatives**

Basics of options, futures, and other derivative securities. Introduction to arbitrage and partial differential equations. Stochastic calculus and Ito's Lemma. Option pricing using the Black-Scholes model. Put-Call parity and Hedging. Pricing of European and American call and put options. Number methods for the Black-Scholes model: binary trees, moving boundary problems, and linear complementarity. The barrier, and other exotic options. Prerequisites: MATH 2013 and 2213, STAT 2593, and CS 1003 or equivalent.

ADM 4495   Internship in Finance   3 ch [W]

Involves approved work for 80 hours in a term for a finance department of an organization and under the supervision of a faculty member. Requires work on a project that is evaluated for academic assessment. Note: Open to Honours BBA candidates with a major in finance. Subject to faculty and placement availability.

ADM 4496   Independent Study in Finance   3 ch [W]

Preparation of an empirical or theoretical study in finance under the supervision of a faculty member. Application required at least 30 days prior to the term in which work will be undertaken. Note: Students must have completed 96 ch and have attained a cumulative GPA of at least 3.0.

ADM 4525   Leadership   3 ch (3C) [W] (LE)

Studies theoretical and practical approaches to directing people in organizations. Explores the relative effectiveness of various leadership styles in transforming organizational foci, from a managerial point of view. Prerequisite: ADM 2513.

ADM 4526   Motivation and Work Behaviour   3 ch (3C)

Utilizes recent motivation theories as frameworks to analyze the effectiveness of evaluations and control methods currently found in organizations. Included is the use of information, pay administration, and participation in the design of effective organizational control systems. Prerequisites: ADM 2513 and one of ANTH 1001, POLS 1000, PSYC 1000, or SOCI 1000.

ADM 4535   Ideology, Technology and Business (O) 3 ch (3C) (LE)

Examines how ideology and technology have influenced and shaped today's society. Empha sizes the development and impact of ideology and technology on government-business relations and the freedom of business to operate. Normally open only to third and fourth year students.

ADM 4615   Operations Management   3 ch (3C)

Presents the concepts of production planning, inventory control, network models, facility planning, scheduling and sequencing, PERT and CPM, queuing models. Prerequisites: ADM 2623 and 2624.

ADM 4634   Social Network Analysis (O)   3 ch (3C)

The course will present state-of-the-art research and practice of large social network analysis. It will provide the students with a network-centric view of modern society and essential analysing and modeling techniques for understanding and extracting information from important real-life network arising from business, science and engineering, such as logistic/supply chain networks, financial networks, and organization networks etc. Prerequisite: ADM 2623.

ADM 4635   Supply Chain Management   3 ch (3C)

Presents state-of-the-art design, control, operation, and management of supply chain systems. Focuses on the integrated management of material flow, information flow, and financial flow at three different levels: strategic, tactical, and operational. Quantitative methods and techniques necessary for the supply chain management emphasized along with case studies. Prerequisites: ADM 2623, ADM 2624.
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ADM 4656   Location Theory   3 ch (3C)

Provides an overview of the basic models used in location analysis. Includes median centre and covering problems. Also covers brand positioning and voting theory. Considers both discrete and continuous models. Discussion of practical applications of location models. Prerequisites: ADM 2623 and 2624.

ADM 4675   Network Analysis   3 ch (3C)

Introduces the algorithms for optimization related to networks. Emphasizes the applications in transportation, telecommunications, warehousing, and computing networks. Prerequisites: ADM 2624 and 4615.

ADM 4677   Inventory Management   3 ch (3C)

Provides an overview of inventory systems and their impact on materials management. Considers the two fundamental inventory questions (when and how much to order) under a variety of practical considerations. Includes topics such as: economic order quantity, just-in-time inventory systems, fixed-order size, fixed order interval, and deterministic and probabilistic systems. Discussion of practical applications of models. Prerequisites: ADM 2623 and 2624.

ADM 4686   Project Management (O)   3 ch (3C)

Introduces the management tools of project selection and evaluation, the setup of a project team, and the role of a project manager. Discussion includes the quantitative techniques of managing a project in terms of time/cost estimation, scheduling, budgeting, and the other control/monitoring measures of the performance of a project. Prerequisites: ADM 2623 and 2624.

ADM 4688   Optimization in Finance   3 ch (3C)

Covers optimization techniques in both linear and non-linear problems with applications in several areas of finance. Examines how to apply optimization techniques to solve real world financial problems using a suitable commercial optimization/finance package. Prerequisite: ADM 2413 and ADM 2624.

ADM 4696   Independent Study in Operations Management   3 ch [W]

Preparation of an empirical or theoretical study in operations management under the supervision of a faculty member. Application required at least 30 days prior to the term in which the work will be undertaken. Note: students must have completed 96ch and have attained a cumulative GPA of at least 3.0

ADM 4715   Database Management   3 ch (3C)

An introduction to database management systems. Reviews different types of database management systems. Additional topics include data modeling, query languages, database administration, data administration, security, concurrency, control and distributed databases. Prerequisite: ADM 3713.

ADM 4717   Business Networking and   3 ch (3C)
**   Telecommunications**

Appraises why telecommunications are important in the value chain of the firm and how they are acquired and implemented. Includes discussions of hardware, software, the process of deciding what to buy and how install , the types of communications systems, and the application of telecommunications to support the strategy of the firm. Prerequisite: ADM 3713 or permission of the instructor.

ADM 4718   Technology, Security and Risk   3 ch (3C)

Examines security and risk from a broad perspective. Topics covered i nclude computer security, physical security of premises, shoplifting, corporate intelligence, corporate espionage, and issues of broad social importance such as airline security and terrorism. Prerequisite: ADM 3713 or permission of the instructor.

ADM 4719   Current Topics in MIS   3 ch (3C)

Examines current issues in Management Information Systems. Prerequisite: ADM 3713 or permission of the instructor.

ADM 4721   IT & Supply Chain Management   3 ch (3C)

Appraises the emergence of Internet-based technologies and supply chain management. Examines the intersection of three areas: introductory supply chain management, relevant aspects of Management Information Systems (MIS) and Electronic Commerce/ Electronic Business and its Internet-enabled technology complements. Prerequisite: ADM 3713.

ADM 4722   Systems Analysis and Design - User 3 ch (3C)
**   Perspectives**

Examines the development of IT systems from a user perspective. Topics include the Systems Development Life Cycle, role of users and management, critical success factors and alternative development methodologies. Prerequisite: ADM 3713 or permission of the instructor.

ADM 4815   Training and Development   3 ch (3C)

Examines fundamentals of training and development function in organizations. Appraises cycle from needs assessment to evaluation and explores the influence of changes in the workplace and the availability of information technology. Prerequisite: ADM 2815 or 3815.

ADM 4825   Compensation Management   3 ch (3C) (LE)

Introduces the strategic role played by pay and benefits in achieving organizational goals. Topics include: forms of financial and non-financial compensation; job analysis and evaluation; pay policy and external competitiveness; pay for performance; performance appraisal; and administration of the pay system. Prerequisite: ADM 2815 or 3815.

ADM 4826   Employment Law   3 ch (3C)

Introduces the law relating to the individual employer-employee relationship. Examines the common law governing the contract of employment from commencement to termination. Overviews statutory regulation of the employment relationship, including: employment standards; occupational health and safety; workers compensation; and human rights legislation. Note: Students in the MBA/LLB program will not be permitted to obtain credit for ADM 4826 and LAW 3683. Prerequisite: ADM 3123.

ADM 4827   Workplace Health and Safety   3 ch (3C)

Based on the premise that occupational health, wellness and safety concerns impacts an organizations productivity and profitability. Provides an understanding of health and safety issues, legislation and programs. Reviews current issues and methodologies affecting the occupational health and safety standards and practices of Canadian organizations. Prerequisite: ADM2815 or 3815.

ADM 4828   Performance Management   3 ch (3C)

The main purpose of the course is to help students design effective performance management systems. To accomplish this, the course is designed to help students approach performance management issues critically, to familiarize students with the many components of performance management systems, and to show how the right configuration of these components can help organizations achieve their strategic objectives.

ADM 4835   Contemporary Issues in Human   3 ch (3C) [W]
**   Resources Management (O)**

Examines current issues in human resource management in North America and abroad. With latitude given to the selection of topics. Prerequisite: ADM 2815 or 3815.

ADM 4845   Human Resources Planning   3 ch (3C) (LE)

Examines how different organizational strategies require alternate HRM policies and practices. Explores the resource allocation issues necessary for the effective management of people within a given strategy. Prerequisite: ADM 2815 or 3815

ADM 4856   International Human Resource   3 ch (3C)
**   Management**

Introduces concepts, theories and issues in international human resource management. Explores how human resource management systems in other countries differ from Canada and, secondly, how human resource management of multinational corporations differ from domestic organizations. Topics include: global staffing, global pay, performance management in multinational corporations, global human resource management strategies and global labour relations. Prerequisite: ADM 2815 or 3815.

ADM 4857   Human Resources Selection Systems (O)   3 ch (3C)

Explores systems used by organizations to recruit and select employees. Examines employment law, techniques to screen applicants, interviewing techniques, assessment centers, biodata, and psychological tests. Prerequisite: ADM 2815 or 3815.

ADM 4878   Negotiation and Dispute Resolution 3 ch (3C)

Appraises conflict, negotiation and dispute resolution principles. Focuses on the formulation and implementation of negotiation and dispute resolution. Considers the causes and consequences of conflict, and applies contrasting approaches to negotiations and dispute resolution. Note: Students in the MBA/LLB program will not be permitted to obtain credit for both ADM 4878 and LAW 4103.

ADM 4878 Negotiation and Dispute Resolution   3 ch (3C)
Appraises conflict, negotiation and dispute resolution principles. Focuses on the formulation and implementation of negotiation and dispute resolution. Considers the causes and consequences of conflict, and applies contrasting approaches to negotiations and dispute resolution. Note: Students in the MBA/LLB program will not be permitted to obtain credit for both ADM 4878 and LAW 4103 .

ADM 4895 Internship in Human Resources 3 ch [W]
Involves approved work for 80 hours in a term for a HRM department of an organization and under the supervision of a faculty member. Requires work on a project that is evaluated for academic assessment. Note: Open to Honours BBA candidates with a major in HRM. Subject to faculty and placement availability. Prerequisite: ADM 2815 or 3815 .

ADM 4896 Independent Study in HRM   3 ch [W]   Preparation of an empirical or theoretical study in HRM under the supervision of a faculty member. Application required at least 30 days prior to the term in which work will be undertaken. Note: Students must have completed 96 ch and have attained a cumulative GPA of at least 3.0.

ADM 4990 Honours Thesis   6 ch [W]   Individual development and defence before a committee of a written research endeavour under the guidance of a faculty supervisor. Students are advised to consult with their intended faculty supervisor prior to the completion of 97 ch. A written request for admission to this course must be submitted to the Associate Dean, Programs, Faculty of Business Administration, no later than 1 October of a student's final year. Note: Available in designated majors and open only to Honours BBA candidates who have attained a cumulative GPA of at least 3.0. Subject to faculty availability.

ADM 4995 Independent Study   3 ch
Involves planning and carrying out an empirical or theoretical investigation under Faculty supervision. Wide latitude given to the selection of topics and methods of investigation. Application for approval required at least 30 days prior to the term in which work will be undertaken. May require defence of a report before a committee of appropriate Faculty members. Note: Applications normally approved only for senior-year students who have attained a cumulative average GPA of at least 3.0.

COMPARATIVE CULTURAL STUDIES

CCS1013   The Culture of Spain and   3 ch (3C) [W]
                Latin American I (O)
Spain and Latin America before 1500: Art, Literature, Music and Society. A multimedia approach will be used. Conducted in English. Open to students of all years. No prerequisites. Students who have taken WLCS 1013 or SPAN 1013 may not attain credit for CCS 1013.

CCS1014   The Culture of Spain   3 ch (3C) [W]
Spain and Latin America after 1500: Art, Literature, Music and Society. A multimedia approach will be used. Conducted in English. Open to students of all years. No prerequisites. Students who have taken WLCS 1014 or SPAN 1014 may not attain credit for CCS 1014.

CCS1021   Introduction to Culture, Arts, and Media 3 ch (3C) [W]
                (Cross-Listed: MAAC 1021)
An interdisciplinary exploration of the pivotal role which culture, media, and the arts play in shaping understandings of the world around us. By considering a variety of cultural expressions, creative and artistic practices, and media representations, both old and new, from around the globe, this introductory course invites students to open up to new ways of thinking about how culture is created and continually contested, and is ultimately central to how we experience our lives. Required for CSS Majors and Honours students.

CCS1023   Sex, God and War: Literature   3 ch (3C) [W]
          An Introduction to Pre-Modern World
A study of major texts (in English translation) of world literature written before 1900. Authors, texts and literatures studied will vary but may include The Bible, Dante, Omar Khayam, Lope de Vega, Goethe, Strindberg, Mickiewicz, and Dostoevsky. Conducted in English. Open to students of all years. No prerequisites. Students who have taken WLCS 1001 may not attain credit for CCS 1023.

CCS1043   Russian Culture I (O)   3 ch (3C) [W]
Significant aspects of Russian culture from the 10th to the end of the 19th century. Topics include Russian Icon Painting and Architecture, Russian culture between Europe and Asia; Ivan the Terrible as cultural type; women in Russian culture; serfdom and slavery; Russia's contribution to the development of terrorism and revolution; the reforms of Peter the Great; Russian Orthodoxy, etc. Conducted in English. Open to students of all years. Students who have taken WLCS 1043, or RUSS 1043 may not attain credit for CCS 1043.

CCS1053   Russian Culture II (O)   3 ch (3C) [W]
Significant aspects of Russian and Soviet culture in the 20th century. Topics include Russian avant-garde painting; the Bolshevik Revolution and apocalyptism; class and corruption; Socialist Realism; Stalin and Stalinism; women's roles under the Soviets; Eisenstein and Soviet cinema; the artificial famine and the Gulag; literature and censorship; Soviet sport and society; Glasnost and culture; etc. Conducted in English. Open to students of all years. No prerequisites. Students who have taken WLCS 1053, or RUSS 1053 may not attain credit for CCS 1053.

CCS1073   Insights into Chinese Culture I (O) 3 ch (3C)
An introduction to China's long and rich cultural heritage with a focus on how it is embedded in living examples. Students who have taken WLCS 1073 may not attain credit for CCS 1073. No prerequisite.

CCS1083   Insights into Chinese Culture II (O)3 ch (3C)
A wide-ranging exploration of important aspects of Chinese culture and their continuity through time analyzed from a historical perspective. Students who have taken WLCS 1083 may not attain credit for CCS 1083.No prerequisite.

CCS2021   Popular Culture (Cross-Listed: MAAC 2021)   3 ch (3C) [W]
This course introduces historical and theoretical contexts for the study of mass-mediated popular culture, from movies and TV to comic books and video games. It also explores the reciprocal relationship between creative expression and economic constraints, between the mainstream, sub-cultures, and counter-cultures, as well as familiar designations of "high-brow" and "low-brow." Using specific media case studies, students will engage with contemporary debates about the impact of representations, the role of ideology, the agency of the audience, the meaning of fandom, and the politics of taste. While learning to analyze and evaluate their relative merits, students will learn to step back and think critically about the larger implications and the cumulative effects of our constant exposure to popular culture texts. Students who have taken MAAC 2021 may not attain credit for CCS 2021.

CCS2023   Modernity, Eternity, and Culture in Collision: 3 ch (3C) [W]
          An Introduction to 20th-Century World Literature
A study of major modernist and contemporary texts of world literature (in English translation). Authors, texts and literatures studied will vary but may include, Milosz, Brecht, Ionesco, Camus, Marquez, Kafka and Pasternak. Conducted in English. Open to students of all years. No prerequisites. Students who have taken WLCS 1002 may not attain credit for CCS 2023.

CCS2024   Culture and Dance I: So You   3 ch (3C)
          Think You Know Dance (C) (O)
An investigation of the development of Classical Ballet and Contemporary / Modern dance styles from Renaissance court dances to present day choreography. Emphasis will be on European and North American theatrical dance traditions. Types of dance explored may include court dances, classical ballet, modern and contemporary dance, jazz dance and improvisational dance. Students will examine the cultural connections among the art of dance, music, visual arts, history, literature and other fields. When possible, the class will be coordinated with dance performances at the Fredericton Playhouse and students may be expected to attend up to 2 such performances. The course will include both academic work and experiential dance/movement components. No previous dance background necessary. Students who have taken WLCS 2024 may not attain credit for CCS 2024.

CCS2025   Culture and Dance II: Dance In   3 ch (3C)
          The Global Village (C) (O)
This course is an investigation of the universal language of dance in both theory and practice. Topics will be chosen from a diversity of both folk dance traditions and classical theatrical dance traditions from around the world. These may include the fundamental components of dance technique, a variety of international folk dances, social dance (tango and salsa, for example) East Indian classical dance forms, etc. When possible, the class will be coordinated with dance performances at the Fredericton Playhouse and students may be expected to attend up to 2 such performances. The course will include both academic work and experiential dance / movement components. No previous dance background necessary. Students who have taken WLCS 2025 may not attain credit for CCS 2025.

CCS3003 Contemporary Issues in   3 ch (3S) [W]
Comparative Cultural Studies
A seminar with varying content addressing literary and cultural periods, genres or themes as expressed across cultural borders. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 3003 may not attain credit for CCS 3003.

CCS3011 Dreams, Desire,   3 ch (3C) [W]
Delusion: Romanticism
Romanticism is the first literary movement that crosses all European borders--from Russia to England--and filters into the New World. This course studies the major concepts and themes of Romanticism, including Napoleonism, idealism, individualism, nationalism, irony, the poet as genius, etc., in the works of German, Russian, Polish, Spanish, Latin American, and other writers. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 3011 may not attain credit for CCS 3011.

CCS3014 Latin America Before 1500   3 ch (3C) [W]
(Cross-Listed: SPAN 3014)
A survey of pre-Hispanic civilizations of Latin America. Films and other audio-visual materials will be used. This course is also listed under International Development Studies (IDS). Open to students of all years. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who have taken WLCS 3014, or SPAN 3014 may not attain credit for CCS 3014.

CCS3015 Topics on Latin American Culture (O)   3 ch (3C)
Latin America after independence, placing an emphasis on the 20th Century. Films and other audio-visual materials will be used. Given in English. This course is also listed under International Development Studies (IDS). The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3015, or SPAN 3015 may not attain credit for CCS 3015.

CCS3021 Culture Matters: Critical Approaches to 3 ch (3C) [W]
Studying Culture (Cross-Listed: MAAC 3021)
Offers critical interdisciplinary approaches to understanding culture through examination of key concepts, theories and practices in the field of Cultural Studies. Required for CCS and MAAC Majors and Honours students.

CCS3023 Lost and Found in Translation: 3 ch (3C) [W]
Comparative Cultural Studies
This interdisciplinary course allows students to develop their understanding of key frameworks for comparative cultural studies while considering how we can compare cultures from around the globe by studying their creative, linguistic, and artistic expressions. Required for CCS and MAAC Majors and Honours students.

CCS3024 Brecht and Theatre (O)3 ch (3C) [W]
This course offers an in-depth study of the life and the dramatic works of 20th-Century German playwright Bertolt Brecht as well as an exploration of the mechanics of theatre itself. Students will be introduced to the concept of epic theatre, and to aspects of performance and audience studies. They will also discuss the dramatic texts. Readings may include The Threepenny Opera, Life of Galileo, The Good Person of Szechuan, Mother Courage and Her Children, and The Caucasian Chalk Circle. Texts are read in English translation. There will be opportunities to read out and, if desired, act out selected scenes. No previous experience with drama required. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students with credit for GER/WLCS 4033 may not take this course for credit. Students who have taken WLCS 3024, or GER 3024 may not attain credit for CCS 3024.

CCS3043 Prayers, Damsels and Monks on the 3 ch (3C) [W]
Prowl: The Early Years of German Literature I
Examines a representative selection of German literary masterpieces from various periods and literary genres. Students who have taken WLCS 3043, or GER 3043 may not attain credit for CCS 3043. Prerequisite: GER 2001 / 2002 or equivalent. .

CCS3045 Decadence, Nazis and the War: 3 ch (3C) [W]
Twentieth-Century German Literature until 1945
Introduces students to some of the major figures and trends in twentieth-century German literature to the end of World War II. Examines different types of prose narratives, drama, and poetry in the context of the main intellectual, social, and political forces and concerns of the period. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students who have taken WLCS 3045, or GER 3045 may not attain credit for CCS 3045.

CCS 3051	Introduction to 19th-Century Russian Literature in Translation (O)	3 ch (3C) [W]

Includes the Golden Age of Russian Literature (Pushkin, Lermontov); the great realists (Dostoevsky, Tolstoy, Turgenev); and the emergence of Russian Drama (Chekhov). Themes followed include the superfluous man; nihilism and politics in literature; the Russian female protagonist from Karamzin's Poor Liza to Dostoevsky's prostitute Sonya; etc. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 3051, or RUSS 3051 may not attain credit for CCS 3051.

CCS 3052	Introduction to 20th Century Russian Literature in Translation (O)	3 ch (3C) [W]

Includes Futurism, Symbolism, Acmeism and Russia's Silver Age; literature and Revolution; housing and homelessness in Soviet literature; women's writing; Socialist realism (boy meets girl, boy gets tractor); censorship and oppression; experimental prose of the '20s; aspects of Soviet cinema; Russia's 'New Wave' meets America's Beatniks; Bulgakov's magical fable; etc. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 3052, or RUSS 3052 may not attain credit for CCS 3052.

CCS 3053	Introduction to German Literature II (From the Reformation to the Present)	3 ch (3C) [W]

Examines a representative selection of German literary masterpieces from various periods and literary genres. Students who have taken WLCS 3053, or GER 3043 may not attain credit for CCS 3053.

CCS 3054	Crimes and Misdemeanors: Modern German Literature	3 ch (3C) [W]

An investigation of the themes of crime, murder, and justice in selected literary texts ranging from the late 18th to the 20th century. Prior and parallel to the emergence of the genre of crime fiction, authors have concerned themselves with the portrayal of crime, guilt, redemption, and forgiveness as expression of the ambivalence between man, woman and our world, the frailty of fortune and security, as well as the power of obsession and evil. We will closely read texts, discuss the ensuing moral, ethical, and philosophical questions, and explore how authors use crime fiction to either assert or question moral value systems. Emphasis will be placed on textual analysis and situating the texts in their literary historical context. Includes texts from various genres including film, and literary periods. Authors studied may include: Goethe, E. T. A. Hoffmann, Droste Hülshoff, Büchner, Kaiser, Brecht, Süskind, Arjouni, and Dürrenmatt. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students who have taken WLCS 3054, or GER 3054 may not attain credit for CCS 3054.

CCS 3055	Rubble, Revolt, Reunification: Twentieth-Century German Literature after WW II	3 ch (3C) [W]

Introduces students to some of the major figures and trends in twentieth-century German literature, covering the period from the end of World War II to Germany's reunification. Different types of prose narratives, drama, and poetry are examined and discussed in the context of the main intellectual, social, and political forces and concerns of the period. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students who have taken WLCS 3055, or GER 3055 may not attain credit for CCS 3055.

| CCS 3061 | From People to a Nation: German Culture before 1900 | 3 ch (3C) [W] |

A survey of German civilization from the time of early European tribal migrations to the rise of nationalism in the nineteenth century. Taking a sociohistorical perspective, students will be acquainted with a selection of key developments within the German-speaking cultures, including aspects of history, literature, music, architecture, and painting. Assigned readings, lectures, and slide shows aim at raising an awareness of the interrelationship between cultural heritage, historical and political developments, and artistic expression. Conducted in English. Open to students of all years. No prerequisites. Restriction: Credit may not be obtained for both CCS 1061 and CCS 3061. Students who have taken WLCS 3061, or GER 3061 may not attain credit for CCS 3061.

| CCS 3062 | Love and Religion: Latin American and Caribbean Women's Narrative from the Golden Age to the Beginning of the 20th Century (A) | 3 ch (3C) |

A survey of selected readings of Latin American women writers from the Golden Age to the present. We examine works of Sor Juana Inés de la Cruz, Gertrudis Gómez de la Avellaneda, Alfonsina Storni, Gabriela Mistral, Luisa Valenzuela, Isabel Allende, among others, from a socio-historical perspective. The course will explore the social conditions of the women in Latin America, issues of women's identity and gender construction. A multimedia approach will be used. The course will be offered in English and is open to students who have completed at least 30 credit hours of university work. Students who have taken WLCS 3062, or SPAN 3062 may not attain credit for CCS 3062.

| CCS 3063 | Literature of the Holocaust (O) | 3 ch (3C) |

Addresses questions on a selection of literary and film responses to the Holocaust in various cultures and genres. Includes the perspectives of Jewish and non-Jewish survivors, children of survivors and others more removed. Particular attention is paid to the ethical and aesthetic challenges the Holocaust poses. Topics include: victims and oppressors, and the role of stereotypes in their depictions; the possibilities and limitations of language to express unimaginable horrors; and the role and appropriateness of literature as medium to respond to the historical, cultural, and psychological complexities of the Holocaust. Texts are read in English translation. No prerequisites. Students who have taken WLCS 3063, or GER 3063 may not attain credit for CCS 3063.

| CCS 3064 | The Holocaust: East European Representations and Responses (O) | 3 ch (3C) [W] |

The Holocaust was a powerfully defining experience, historically and culturally, for most of the nations and peoples of Eastern Europe. This course examines key aspects of its impact and repercussions, how it has been represented and responded to, primarily in Literature, Memoir, and Film, but also in other cultural areas such as memorial construction and music. The complex notions of victim, perpetrator, bystander, survivor, trauma, martyrdom, memory and identity receive their most expressive and compelling formulations precisely in these kinds of texts. The geographic focus of the course is on Poland, Ukraine, Lithuania and Russia, but reference will also be made to other areas such as Czech Republic, Hungary, and Romania. Authors, directors, etc., to be studied may include Borowski, Grynberg, Szymborska, Fink, Gross, Wajda, Polanski (Poland); Meras (Lithuania); Grossman, Yevtushenko, Shostakovich (Russia and Ukraine); Kertesz (Hungary); Hrebejk (Czech); etc. The course and all readings are in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students who have taken WLCS 3064, or GER 3064 may not attain credit for CCS 3064.

| CCS 3065 | The Thrill of Fear: Horror Narratives Across Media & Cultures [A] (Cross-Listed: MAAC 3065) | 3 ch (3C) [W] |

Why have people in so many times and places enjoyed spooky stories? What, if any, value can we assign to tales of horror and the supernatural? Do ghost stories and monster movies differ across nations and cultures? Questions like these will guide our global study of gothic, horror and supernatural texts chosen from a wide array of media, from literature and cinema, to television, comic books, and video games. Topics may include visual culture and the sublime, Freud's notion of "the uncanny," Jungian archetypes, gender identity, conceptions of ritual and myth, the modern and the postmodern, subcultures, folklore, religion and secularization. This course is open to students who have completed at least 45 credit hours at university level. Attendance at additional scheduled film screenings outside of lectures will be required. Students who have already completed MM 3065 for credit may not enrol in MAAC 3065. Students who have taken WLCS 3065 may not attain credit for CCS 3065.

| CCS 3066 | Trauma and Seduction: Early German Cinema (A) (Cross-Listed: FILM 3066, MAAC 3066) | 3 ch (3C) [W] |

Beginning with the earliest silent movies and concluding with National Socialist propaganda films, this course offers an introduction to a prolific and important era in German film history: the Weimar Republic and pre-WWII period, 1918-1939. Our discussions will situate the films within larger political and cultural discourses. Emphasis will be placed on such topics as the cinematic response to the trauma of WWI; German national identity; expressionism and modernity; the politics of gender and sexuality; the impact of sound on film aesthetics; the relationship between cinema and other media; the ethics of film production. Films to be studied include features by directors such as Lang, Lubitsch, Murnau, Pabst, Riefenstahl, Sagan, von Sternberg and Wiene. In English. Students who have taken WLCS 3066, or GER 3066 may not attain credit for CCS 3066.

| CCS 3071 | Germany Today: German Culture from 1900 to Present | 3 ch (3C) [W] |

Significant aspects of German culture from the beginning of the industrial revolution to the end of the 20th century. Topics will vary, but may include: German Impressionism and Expressionism, Early German Film, the Women's Movement, Early German Homosexual Rights Movement, Weimar Culture, Nazi Art, Literature after 1945, Divided and Re-unified Germany, New German Film, and others. Conducted in English. Open to students of all years. No prerequisites. Restriction: Credit may not be obtained for both CCS 1071 and CCS 3071. Students who have taken WLCS 3071, or GER 3071 may not attain credit for CCS 3071

| CCS 3072 | (Re)constructing National Identity: Contemporary German Cinema (A) (Cross-Listed: FILM 3072, MAAC 3072) | 3 ch (3C) [W] |

Studies the major accomplishments of East and West German cinema of the postwar period, as well as cinematic trends since German unification. We will consider questions of narrative, genre, and authorship, examine film's relationship to other media, and focus on the dynamic interaction between film history and social history. Films to be studied include features by prominent directors such as Wolf, Fassbinder, Wenders, von Trotta, Carow, Dörrie, and Tykwer. Students who have taken WLCS 3072, or GER 3072 may not attain credit for CCS 3072

| CCS 3082 | History of Canadian Cinema (A) (Cross-Listed: MAAC 3082 & FILM 3082) | 3 ch (3C) [W] |

Focuses on the first half-century of filmmaking in Canada and the nation's long struggle to develop and sustain a functioning film industry in the shadow of Hollywood. Readings and screenings trace the history of the movies in Canada from the silent era to the 1970s. Issues raised may include Canadian/American relations, national and regional identities, tensions between art and entertainment, media and cultural policy, representation of race, class, gender, and relation of Canadian film to other media (TV, radio, video) and other arts (painting, music, literature) in Canada. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have taken WLCS 3082 may not attain credit for CCS 3082.

CCS 3083   **Seminar I: Genre (O)**   **3 ch (3C) [W]**

The development of a particular genre in German literature and an examination of various works in that area. Students who have taken WLCS 3083, or GER 3083 may not attain credit for CCS 3083.
Prerequisite: Departmental approval.

CCS 3113 Social Symbols in Latin American Literature 3ch (3C)[W]

Examines literary characters as social symbols that reflect socio-political realities in selected translated works. Social and historical documents as well as videos and films will be used for purposes of comparison. Students who take this course to fulfill Majors or Honours requirements, will be required to write their papers in Spanish. This course is also listed under International Development Studies (IDS). The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who have taken WLCS 3113, or SPAN 3113 may not attain credit for CCS 3113.

CCS 3121 The New Berlin: Memory and Reinvention(O) 3ch(3C)[W]

The course explores the role of memory and cultural policy in the process of renewal which encompassed Berlin with an extraordinary surge of creativity and reconstruction after Germany's reunification. Students will study Berlin's cultural topography, examine the physical face of the city as well as living environment of its population, and investigate how places and spaces embody and narrate a story of national pasts and future. What does it mean to be German? How is history remembered or forgotten? What role do literature, film, images, media, and objects play in the practice and politics of cultural memory and cultural creation and branding? We will focus on manifestations of culture including subculture, in literature, film, architecture, memorials, museums, city design, and neighbourhoods. Topics may include: Walter Benjamin, Franz Kafka, Christa Wolf, Walther Ruttmann, Rainer Werner, Fassbinder, Wim Wenders; the Brandenburg Gate, the memorialisation of the Holocaust, remnants of the GDR, Europe and Berlin, immigration and multiculturalism, Kreuzberg, Jewish culture, gay culture, music culture, youth culture. Students will be introduced to theories and methodologies of memory culture research and will carry out case studies. They can expect to obtain an understanding of the transhistorical and transcultural significance of Berlin. Students who have taken WLCS 3021, or GER 3021 may not attain credit for CCS 3121.

CCS 3122 New York Modern (O) 3ch [W]

A study of modern art and modernism in New York from its development as an urban centre from the late nineteenth through the first half of the twentieth century. This course makes use of cultural and artistic sources available in contemporary New York City. Students will explore visual art as well as performing arts, including modern dance, and modern music and/or experimental film and will become acquainted with ideas, aesthetic practices, and key representatives of various international art movements such as art nouveau, expressionism, Dada, futurism, cubism, primitivism, and surrealism. The course features museum visits (Neue Galerie, MoMa, Metropolitan, Whitney, and the Guggenheim), walking tours, a performance (theatre, dance, or concert), and assignments that foster art appreciation and critical reflection of the role of museums and patronage, public art and street art, and the continuation and transformation of modernism in New York today. Normally offered on site. Students who have taken WLCS 3022 may not attain credit for CCS3122

CCS 3123 Berlin to Broadway: Musical Theatre Across the Ocean 3ch(3C) [W]

An examination of the life and work of Kurt Weill focusing on his contribution to the theatre culture of Berlin in the twenties and to Broadway in the forties. We will read selected stage works by Weill and his renowned literary collaborators such as B. Brecht and W. Anderson and I. Gershwin, discuss their social relevance, theatrical power, and reception and explore the interplay between the various media: text, music and stage. Emphasis will be placed on the urban cultural context of Berlin, and the history of the genres musical theatre and Broadway musical, including current trends. The goal of the course is to provide students with the opportunity to study a theatre composer in depth, to foster a critical appreciation of Weill's unique place in music theatre, and to enrich their understanding of material, cultural and performative aspects of musical theatre. Stage works by Weill may include The Threepenny Opera, Happy End, The Rise and Fall of the City of Mahagonny, Lady in the Dark, Street Scene, Lost in the Stars. Other musicals to be discussed may include Cabaret, Guys and Dolls, Sweeney Todd, In the Woods. The course and all readings are in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students with credit in GER 4033 may not take this course for credit. Students who have taken WLCS 3023, or GER 3023 may not attain credit for CCS 3123.

CCS 3413   **Survey of Spanish Penensular Literature I (O)**   **3 ch (3C)**

A review with selected readings of the literature of Spain from its earliest periods to the end of the Golden Age. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3413, or SPAN 3413 may not attain credit for CCS 3413

CCS 3414   **Survey of Spanish Penensular Literature II (O)**   **3 ch (3C)**

Examines Spanish Peninsular literature through representative works by major literary figures from Romanticism to the present such as: José de Larra, Pérez Galdós, Unamuno, García Lorca, Laforet, Matute, Benet among others. Literary movements of the period under study will be examined through readings that exemplify the various genres of narrative, drama and poetry. The course will be supported by the use of videos. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3414, or SPAN 3414 may not attain credit for CCS 3414.

CCS 3423   **Survey of Spanish American Literature I (O)**   **3 ch (3C)**

Studies the development of Spanish American Literature from Columbus to Naturalismo. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3423, or SPAN 3423 may not attain credit for CCS 3423.

CCS 3424   **Survey of Spanish American Literature II (O)**   **3 ch (3C)**

Studies the development of contemporary Spanish American Literature. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement will submit required work in Spanish. Students who have taken WLCS 3424, or SPAN 3424 may not attain credit for CCS 3424.

CCS 3431   **Global Media, Politics, and Power (O)**   **3ch (3C) [W]**
                Cross-listed as MAAC 3431.

Uses core readings and theoretical frameworks from media studies to examine the complex relationships between media, society and politics, across the 20th century and into the new millennium, and in global perspective. Topics include media ownership and regulation; media and social movements; censorship and freedom of the press; television and digital culture in emerging democracies; the politics of the popular; media arts & activism.

CCS 3455   **Latin America in Cinema (O)**   **3 ch (3C)**

This course will provide students with a background in Latin American cinema, emphasizing the most productive centres such as Mexico (Paul Leduc, María Novaro, Alejandro González Iñárritu, Guillermo Del Toro), Cuba (Tomás Gutiérrez Alea, Sara Gómez, Fernando Pérez), Brazil (Walter Salles, Hector Babenco) and Argentina (María Luisa Bemberg, Fernando Solanas, Eliseo Subiela, Lucrecia Martel). Equal emphasis will be placed both on cinematographic and thematic analysis of the cinema, and, when appropriate, cultural and historic context will be provided. Films will be screened previous to class (most often with subtitles) and will be analyzed and discussed in class. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students taking this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3455, or SPAN 3455 may not attain credit for CCS 3455.

CCS 3456   The Cinema of Spain (O)   3 ch (3C)

This course will provide the students with a background in Spanish cinema, emphasizing the most productive eras such as the Surrealist Movement and the Movida of the 1980s. Films to be studied include those of directors such as Luis Buñuel, Pedro Almodóvar, Alejandro Amenabar, Elías Querejeta, Mario Camus, Bigas Luna, Carlos Saura, Victor Erice, Laura Mañá, and Iciar Bollaín. Equal emphasis will be placed both on cinematographic and thematic analysis of the cinema, and, when appropriate, cultural and historic context will be provided. Films will be screened previous to class (most often with subtitles) and will be analyzed and discussed in class. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students taking this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3456, or SPAN 3456 may not attain credit for CCS 3456.

CCS 3594   Paris in Literature (O) (Cross-Listed: FR 3594)   3 ch [W]

Paris has played a key role in French literature. The city has inspired numerous poets and novelists and it has been described by countless others. Students will read and study a number of works that highlight Paris and the provincial capital of Poitiers. There will be visits to museums, residences, cafés and cultural sites where the authors lived and wrote and where their novels take place. Normally taught on location in France. **Note:** Classes will be conducted in French. Students who register in CCS 3594 can choose to read the novels in translation and submit their assignments in English. Students who have taken WLCS 3594 may not attain credit for CCS 3594.

CCS   The Cultural Turn: Cultural Studies in Historical Context   3 ch (3C)
3701   (O) (Cross-Listed: HIST 3701)   [W]

Traces the history of cultural studies from its debated foundation through the Birmingham school in post-war Britain, to its reshaping by post-Marxist, postmodernist, feminist, postcolonial, and diasporic perspectives. Analyzes the key debates in cultural studies at the onset of the twenty-first century, which include the field's reorientation towards the study of popular culture, activism through cultural politics, the politicization of knowledge and of the academy, and "the cultural turn" of the humanities and social sciences. Students who have taken WLCS 3701 may not attain credit for CCS 3701.

CCS 3774   Spanish Literature of the 20th Century (O)   3 ch (3C)

A discussion of major Spanish contemporary authors. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3774, or SPAN 3774 may not attain credit for CCS 3774.

CCS   East Coast Music (O) (Cross-Listed: MAAC3793, MUS   3 ch
3793   3793)   (3C)

The relationship between music and East Coast identity is the focus of this course that covers a range of music styles, regional differences, and contemporary modes. The theme uniting the various case studies is the importance of music to the region's culture(s). The subject also allows for a broader reflection on music's importance to identity. Topics may range from Cape Breton fiddle, through to Halifax hip-hop. Students who have taken WLCS 3793, MAAC3793, or MUS3793 may not attain credit for CCS 3793.

CCS   Music and Cultural Identity (O) (Cross-Listed: MUS   3 ch
3794   3794)   (3C)

This course will examine some of the ways in which cultural (national, regional, ethnic, class, etc.) identity is and has been expressed through music, as well as the origins, persistence, and dispersion of some of the resultant forms and genres. This will also permit us to interrogate the stability and/or fluidity of various notions of identity. Critical and theoretical readings will be employed to explore the identity of cultural groups and musical forms ranging from Tango to Blues, Opera to protest song, Flamenco to Hip Hop, from Hawaii to Russia, Canada to South Africa. The course will normally be team-taught; no previous musical background required. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 3794, or MUS 3794 may not attain credit for CCS 3794.

Permission of instructor. Students who have taken WLCS 3794, or MUS 3794 may not attain credit for CCS 3794.

CCS   Dark Futures: Visions of Dystopia since World War I (O)   3 ch
3795   (Cross-Listed: MAAC 3795)   (3C)

Offers an exploration of dystopian literature and film from a broad cross-section of cultures over the past 100 years or so. Based on an examination of texts by authors such as Karel Capek, Evgeny Zamiatin, Paolo Bacigalupi, and Sandra Newman and films such as *Stalker*, *Late August in the Hotel Ozone,* and *Battle Royale*, students will consider how dystopias reflect, respond to, and anticipate totalitarianism, environmental degradation, dehumanization, and other social, political, cultural, and technological challenges facing humanity. Students who have taken WLCS 3795 may not attain credit for CCS 3795.

CCS 3799   Women in Music (Cross-Listed: MUS 3799)   3 ch (3C)

Tracing the influences of women involved in music in a range of settings in the western world, this course presents the variety of ways that women have influenced, created and performed music through the ages. Feminist perspectives will be explored through an examination of the roles of selected individuals whether they were composers, performers or patrons. As such the course will include such individuals as Nannerl Mozart, Nadazhda von Meck, and Alma Mahler, as well as composers Clara Schumann, and Fanny Mendelssohn, who were performers in their own right. Students who have taken WLCS 3799, or MUS3799 may not attain credit for CCS 3799.

CCS 3877   Modern Drama (A)   3 ch (3C) [W]

A survey of major developments in 20th-century theatre. Plays will be studied with attention to their often controversial engagements with social and political issues, moral debates, and theatrical conventions, as well as their connections to movements such as realism, modernism, expressionism, and absurdism. Students who have taken WLCS 3877 may not attain credit for CCS 3877.

CCS 3903   Background of Spanish Culture (O)   3 ch (3C)

A chronological examination of the forces that have shaped Spanish culture. Studies the major historical periods and their characteristics from prehistoric caves of Altamira, through medieval Arab Spain, the voyages of discovery from 1492, Golden Age, Generation of 1898 to the present. The cultural components include: every day experiences and value systems that shaped national identity, history of the family, perceptions of race and gender and divorce in Catholic Spain. A wide variety of sources will be used: the Internet, videos, music and magazine articles. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3903, or SPAN 3903 may not attain credit for CCS 3903.

CCS 3904   Background of Latin American Cultures   3 ch (3C)

A chronological examination of the forces that have shaped the diverse Latin American cultures. This course studies major historical periods and their characteristics, from Pre-Hispanic Cultures, through the Conquest and the Colonization, the Independence movement, the formative period of the new nations to the present. The cultural aspects to be analyzed and discussed include: Catholicism and religious syncretism, the cultural legacy of colonial life, the struggles for independence, literary expression and the role of women. The use of videos, music, the Internet and literary texts, will provide a multimedia approach to Latin American cultures. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3904, or SPAN 3904 may not attain credit for CCS 3904

CCS 3909   Three Cultures in Medieval Spain (A)   3 ch (3C) [W]

For seven centuries (711 A.D. - 1492), part of the Iberian Peninsula (Spain and Portugal) fell under Muslim rule. Al-Andalus with its cultural diversity, unique architecture (Alhambra in Granada), art and intellectual activity became 'the ornament of the world.' There arose a contested state of coexistence (termed convivencia by Spanish historians) amongst Christian, Jewish and Muslim cultures. These three distinctive intellectual and religious communities bore witness to significant cultural achievements until the downfall of Al-Andalus. In this course, students will explore the multi-cultural world of Muslim Spain through the analysis of selected texts from literature and philosophy. The diversity of the artistic expression through dance, music, and architecture in all three cultures will also be studied. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course is to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3909, or SPAN 3909 may not attain credit for CCS 3909.

CCS 3954   Spanish American Poetry (O)   3 ch (3C) [W]

Studies selected works of some major Spanish American poets. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3954, or SPAN 3954 may not attain credit for CCS 3954.

CCS 3973   Latin American Narrative at the Movies (O)   3 ch (3C)

Many Latin American novels and short stories have been adapted by movie-makers around the world. In addition to studying these works as literature, this course will analyse their cinematic interpretations. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3973, or SPAN 3973 may not attain credit for CCS 3973.

CCS 3974   Contemporary Spanish American Narrative (O)   3 ch (3C)

Studies selected works of some major Spanish American writers. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3974, or SPAN 3974 may not attain credit for CCS 3974

CCS 3975   The Nobel Laureates of Latin American Literature (O)   3 ch (3C)

Examines the literary works of some of Latin America's Nobel laureates including García Márquez, Asturias, Neruda and Vargas Llosa. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirements in Spanish will submit required work in Spanish. Students who have taken WLCS 3975, or SPAN 3975 may not attain credit for CCS 3975.

CCS 3983   Afro-Latin American Literature (O)   3 ch (3C) [W]

Explores the literary representation and contribution of Afro-Latin American elements in Literature. This course may be taken as part of the International Development Program. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3983, or SPAN 3983 may not attain credit for CCS 3983.

CCS 3984   The Native American in Latin American Literature (O)   3 ch (3C) [W]

Explores the literary representation and contribution of the Native American element in Latin American literature. This course may be taken as part of the International Development Program. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish. Students who have taken WLCS 3984, or SPAN 3984 may not attain credit for CCS 3984.

CCS 4003   Topics in Russian and Eurasian Studies   3 ch

Allows students to pursue special questions in an area of Russian and Eurasian Studies of particular interest to them. Students who have taken WLCS 4003, or RUSS 4003 may not attain credit for CCS 4003.

CCS 4021   Advanced Studies in Popular Culture (A) (Cross-Listed:MAAC 4021)   3 ch (3S) [W]

Seminar focusing on theoretical approaches to the study of popular culture. Topics and theories covered may rotate from year to year. Prerequisite: 60 ch and MAAC/CCS 2021, or permission of the instructor.

CCS 4033   Seminar II: Author   3 ch (3C) [W]

An intensive study of the life and work of a particular author or a number of authors. Students who have taken WLCS 4033, or GER 4033 may not attain credit for CCS 4033.

Prerequisites: Departmental approval.

CCS 4043   Literature and Religion in 19th and 20th Century Russia and Spain (O)   3 ch (3C)

Studies religious works of Spanish and Russian writers such as Unamuno and Tolstoy. Examines their religious thought and their criticism of the established Spanish Roman Catholic Church and Russian Orthodox Church respectively. Outlines the situation of the Eastern Orthodox Church in Russia as well as the situation of the Catholic Church in Spain in the 19th and the 20th Centuries. Analyzes the position of these writers towards their respective Churches and the creation of their own moral codes through the textual analysis of some of their most relevant works. Students who have taken WLCS 4043, or SPAN 4043, or RUSS 4043 may not attain credit for CCS 4043.

CCS 4053   Culture and Film: The Cinema of Transitional Deomcracies (O)   3 ch (3C) [W]

Examines a selection of important films from Germany, Latin America and the Caribbean, Poland, Russia, and Spain. The selection will be tied to questions arising from the recent movement of these cultures from various forms of autocracy to new and emerging forms of democracy. Seeing film both as a medium of artistic expression and as a carrier of social values, the course seeks to develop an understanding of the moving image not only in its aesthetic and narrative modes, but also in socio-cultural, political, and historical contexts. Screenings are in the evening. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 4053 may not attain credit for CCS 4053.

CCS 4061   Russian Women Writers (O)   3 ch (3C) [W]

Despite their enormous contributions at many historical points, women writers still struggle for full acceptance in the Russian literary canon, witness special sections even today in most Russian bookstores for "Feminine Literature". This course will examine the work of a range of better and lesser known Russian women writers from the late 18th to the early 21st centuries, in poetry, prose, drama and memoir. Writers to be studied include Catherine the Great, the "Russian Amazon", Nadezhda Durova a cross-dressing cavalry maiden during the Napoleonic campaign, the giants of the Silver Age Anna Akhmatova and Marina Tsvetaeva, ostensible socialist-realists like Vera Panova, Natalia Baranskaia and I. Grekova, dissident figures such as Evgeniia Ginzburg and Natalia Gorbanevskaia, and older and younger contemporary writers such as Ludmila Petrushevskaia, Tatiana Tolstaia, and Marina Palei. Works and authors will be studied in historical and cultural context, and connections to other arts, in particular visual arts, film and popular music will also be explored. The course and all readings are in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students with credit for RSST 4003 Russian Women Writers may not take this course for credit. Students who have taken WLCS 4061, or RUSS 4061 may not attain credit for CCS 4061.

CCS 4062   Contemporary Spanish and Latin American Women Artists (A)   3 ch (3C)

This course is designed to explore the contributions of the contemporary Spanish and Latin American women artists through literary and visual arts. We will examine themes of cultural and political identity, sexual repression, class issues and racism through the various genres including literature, film, dance and music. This course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill Major/Honours requirements will write papers in Spanish. Students who have taken WLCS 4062, or SPAN 4062 may not attain credit for CCS 4062.

CCS 4063   20th Century Women Writers   3 ch (3C) [W]

A study of selected texts by European (primarily German, Russian, Polish, and Spanish), Caribbean and Latin American women writers of the twentieth century. Through textual analysis, the course examines the conditions of women in diverse cultures as well as aspects of the cultural construction of female identity. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 4063 may not attain credit for CCS 4063.

CCS 4071   Aspects of the 20th-Century Literary Avant-Garde   3 ch (3C) [W]

An intercultural and interlingual examination of major literary avant-garde movements from a variety of cultures and their relations to other cultural and artistic avant-gardes. Topics covered will vary but may include Expressionism (Benn and Hauptmann); Futurism and Tyranny (Russian, Polish and Italian); Magic Realism; Theatre of the Absurd (Ionesco, Becket, the Polish "Dead School"); Existentialism; etc. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 4071 may not attain credit for CCS 4071.

CCS 4083   Interdisciplinary Seminar   3 ch (3S) [W]

An interdisciplinary seminar examining some aspect of the interactions of literature--whether a single text or a body of texts by one or more authors--with other cultural texts. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor. Students who have taken WLCS 4083 may not attain credit for CCS 4083.

CCS 4093   Nobel Laureates - German Literature   3 ch (3C)

A course designed to explore the nature of contemporary fiction of extraordinary merit as well as the cultural politics and economics of prize-winning itself. Among German-speaking recipients on the world literature stage are Elfriede Jelinek (2004), Günter Grass (1999), Heinrich Böll (1972), Hermann Hesse (1946), Thomas Mann (1929), and Gerhard Hauptmann (1912). A selection of their masterworks will be analyzed as an artistic reflection of their socio-critical thoughts on German Culture, history, and identity. Special attention will be paid on the way the Nobel prize has been awarded in specific historical situations, recognizing a political kind of voice at a given moment in history. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students who have taken WLCS 4093, or GER 4093 may not attain credit for CCS 4093.

CCS 5000   Honours Thesis   6 ch [W]

A reading and research course open to students qualifying for Honours in World Literature and Cultural Studies. To enrol in this course students must first identify two professors from different specializations to supervise their project, and then have the project and supervisors approved by the Department. The project will lead to the writing of an Honours Thesis, normally 40-60 pages in length. Students who have taken WLCS 5000 may not attain credit for CCS 5000.

CHEMICAL ENGINEERING

Note: See beginning of Section H for abbreviations, course numbers and coding. L* denotes labs held alternate weeks.

CHE 1001 Introduction to Chemical Engineering 1 ch (1C)

Provides an overview of the chemical engineering profession and chemical process industries. The use of unit operations to convert raw materials into useful products is introduced. Students receive a foundation in unit systems, dimensional analysis, processes and process variables in the context of engineering calculations. A framework for the remainder of the program curriculum is developed. Note: this course may not be taken for credit if previous credit has been given for CHE 2003 (or equivalent).

CHE 2003 Fundamentals I – Mass Balances   1 ch (1C)
Introduces the discipline of Chemical Engineering and develops fundamental skills of unit conversion and material balancing. Systems of units for parameters such as concentration, flow, pressure and temperature are explained. Skills for solving steady-state material balance problems on reactive and non-reactive systems. An understanding of the chemical engineering discipline is gained through examples of major industries such as petroleum, pulp and paper, mining, power production, etc. Co-requisite: MATH 1503.

CHE 2004 Fundamentals II – Mass & Energy 4 ch (3C 1T)
      Balances
Fundamentals such as vapor-liquid equilibrium, partial saturation and real gas relationships are introduced and integrated into material balance problems. The concepts of enthalpy and energy balances on open systems. Unsteady-state and simultaneous mass and energy balance systems are modeled and solved using computer packages Prerequisite: CHE 1004.

CHE 2012 Engineering Thermodynamics   3 ch (3C 1T)
The First and Second Laws of Thermodynamics and their application to practical problems; properties of liquid and vapours; ideal gas relationships; steam and gas power cycles and their application to steam power plants, internal combustion engines and gas turbines; combustion characteristics; compressible flow; refrigeration and heat pumps. Prerequisites: CHEM 1982/1987 or equivalent.

CHE 2412 Chemical Engineering Laboratory I3 ch (1C 3L) [W]
Covers bomb and flow calorimetry, material and energy balance study of the University heating plant, fluid mechanics experiments including flow meter calibrations and pressure drop measurements in pipes and fittings. Interpretation of experimental data, group dynamics, safety issues, report writing and oral presentations. Students work under close supervision. Prerequisites: CHE 2004, CHE 2004, Co-requisites: CHE 2012 (or equivalent); CHE 2703.

CHE 2418 Numerical Methods in Chemical Engineering 3 ch (3C)
Numerical methods and their applications to engineering. Basics: Taylor series, accuracy/precision, systems of linear equations. Nonlinear equations: bisection and secant methods. Polynomial interpolation. General least-squares regression. Weighted-average data smoothing and differentiation. Numerical integration: trapezoidal rule, Simpson's rule, and quadrature methods. Systems of ordinary differential equations: Runge-Kutta methods. Finite difference solution of partial differential equations. Error estimation is emphasized throughout the course. Prerequisite: CS 1003 or equivalent Co-requisite: MATH 2513 or MATH 3503 or permission of the instructor.

CHE 2501 General Materials Science   3 ch (3C)
Principles relating the properties and behaviour of engineering materials to their structure; atomic bonding forces and strength of interatomic and intermolecular bonding forces, atomic arrangements in solids, structural imperfections and atom movements in solids; principles of phase diagrams and their application to multiphase materials, with particular reference to the iron-carbon system; mechanical and electrical properties of engineering material; semiconductors, polymers and ceramics; and their relation to internal structure. Prerequisites: (CHEM 1982/1987 or equivalent), MATH 1013.

CHE 2506 Materials Science Laboratory   1 ch (3L*)
Laboratory experiments are conducted to illustrate behaviour of materials and other concepts covered in CHE 2501. Co-requisite: CHE 2501 .

CHE 2525 Fundamentals of Chemical Process 4 ch (3C 1T) [W]
      Design
Introduces principles of chemical process design strategy and decision making. Fundamental Chemical Engineering concepts such as material and energy balances, thermodynamics, fluid mechanics and materials science are integrated into the design process. Flowsheet preparation, chemical process safety, loss prevention and project planning; codes and standards, responsible care and environmental stewardship. Engineering economics and profitability. Prerequisites: CHE 2012 , ENGG 1003 , ENGG 1015 . Co-requisite: CHE 2004, CHE 2703

CHE 2703 Fluid Mechanics   3 ch (3C 1T)
Introduction to practical fluid mechanics, including fluid properties, statics and kinematics, and fluid momentum and energy. Emphasis on internal flows: laminar/turbulent flows, friction factor, loss coefficients for fittings and valves, and pipe networks. Differential analysis, compressible flow, and pumps are each also covered in detail. Prerequisite: MATH 1013; Co-requisite: ENGG 1082.

CHE 3123 Chemical Engineering Thermodynamics 3 ch (3C)
Development of thermodynamic work functions and application to chemical and phase equilibria; chemical potential and other partial molar properties, First and Second Law applications in flow processes. Prerequisite: CHE 2012 (or equivalent), MATH 2513.

CHE 3304 Heat Transfer   4 ch (3C 1T)
A comprehensive first course in heat transfer. Thermal conductivity and unsteady state conduction. Convection heat transfer coefficients: forced convection, free convection. Boiling , evaporation, and condensation. Heat exchanger design. Radiation heat transfer. Prerequisites: CHE 2004 , CHE 2703 (or equivalent) or permission of the instructor.

CHE 3314 Fluid-Particle Interactions   3 ch (3C)
Characterization of particulate materials. Motion of particles in fluids. Flow through porous media. Particle classification and fluid particle separation. Gas cyclone design. Multiphase pipe flow. Fluidized beds, Filtration, Sedimentation. Prerequisites: CHE 2004, CHE 2703.

CHE 3324 Staged Processes   4 ch (3C 1T)
Analysis and design procedures for mass transfer operations based on equilibrium stage concept. Graphical procedures for simple systems. Numerical stagewise procedures. Mainly distillation, gas absorption and liquid extraction will be discussed. Stage efficiency. Prerequisite: CHE 2004.

CHE 3424 Chemical Engineering Laboratory II   3 ch (1C 3L) [W]
Experiments in heat transfer. Emphasis on interpretation of experimental data, group dynamics, experimental design, and report writing. Students will work under limited supervision. Prerequisite: CHE 2412. Co-requisites: CHE 3304.

CHE 3434 Chemical Engineering Laboratory III   3 ch (1C 3L) [W]
Experiments in fluid-particle interactions. Emphasis on interpretation of experimental data, group dynamics, safety issues, and report writing. Students will work under minimal supervision. Prerequisites: CHE 2412. Co-requisites: CHE 3314

CHE 3505 Chemical Process Design   4 ch (3C 1T) [W]
Preliminary sizing of equipment, optimization techniques, estimation of capital and operating costs, heat-exchanger networks, pressure vessels, and computer-based process design tools. Students work individually and in teams on process design projects that draw on knowledge gained in previous courses, concepts taught in class and information available in the literature. Prerequisites: CHE 2525, CHE 3123; Co-requisite: CHE 3123 , CHE 3314.

CHE 3601   Process Dynamics and Control   4 ch (3C 1T)
Basic techniques for the dynamic analysis of elementary processes; the characteristics of controllers, control valves, measurement devices and transmitters; feedback control loops; stability of loop from the viewpoint of the roots of the characteristic equation and root locus techniques. Prerequisites: MATH 3503 , CHE 2703 (or equivalent); corequisite: CHE 3304 .

CHE 4101 Chemical Reaction Engineering 3 ch (3C 1T)
Application of principles of chemical kinetics to the design of chemical reactors. Simple idealized isothermal reactors (batch, plug flow, continuous stirred tank reactor) for single and multiple reactions. Adiabatic and non-isothermal reactors. Optimal choice of temperature. Residence time distribution and non-ideal flow systems. Co-requisite: CHEM 3123, CHEM 3621 or equivalent.

CHE 4225 Chemical Plant Design 8 ch (3C 5T)
Full-year capstone course in chemical process design. Under academic and industrial supervision, students complete conceptual design of large chemical plant in simulated engineering consulting environment. Working individually and as part of a team, students must demonstrate ability to integrate fundamental, advanced and researched chemical engineering principles into innovative and practical design that produces sellable commodity. Design strategy and scheduling are stressed alongside client satisfaction. Students complete a comprehensive report that includes design specifications on equipment, engineering drawings, and economic analysis of the concept. Formal presentations of design work are required. Prerequisites: CHE 3304, CHE 3314, CHE 3505. Co-requisites: CHE 2501, CHE 3601, CHE 4101, CHE 4341.

CHE 4341   Mass Transfer Operations   4 ch (3C 1T)
Fundamentals of the theory of mass transport. Operations in continuous contractors including gas absorption, liquid extraction, humidification and drying. Prerequisites: MATH 3503; Co-requisite: CHE 2418, CHE 3324.

CHE 4404 Chemical Engineering Laboratory IV   3 ch (6L*) [W]
Experiments to characterize feedback control systems, gas absorption columns, chemical reactors, distillation columns and other unit operations, which underlie the practice of chemical engineering, will be conducted. Students will apply their knowledge of interpretation of experimental data, group dynamics, laboratory safety and report writing throughout this course. Experiments will be conducted independently. Prerequisites: CHE 3424, CHE 3434. Co-requisites: CHE 3601, CHE 4101, CHE 4341, one of CHE 3424 or CHE 3434 may be taken as a co-requisite with permission of the instructor.

CHE 5114   Chemical Reaction Engineering II 3 ch (3C)
Prediction of conversion in non-ideal flow reactors (segregated flow, bypassing and dead space, axial dispersed plug flow). Taylor dispersion in pipes and packed beds. Stability and control of nonisothermal reactors. Effects of heat and mass transfer in heterogeneous catalytic reactors. Detailed analysis of some industrially important reactor systems.

CHE 5124 Adsorption and Adsorption Processes   3 ch (3C)
Surface forces, physical adsorption and chemisorption, thermodynamics of adsorption and derivation of simple model isotherms (Langmuir, Volmer, B.E.T., virial, B.L.R., Freundlich, etc.), adsorption of mixtures. Characterization of adsorbents and catalysts. Adsorption kinetics, intracrystalline diffusion in zeolites, dynamics of adsorption columns and adsorption processes.

CHE 5224 Applied Petroleum Reservoir Engineering 3 ch (3C)
Overview of the principles of petroleum engineering. Topics include fluid and rock properties, oilwell drilling, reservoir types, review on wettability, capillary pressure, relative permeability, multiphase flow in porous media, volumetric estimates and recoverable reserves, radial flow analysis of well performance, reservoir performance analysis, secondary and tertiary oil recovery. Offshore development and production of hydrocarbon resources.

CHE 5234 Oil Refining and Natural Gas Processing 3 ch (3C)
An introduction to the physical, chemical, and engineering principles used in the processing of natural gas, petroleum, and bitumen. The nomenclature, common processes, basic designs, and relevant regulations will be covered. Prerequisites:CHE 2004, CHE 3123 or approval by the instructor.

CHE 5244 Enhanced Oil Recovery Processes 3 ch (3C)
Overview of the secondary and tertiary enhanced oil recovery (EOR) processes commonly applied in Canada and worldwide. The fundamental EOR principles are described and examples in Canadian fields are analyzed. Some of the subjects presented include waterflooding, gas flooding, miscible flooding, chemical treatments, mobility control applications, steam injection, microbial and mining operations such as oil sands production.

CHE 5254 Polymer Reaction Engineering and Polymer 3 ch (3C)
                            Processing
Basic polymer concepts. Polymer structural characteristics and properties. Mechanisms, kinetics and reactors for polymerization. Polymer rheology and transport processes. Processing applications and the effects of processing on polymer properties. Prerequisites: CHE 2501 , CHE 2703 , MATH 3503 . Co-requisite: CHE 3304 or equivalent.

CHE 5264 Oil Sands Technology 3 ch (3C)

Fundamental principles of oil sands technology: bitumen and rock properties, origins of oil sands, types of oil sand accumulations, volumetric estimates and recoverable reserves, oil sand mining, bitumen separation and processing for production of synthetic oil, production of in-situ oil sands, description of the different processes for in-situ oil sands production currently applied or under evaluation, current research and process development, and a review of the environmental challenges of oil sands production. This course is intended for senior level students and graduate students.

CHE 5313 Energy and The Environment   3 ch (3C)

Explores generation and use of energy; extraction of raw materials through product production. Includes: survey of known energy reserves, emerging technologies, discusses the thermodynamic and regulatory constraints to energy conversion. Fossil fuels, nuclear power and renewable energy sources are described. Prerequisites: CHE 2012 or equivalent; CHEM 1982/1987 or permission of the instructor.

CHE 5314 Chemical Process Industries   3 ch (3C)

A technical overview of selected chemical industries with consideration of their impact on the environment. Emphasis is on current process technology and pollution control methods. Environmental guidelines and regulations are also presented. Five modules, each covering a specific chemical industry, taught by Chemical Engineering faculty.

CHE 5344 Combustion   3 ch (3C)

Survey of energy sources and the present means of conversion; laminar and turbulent diffusion flames; premixed flames; combustion kinetics and explosion mechanisms; ignition characteristics of solid, liquid and gaseous fuels; conflagration and detonation waves; fluid dynamics in combustion systems; analysis of practical problems associated with each of the above topics.

CHE 5413 Air Pollution Control   3ch (3C)

Sources of air pollution; modeling atmospheric dispersions; pollution control in combustion; particulate control methods; control of gaseous emissions; industrial odour control; indoor/in-plant air quality. Prerequisite: CHE 3314; Co-requisite:CHE 4341.

CHE 5416 Bioseparations Science and Engineering 3ch (3C)

The first part of the course will provide basic information on biochemistry (small biomolecules and macromolecules) and engineering analysis, such as analysis of biological activity and purity. The second part will cover a number of separation techniques, such as extraction, crystallization and drying in a more general way. This emphasis in this part of the course will be on liquid chromatography and absorption.

CHE 5423 Chemical Engineering Practice School 4 ch [W]

A two week industrial practice school in selected industrial process plants scheduled after spring examinations. Groups of students, with Faculty supervisors, are assigned to engineering projects to be carried out on industrial process units. Students are required to present an oral report to plant operating and technical personnel at the end of the practice session. A written report is also required. As there will be practical limitations to the number of students in any one practice school, application for positions in this course will be treated on a first-come, first-served basis. This course is strongly recommended as a technical elective for students not planning to complete either the co-op or professional experience programs. Prerequisites: CHE 2004, CHE 2412.

CHE 5434 Transport Phenomena 3 ch (3C)

Foundational analogies between fluid mechanics, heat transfer, and mass transfer, and the applications of those analogies to practice. Derivation of differential and partial differential transport equations. Turbulence: boundary layers, scaling, dispersion. Core and optional models also cover key aspects of related topics such as dimensional analysis, mixing in pipe flows, reverse osmosis, ion transport, polymer rheology, and evaporation/condensation processes. Prerequisites: CHE 3304 and Math 2513, or equivalents.

CHE 5515 Advanced Surface   3ch (3C 1L*) [W]
          Characterization

This course covers the basic principles and practical aspects of several advanced surface analysis techniques which include (i) X-ray photoelectron spectroscopy (XPS or ESCA), (ii) secondary ion mass spectrometry (SIMS), (iii) confocal laser scanning microscopy (CLSM), (iv) atomic force microscopy (AFM), and (v) scanning electron microscopy (SEM). Demonstrations will be given on most of these facilities. Students will propose a research method for tackling their interested problems by using one or two surface analysis techniques they have learned from this course. Prerequisite CHE 2501 and CHE 2506.

CHE 5522 Nanotechnology   3 ch (3C)

Studies the science of Nanotechnology and surveys current and emerging applications of nanomaterials and nanodevices in many engineering disciplines. The unique physical properties of materials at the nano-meter scale are discussed and explained. Fabrication methods and advanced instrumentation for the construction, manipulation and viewing of nanometer-sized materials are presented. Pre-requisite: CHEM 1982/1987 or equivalent, plus 100ch of degree credit. Restricted to science and engineering students.

CHE 5524 Mathematical Methods in   3 ch (3C)
          Chemical Engineering

Solution of the ordinary and partial differential equations encountered in heat, mass, and momentum transport as well as in reactor design. Perturbation solutions and stability analysis are applied to simple systems and adiabatic reaction. Extensive analysis of simple heat and mass transfer via separation of variables and Green=s functions. Assignments involve solutions to specific problems encountered in Chemical Engineering. Co-requisites: CHE 3304 , MATH 3503 .

CHE 5534 Process Identification for 4 ch (3C 3L*)
          Advanced Control

A practical course that emphasizes design of experiments, time series analysis, system model identification, statistical process control, basic multivariable controls, and constrained and unconstrained optimization, all in the context of controlling industrial processes. Prerequisites: STAT 2593, CHE 5614 or ME 5643 or EE 4343 .

CHE 5614 Chemical Process Control   3 ch (3C)

Frequency response of processes, control hardware, open and closed control loops. Nyquist diagrams. Experimental determination of frequency response data. Control loop tuning procedures. Multivariable control, open loop and feed forward control. Cascade control, adaptive control. Direct digital control. Prerequisite: CHE 3601 or equivalent.

CHE 5714 Electrochemical Engineering   3 ch (3C)

Electrochemical flux equations. Reversible cells. Energy producing cells. Energy consuming cells. Corrosion. Applications to include discussion of primary and secondary batteries, electrolytic processes, corrosion suppression.

CHE 5724   Special Topics in Chemical Engineering 1 ch (1C)

CHE 5725 Special Topics in Chemical Engineering 2 ch (2C)

CHE 5726   Special Topics in Chemical Engineering 3 ch (3C)

CHE 5734 Chemical Engineering Report   3 ch (6L) [W]

The major requirement of this course is a report on a subject approved by the Department. Suitable topics include experimental studies, design projects, literature surveys, feasibility studies and computation projects. Oral presentations of the work will be required.

CHE 5735 Thesis   6 ch (12L) [W]

The thesis is a research project done under the supervision of a faculty member. Progress depends largely on the initiative and diligence of the individual. A detailed report is submitted on completion of the project to gain credit for the course. An oral presentation is also required.

CHE 5744 Steam Supply Systems 3 ch (3C)
Historical and descriptive introduction to fossil fuel fired boilers.
Introduction to different reactor types. Complex Rankine cycles. Steam
plant efficiencies. Energy and exergy analysis. Heat transfer in fossil fuel
fired boilers. Coal firing systems. Thermal transport and steam
generation. Steam plant heat exchangers. Analysis of real plant data.
This course requires some background in thermodynamics. Note: credit
will not be given for both CHE 5744 and ME 5744.

CHE 5754 Steam and Gas Turbines 3 ch (3C)
Development of steam turbines and review of steam cycles. Turbine
thermodynamics and energy conversion. Impulse and reaction blading.
Mechanical configuration of turbine components and operational
considerations. Efficiency calculations. Review of gas cycles. Gas turbine
thermodynamics. Combined cycle systems. This course requires some
background in thermodynamics. Note: credit will not be given for both
CHE 5754 and ME 5754.

CHE 5764 Special Topics in Power Plant 3 ch (3C)
Engineering

CHE 5804 Nuclear Chemical Processes 3 ch (3C)
Actinide properties; uranium, thorium, zirconium ore extraction
processes; uranium, deuterium separation processes; nuclear fuel
production; fuel reprocessing. Reactor constructional materials; coolant
chemistry; chemical control systems. Decontamination. Radioactive
waste management.

CHE 5824 Corrosion Processes 3 ch (3C)
Introduction: corrosion and its costs, corrosion measurement, general
materials and environment affects. Types of corrosion: uniform, galvanic,
crevice, pitting, intergranular, selective leaching, erosion-corrosion,
stress-corrosion, hydrogen effects. Corrosion testing: materials selection.
Electrochemical principles: thermodynamics, electrode kinetics, mixed
potentials, practical applications. High temperature corrosion. Nuclear
plant corrosion, fossil plant corrosion, other industrial environments.
Prerequisites: CHE 2501, CHEM 1982/1987.

CHE 5834 Nuclear Engineering 3 ch (3C)
Radio-active decay, fission energy, nuclear interactions, neutron
scattering and absorption. Neutron diffusion elementary reactor theory,
four and six factor formulae, neutron flux variation. Reactor kinetics,
source multiplication, decay heat, reactor start-up and shut down. Fuel
burnup, fission product poisoning, refuelling. Temperature and void
effects on reactivity, reactor control. Fuel handling and waste disposal.
This course is intended for senior level students. Prerequisites: CHE
2012 or ME 3413 ; CHE 2703 or equivalent.

CHE 5844 Nuclear Safety and Reliability 4 ch (3C 1L)
The philosophy of safety design and operation of nuclear power reactors,
responsibilities for safe operation. The role and place of regulatory
agencies. The concept of risk, quantitative risk assessment. Methods for
calculation of frequency and consequences of reactor accidents and
evaluation of the safety level of a nuclear station. Case studies of past
reactor accidents, lessons learned, and effect on future operation.

CHE 5854 Nuclear Heat Removal 3 ch (3C)
Reactor types and coolant systems, fuel element design and coolant
characteristics. Reactor heat generation, heat transfer from reactor fuel,
heat transport in coolant, boiling characteristics, two-phase flow,
elementary thermal hydraulics. Steam generator design and operation.
Reactor operational limits, transient conditions. Other two-phase
phenomena. Loss-of-coolant accidents. Prerequisites: CHE 2012 or ME
3413 ; CHE 2703 or equivalent.

CHE 5877 Advanced Nuclear Systems 3 ch (3C)
Evolution of thermal and fast fission reactors. Different coolant types -
gas, water, organic, liquid metal. Nuclear breeding; advanced fuel cycles.
Nuclear fusion processes. Fusion reactor concepts. Prerequisites: CHE
2012 or ME 3413 ; CHE 2703or equivalent.

CHE 5913 Pulp Production 3 ch (3C)
Wood and chip requirements; overview of pulping processes; mechanism and
variables in mechanical and chemimechanical pulping, general principles of
chemical pulping, kraft cooking, sulphite cooking, extended and oxygen
delignification, pulp washing, pulp bleaching, recovery of pulping chemicals.
Prerequisites: MATH 1013, CHEM 2401, CHE 3304 or permission of the
instructor.

CHE 5923 Papermaking 3 ch (3C)
Overview of pulping and papermaking processes; pulp and paper properties;
requirements for different grades of paper and board; stock preparation;
applications of fluid mechanics; wet-end chemistry; dry-end operations.
Prerequisites: MATH 1013 ; CHE 2703 or equivalent, or permission of the
instructor.

CHE 5933 Biorefining: Principles, Processes 3 ch (3C)
and Products
This course discusses various bio-refining processes, placing emphasis on
fundamental process chemistry and biology in the conversion of biomass to
engineered products. Pathways for the use of wood resources are described in
detail; exemplary processes, such as gasification, pyrolysis, pre-extraction and
bio-diesel production are discussed. Industrial fermentation, including sugar
fermentation to produce ethanol, will be explored. The modeling concept for
integrated pulp manufacturing and bio-refining will also be discussed. Pre-
requisite: CHEM 1982/1987, CHEM 2401 and a minimum of 80 credit hours.

CHEMISTRY

Students should note that in the Science Facutly the minimum
acceptable grade in a course which is required by a particular program or is used
to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in
such a course must repeat the course (at the next regular session) until a grade of
"C" or better is attained. Students will not be eligble for graduation until such
deficiencies are removed. The only exception may be granted for a single course
with a "D" grade that is a normal part of the final year of that program, and is being
taken for the first time in the final year.

Valid WHMIS (Workplace Hazardous Materials Information System) cer-
tification is required for all students who wish to take CHEM laboratory
courses. WHMIS certification workshops will be provided. Information
regarding WHMIS training will be provided during the first week of
classes.
Note: See Courses-> Saint John of Fredericton -> Standard Course Abbreviations
in the online undergraduate calendar for an explanation of abbreviations, course
numbers and coding

CHEM 1001 General Chemistry I 3 ch (3C 1T)
An introduction to atoms and molecules, chemical equations and
reactions, the periodic table, the electronic structure of atoms, and
chemical bonding as well as an introduction to organic chemistry
including structure and bonding, functional groups, isomers, reactions, and
polymers. An adequate high school background in math, physics and chemistry is
required.

CHEM 1006 General Chemistry Laboratory I 2 ch (3L)

Topics include: measurements and statistics, inorganic and organic
synthesis, qualitative and quantitative analysis, and molecular
geometry. **WHMIS certification required (see beginning of Chemistry Courses
section for details).** Co-requisite: CHEM 1001.

CHEM 1012 General Chemistry II 3 ch (3C 1T)

An introduction to gases, thermochemistry, rates of reaction, chemical
equilibrium, spontaneity of reactions, reactions in aqueous solution,
acids and bases, acid-base equilibria, solubility equilibria, redox reactions, and
electrochemistry. Note; Credit can be obtained for only one
of CHEM 1012 or CHEM 1982. Prerequisite: CHEM 1001; Pre or Co-requisite:
MATH 1003 or equivalent.

CHEM 1017 General Chemistry Laboratory II 2 ch (3L)
Topics include: ideal gases, heats and rates of reactions, chemical
equilibria, acid-base equilibria, redox titrations, and voltaic cells.
**WHMIS certification required (see beginning of Chemistry Courses section for
details).** Note: Credit can be obtained for only one of CHEM 1017 or CHEM
1987.Prerequisite: CHEM 1006; Co-requisite: CHEM 1012.

CHEM 1982   General Applied Chemistry   3 ch (3C 1T)

Intended primarily for non-science majors students. Building on examples from environmental chemistry, polymers, fuel cells and corrosion, this course covers chemical material properties, solutions & solubility, kinetics & equilibrium, acids & bases, thermodynamics and electrochemistry.Note: Credit can be obtained for only one of CHEM 1012 or CHEM 1982. Prerequisite: 70% in Grade 12Chemistry.

CHEM 1987   General Applied Chemistry   2 ch (3L)
                        Laboratory

Intended primarily for non-science majors students. Topics include:

ideal gases, heats and rates of reactions, chemical equilibria, acid-base equilibria, redox titrations, and voltaic cells. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Note: Credit can be obtained for only one of CHEM 1017 or CHEM 1987. Prerequisite: 70% in Grade 12 Chemistry. Co-requisite: CHEM 1982.

CHEM 2002   Quantum Chemistry I   4 ch (3C 1L)

Molecular symmetry. Basic quantum theory and solutions for simple models. The orbital (Hartree-Fock) model for molecules. The Huckel model. Selected contemporary topics. Includes a computer laboratory component. Prerequisite:CHEM 1001, MATH 2003. Co-requisite MATH 2213 or equivalent.

CHEM 2009   Experience in Chemistry Research I   3 ch (3L) [W]
CHEM 2009 is a project based course where student conduct Research under the supervision of a chosen faculty member. Students must have declared a Science Major and must have a CGPA of 3.7 or better to enter after first year of a CGPA of 3.0 or higher to enter after second year. Students will be provided with a list of projects and applicant's names will be forwarded to project supervisors. Applications must be made to the Director of Undergraduate Studies by May 15. Project assignment will be made by the Director of Undergraduate Studies and enrolment may be limited. Students are encouraged to plan For alternative courses in the case that no suitable project is available. A minimum of at least 3 scheduled hours per week is required one seminar presentation will be required at the end of the academic year, as well as a written report. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 1001,1006, 1012 and 1017.

CHEM 2121   Analytical Chemistry I   5 ch (3C 3L) [W]
An introductory course. Topics include: concepts of acid-base, redox, precipitation and solvent extraction equilibria. Prerequisites: CHEM 1012 and CHEM 1017.

CHEM 2136   Analytical Chemistry Laboratory I 2 ch (3L)
[W]Introduction to experimental analytical chemistry. Topics include: sample handling and preparation, calibration techniques, error analysis and regression analysis, titrimetric and spectrophotometric analysis. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisites: CHEM 1012 and CHEM 1017. Pre- or co-requisite: CHEM 2121.

CHEM 2201   Inorganic Chemistry I   3 ch (3C)
Periodic properties of the atoms. Bonding, structures and reactions of inorganic compounds. Prerequisite: CHEM 1012.

CHEM 2222   Inorganic Chemistry II   3 ch (3C)
Bonding, structures and reactions of inorganic compounds. Prerequisite: CHEM 2201.

CHEM 2237   Inorganic Chemistry Laboratory I   2 ch (3L) [W]
Introduction to preparation techniques in inorganic chemistry.Applications of IR and UV-Vis spectroscopies. **WHMIS certification required (see beginning of Chmistry Courses section for details).** Prerequisites: CHEM 1017, CHEM 2201, and 2416 Co-requisite: CHEM 2222.

CHEM 2401   Introductory Organic Chemistry   3 ch(3C)
          for Non-Chemistry Majors
An introductory course intended primarily for students requiring a one-term course in organic chemistry. This course emphasizes basic organic chemistry concepts such as the naming and structures of organic compounds, functional groups and chemical reactivity, and some basic chemistry relevant to biological processes. This course is not equivalent to CHEM 2421, and is designed to provide a broader coverage of material. Students in the Biology-Chemistry or Chemistry programs must take CHEM 2421. Credit cannot be obtained for both CHEM 2401 and CHEM 2421. Prerequisite: CHEM 1012 or 1982.

CHEM 2416   Organic Chemistry Laboratory 1   2ch (3L) Introduction to experimental organic chemistry, with emphasis on laboratory techniques and structure determination. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 1017. Co-requisite: Either CHEM 2401 or 2421. **Required (see beginning of Chemistry Courses section for details).**

CHEM 2421   Organic Chemistry I   3 ch (3C)
An introductory course. Topics include: acids and bases in organic chemistry, stereochemistry and optical isomerism, functional groups and nomenclature, substitution and elimination reactions. This course is not equivalent to CHEM 2401; however, credit cannot be obtained for both CHEM 2401 and CHEM 2421. Prerequisite: CHEM 1012 or 1982.

CHEM 2422   Organic Chemistry II   3 ch (3C)
A continuation of CHEM 2421. Topics include: electrophilic addition to alkenes and their synthetic utility, aromaticity, electrophilic and nucleophilic aromatic substitution reactions, additions to the carbonyl group. Prerequisite: CHEM 2421.

CHEM 2903   Work Term Report I   CR
A written report on the scientific activities of the work term. A component of of the grade will be based on the employer's evaluation of the student. (Students must have a GPA of 2.7 or better for CHEM Co-op placement.)

CHEM 3003   Biocomputing in Drug Design I   5 ch (3C 3L)

Introduction to biocomputing in the pharmaceutical industry. Topics include molecular modeling, rational drug design, high throughput screening and combinatorial chemistry, protein modeling and 3D bioinformatics. Course includes lectures and a computer laboratory component. Note: This course is also cross-listed as CS 3003, and may be taken for either Computer Science and Science credit.Prerequisites: CHEM 1001, 1012 and BIOL1001, 1012, or permission of instructor. CHEM 2421 or BIOL 2033 are recommended.

CHEM 3009   Experience in Chemistry Research II   3 ch (3L) [W]
CHEM 3009 is a project based course where students conduct research under the supervision of a chosen faculty member. Students must have declared a Science Major and must have a CGPA of 3.7 or better to enter after first year or a CGPA of 3.0 or higher to enter after second year. Students will be provided with a list of projects and applicant's names will be forwarded to project supervisors. Applications must be made to the Director of Undergraduate Studies by May 15. Project assignment will be made by the Director of Undergraduate Studies and enrolment may be limited. Students are encouraged to plan For alternative courses in the case that no suitable project is available. A minimum of at least 3 scheduled hours per weel is required one seminar Presentation will be required at the end of the academic year, as well as a Written report. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 1006, 1012, 1007, and 2009.

CHEM 3122   Analytical Chemistry II   3ch (3C)
Principles of both equilibrium-based and basic instrumental methods of analysis. Topics include non-aqueous and complexometric titrations, analytical separations, potentiometry, analytical spectrophotometry, gas chromatography, elementary chemometrics, sample preparation and method development. Prerequisite: CHEM 2121.

CHEM 3137   Analytical Chemistry Laboratory II   2 ch (3L)
Applications of both equilibrium-based and basic instrumental methods of chemical analysis. Experiments are designed to illustrate the applications of non-aqueous and advanced titration methods, analytical separations, potentiometry, analytical spectrophotometry (atomic and UV-vis), liquid chromatography (HPLC), sampling and method development. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisites: CHEM 2121 and CHEM 2136.

CHEM 3201   Inorganic Chemistry III   3 ch (3C)

Selected aspects of main group inorganic chemistry emphasizing periodic trends. Prerequisite: CHEM 2222.

CHEM 3222   Inorganic Chemistry IV   3 ch (3C)

Covers transition metals and introduction to organometallic chemistry. Prerequisites: CHEM 2002 and 2222.

CHEM 1553   Hitchhikers Guide to Chemistry   3 ch (3C)

This course is intended for Arts or other students not in Science and Engineering and who have little or no chemistry background. The course will cover the basic principles and concepts of atoms and molecules, chemical bonding, acids and bases, and organic compounds. The material will be applied to the understanding of "everyday" chemistry including proteins, carbohydrates, polymers, acid rain, etc. This course cannot be used as a substitute for any other first level Chemistry course.

CHEM 3236   Inorganic Chemistry Laboratory II   2 ch (3L) [W]

Advanced preparative techniques in inorganic chemistry. Applications of IR and NMR. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 2237.

CHEM 3421   Organic Chemistry III   3 ch (3C)

Covers aldehydes, ketones, carboxylic acid derivatives, enolates, carbanion chemistry and organic synthesis. Prerequisite: CHEM 2422.

CHEM 3422   Organic Chemistry IV   3 ch (3C)

Selected topics in organic chemistry. Prerequisite: CHEM 2422.

CHEM 3621   Physical Chemistry II   3 ch (3C)

Elementary electrochemistry, electrochemical cells, electrolysis, electromotive forces, applications of EMF measurements. Reaction kinetics and mechanisms, uni- bi-, and termolecular reactions, catalysis, enzyme catalysis, chain reactions, reaction dynamics, steric effects and transition state theory. Prerequisite: MATH 2003 or equivalent, CHEM 2601 (or CHE 2213 for Chemical Engineering students only).

CHEM 3622   Physical Chemistry III   3 ch (3C)
Probability distributions, ensembles, Maxwell-Boltzman distribution, partition functions, hard sphere collision theory, potential energy surfaces, transition state theory, reaction dynamics. Prerequisites: Math 2003 and 2213 or equivalent, CHEM 2002 and 3621.

CHEM 3637   Physical Chemistry Laboratory I   2 ch (3L) [W}
Introduction to experimental physical chemistry. Topics include areas in thermochemistry, kinetics and electrochemistry. Some experiments have computational chemistry components. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 2002, 2601 and 3621.

CHEM 3857   Organic Chemistry Laboratory II for   2 ch (3L)
                non-Chemistry Majors
Advanced techniques and reactions in experimental organic chemistry, with an emphasis on synthetic techniques. **WHMIS certification required (see beginning of Chemistry Courses section for details.)** Prerequisite: CHEM 2416; Co-requisite: CHEM 2422. Note: Credit can be obtained for only one of CHEM 3857 or CHEM 4416.

CHEM 3886   Analytical Chemistry Laboratory for   2 ch (3L)
                Chemical Engineers
This course teaches the basic techniques and data treatment in chemical analysis. The experimental content covers handling skills, titration methods and the applications of instrumental methods (UV-visible and fame atomic absorption, spectrophotmetry and potentiometry) to analyse real samples. **WHMIS certification required (see beginning of Chemistry courses section for details).** Prerequisites: CHEM 1982 and 1987.

CHEM 3897   Organic Chemistry Laboratory for   1 ch (3L)
                Chemical Engineers (*)
Introduction to experimental organic chemistry, with an emphasis on purification techniques. The synthesis of commercially valuable compounds will also be addressed. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisites: CHEM 1987 and 2401.

CHEM 3903   Work Term Report II   CR

A written report on the scientific activities of the work term. A component of the grade will be based on the employers evaluation of the student. (Students must have a GPA of 2.7 or better for the CHEM CO-OP placement.)

CHEM 4000   Senior Research Projects   9 ch [W]
CHEM 4000 is a project-based course where students conduct research under the supervision of a faculty member. Students must be in their final year of any Chemistry program or in any interdepartmental program involving Chemistry (including General Science) and must have a CGPA of 3.0 or better. Honours students in an interdepartmental program with chemistry may choose to complete their honours project in chemistry. A minimum of at least 6 scheduled hours per week is required throughout the year, and a thesis and seminar presentation will be required at the end of the academic year. Students must complete the application form, available from the CHEM 4000 coordinator, and submit it to the course coordinator no later than March 15th of the penultimate year. Upon consideration by the Department, applicants will be notified April 1st of that year. Enrolment is subject to the availability. Students who are unsuccessful in procuring a CHEM 4000 project are encouraged to pursue an Honours by Course option, and should meet with the DoGUS to discuss this option as soon as possible. **WHMIS certification required (see beginning of Chemistry Courses section details).** Co-requisite: 4th year level lecture courses in selected project area.

CHEM 4003   Biocomputing in Drug Design II   4 ch (3C 2L)

A follow-up of CHEM 3003/CS 3003. Topics include pharmacophore perception, solvation models, free-energy calculations, quantative structure activity relationship (QSAR), virtual drug libraries, chemical diversity and cheminformatics. Course includes lectures and computer laboratory component. Note: This course is cross-listed as CS 4003 and may be taken for either Computer Science or Science credit. Prerequisite: CHEM 3003 or CS 3003.

CHEM 4013   Quantum Chemistry II   2 ch (2C)

Applications of group theory in chemistry. Practical computational chemistry. Prerequisite: CHEM 2002.

CHEM 4111   Instrumental Analytical Chemistry I   3 ch (2C 2L)

A coordinated laboratory-lecture course to introduce the principles of instrumental analysis, operational aspects of analytical spectroscopy and chromatography. The laboratory component is designed to study the operation, application and limitation of selected methods which will form the basis of optimization and method development. Real materials are used to illustrate the common sample preparation methods. Students will use spreadsheet, word processor and program language extensively for data analysis and presentation.**WHMIS certification required (see beginning of Chemistry Courses section for details)** Prerequisites: CHEM 3122 and 3137.

CHEM 4112   Advanced Analytical Chemistry   2 ch (2C)

Advanced topics in analytical chemistry. Prerequisite: Departmental approval.

CHEM 4222   Advanced Inorganic Chemistry   2 ch (2C)

Advanced topics in inorganic chemistry. Prerequisite: Departmental approval.

CHEM 4416   Organic Chemistry Laboratory II   2 ch (3L)
Advanced techniques and reactions in experimental organic chemistry. Topics include functional group manipulation, carbon-carbonbond formation reactions, inert atmosphere techniques, and structure determination through spectroscopy.**WHMIS certification required (see beginning Chemistry Courses section for details.)** Prerequisite: CHEM 2416. Co-requisite: CHEM 3421. Note: Credit can be obtained for only one of CHEM 3857 or CHEM 4416.

CHEM 4422   Advanced Organic Chemistry   2 ch (2C)

Advanced topics in organic chemistry. Prerequisite: Departmental approval.

CHEM 4513   Medicinal Chemistry Seminars   3 ch (3C)

Selected Topics in Medicinal Chemistry. Prerequisite: CHEM 3421.

CHEM 4523   Medicinal Chemistry   3 ch (3C) [W]

An introduction to medicinal chemistry. Sample topics include the drug discovery process, the medicinal chemistry of enzymes, receptors, and nucleic acids, as well as modern experimental and computational approaches to drug design. Chemical aspects of current protein and nucleic acids tools will also be covered. Prerequisites: BIOL 2033 and either CHEM 3421 or 3422.

CHEM 4601   Physical Chemistry IV   3 ch (3C)

Molecular Spectroscopy, electronic, vibrational and rotational spectra of diatomic and polyatomic molecules. Radiative and non-radiative transitions. Nuclear magnetic resonance and electron-spin resonance spectroscopy. Prerequisite: CHEM 2002.

CHEM 4616   Physical Chemistry Laboratory II   2 ch (3L) [W]
Experiments illustrating the fundamentals and applications of spectroscopy in the ultra-violet visible (UV-vis), infrared (IR) and radiofrequency (NMR) regions. Many experiments have computational chemistry components. **WHMIS certification required (see beginning of Chemistry courses section for details).** Prerequisite: CHEM 3637. Co-requisite: CHEM 4601.

CHEM 4622   Advanced Physical Chemistry   2ch (2C)
Advanced topics in physical chemistry. Prerequisite: Department approval.

**CHEM 4886   Physical Chemistry Laboratory for   2ch (3L)
Chemical Engineers**

This course consists of experiments in chemical kinetics and electrochemistry. Topics include order of reaction, activation energies, reaction mechanisms, solution conductivities, enzyme kinetics and fast reaction kinetics. **WHMIS certification required (see beginning of Chemistry Courses section for details).** Prerequisite: CHEM 3621.

CHEM 4903   Work Term Report III   CR

A written report on the scientific activities of the work term. A component of the grade will be based on the employers evaluation of the student.(Students must have a GPA of 2.7 or better for CHEM CO-OP program.)

**CHEM 4909   Directed Studies in Advanced   3 ch
Chemistry**

Students may pursue directed studies in specific areas and topics related to chemistry. These studies may involve any of the chemistry disciplines. The content and process of each directed study will be determined through negotiation between a student and the supervising faculty member(s). Departmental approval is also required.

**CHEM 4919   Directed Studies in Advanced   3 ch
Chemistry**

Students may pursue directed studies in specific areas and topics related to chemistry. These studies may involve any of the chemistry disciplines. The content and process of each directed study will be determined through negotiation between a student and the supervising faculty member(s). Departmental approval is also required.

CHINESE

Courses in Chinese Language are offered at the Introductory level and occasionally at the Intermediate level if resources are available.

CHNS 1013   Introductory Chinese I   3 ch (3C)

This introductory course acquaints students with some of the fundamentals

of Modern Standard Chinese (Mandarin) and provides basic oral communication skills. Romanized transcription is used. Not open to students with any knowledge of Chinese.

CHNS 1023   Introductory Chinese II   3 ch (3C)

This course is a continuation of Chinese I (CHNS 1013). It aims to expand the basic communicative skills, and also progressively introduces a limited number of characters for reading comprehension purposes. Not open to students with any knowledge of Chinese. Prerequisite: CHNS 1013.

CHNS 2013   Intermediate Chinese I   3 ch (3C)

This course is intended for students with limited prior background in spoken and written Chinese and is offered to consolidate oral communicative skills acquired in CHNS1013 and CHNS1023. Additional Characters will be introduced for the purposes of reading and writing. Not open to students with any knowledge ofChinese. Prerequisites: CHNS 1013 and CHNS 1023.

CHNS 2023   Intermediate Chinese II   3 ch (3C)

This course is a continuation of Intermediate Chinese I. It aims mainly to expand the oral communicative skills. More characters will be introduced at this level for reading comprehension purposes.
Not open to students with any knowledge of chinesPrerequisite: CHNS 2013.

CHNS 3013   Advanced Chinese I   3 ch (3C)
This course is continuation of Intermediate Chinese I and II. It aims at expanding the oral communication skills in Chinese with a focus on Chinese characters. Over 300 characters will be introduced for reading and writing purposes. This course is open to students who have mastered Chinese phonetic transcriptions of Chinese characters (Mandarin Pinyin). Prerequisite: CHNS 2023. Not open to Mandarin and Chinese dialect speakers.

CHNS 3023   Advanced Chinese II   3 ch (3C)
This course is a continuation of CHNS 3013. It aims at expanding the oral and written communication skills in Chinese. More characters will be introduced for reading and writing purposes. This course is open to students who have mastered Chinese phonetic transcriptions of Chinese characters (Mandarin Pinyin). Prerequisites: CHNS 3013. Not open to Mandarin and Chinese dialect speakers.

CIVIL ENGINEERING

Prerequisites and corequisites are indicated for specific courses where required. Under exceptional conditions the prerequisite or corequisite requirement may be waived with the consent of the instructor and the Department Chair. The following courses (or equivalents) are prerequisites for all 3000-level or higher Civil Engineering courses: CE1023, ENGG1001, ENGG1003, ENGG1015, CS1003, MATH1013, MATH1503.

The availability of elective courses should be verified with the Department of Civil Engineering before selection.

Notes:

1.See beginning of Section H for abbreviations, course numbers and coding.

2.* indicates laboratory periods are scheduled for alternate weeks.

3.[W] indicates courses with a significant amount of writing in English.(HIST 3925 or SOCI 2534 in the CE CORE program also have a [W] designation.)

CE 1023   Statics for Engineers   4 ch (3C 2T)
Forces and moments are introduced with vector algebra, followed by the application of equilibrium conditions for particles and rigid bodies. Free body diagrams (FBD's) are used to analyze trusses, frames and machines, as well as internal member forces (bending moment and shear force diagrams). Additional topics include friction, centroids, and moments of inertia. Prerequisite: PHYS 1081, Corequisite MATH 1003

CE 2023   Mechanics of Materials5 ch (3C 3L)
Elastic and plastic stress, strain; behaviour of beams and columns; torsion; material strength. Prerequisite: CE 1023. Co-requisite: MATH 1013.

CE 2033   Structural Analysis   5 ch (3C 3L)
Influence lines, calculation of deflections, flexibility analysis, stiffness analysis and approximate analysis. Prerequisite: CE 2023.

CE 2113   Soil Mechanics I   4 ch (3C 3L*)
Soil properties, seepage, effective stress, consolidation, shear strength. Prerequisite: ESCI 1001, ESCI 1026, CE 2023. Co-requisite: CE 2703 or CHE 2703.

CE 2703   Introduction to Fluid Mechanics   4 ch (3C 1T)
Physical properties of liquids and gases, fluid statics, kinematics of fluid flow, energy considerations in steady flow, momentum and dynamic forces in fluid flow, fluid measurements, introduction to forces on immersed bodies. Prerequisites: CE 1023, MATH 1013

CE 2913   Numerical Problem Solving   4 ch (3C 2L)
An introduction to the application of numerical methods and statistical techniques to the solution of civil engineering problems. Introduction to the systems approach and system analysis terminology. Numerical solution of civil engineering problems using root finding, interpolation, integration, and the solution of systems of algebraic equations. Introduction to the numerical solution of ordinary and partial differential equations. Techniques such as multiple linear regression, stepwise regression, time series analysis, nonparametric tests, and optimization are applied to the design and operation of civil engineering systems. Prerequisites: CS 1003, STAT 2593, MATH1503, MATH 2513.

CE 2973   Civil Engineering Design I   3 ch (2C 2L) [W]
Continued development of communication skills used by engineers through the application of the design process to meet a well-defined set of requirements and constraints. Communication aspects emphasized include graphical representations of designs, formalized design calculations, and the development of project schedules and estimates. Design aspects emphasize the generation, iteration and analyses of alternatives. Credit will not be given for both this course and CE3973. Prerequisites: ENGG1003, ENGG 1015

CE 3053   Reinforced Concrete Design I   4 ch (3C 2L)
Introduction to design of reinforced concrete structural elements by limit states design. Design of beams and one way slabs for flexure and shear, bond and development of reinforcement, serviceability limits, columns, and footing design. Prerequisite: CE 2033. Corequisite CE 2512.

CE 3063   Structural Steel Design I   4 ch (3C 2L)
Introduction to the National Building Code followed by design of tension and compression members, trusses and beams, plate girders and connections in steel. Prerequisite: CE 2033.

CE 3123   Foundation Engineering I   4 ch (3C 1T)
Lateral earth pressures, shallow and deep foundations, stability of cuts and slopes. Prerequisite: CE 2113.

CE 3201   Transportation Engineering   5 ch (3C 3L)
Principles of transportation engineering: modal characteristics, travel demand functions, traffic flow theories and models, and vehicle-track principles. Highway transportation classification, elements and design principles. Laboratory work is field-oriented and involves elementary traffic studies. Prerequisite: STAT 2593

CE 3403   Environmental Engineering   4 ch (3C 3L)
Introduces the problems and principles of control or modification of the environment. Considers an environmental dimension to all planning, design and analysis functions carried out by engineers. Restricted to students with at least 60 ch completed. Prerequisite: CE 2703 or CHE 2703.

CE 3513   Materials for Civil Engineers   4 ch (3C 2L)
The manufacture and use of Portland cement, concrete, and concrete products. Structure, production, physical properties, and use of ferrous and nonferrous metals, bituminous materials, wood, and plastics. Preservation of materials. Prerequisite CHE 2501.

CE 3603   Construction Engineering I   4 ch (3C 2T)
The management of on-site construction processes for various project objectives (e.g., time, cost, safety, quality, environment), contracting processes and common construction work processes. Application of the NB Occupational Health and Safety Commission Act and Regulations to construction is covered. Relationships of participants in the construction industry. Standard contract documents. Restricted to students with at least 60 ch successfully completed.

CE 3713   Hydraulics and Hydrology   5 ch (3C 3L)
Water flow in pipes; computer-based analysis of pipe networks; characteristics of pumps; open channel flow; similitude and dimensional analysis. The hydrological cycle; precipitation, runoff and hydrograph analysis; the rational method; flood and drought frequency analysis; groundwater flow. Prerequisites: CE 2703 or CHE 2703.

CE 3933   Numerical Methods for Civil Engineers   3 ch (3C)
Numerical methods appropriate to the solution of deterministic problems in civil engineering. Considers root finding, interpolation, integration, solution of systems of algebraic equations, ordinary and partial differential equations. Prerequisites: CS 1003 or equivalent, MATH 1013, MATH 1503, MATH 2513.

CE 3963   Engineering Economy   3 ch (3C)
Basic methods of engineering economy including time value of money, compound interest models, interest and discount rates, and depreciation; critical path methods. Emphasis is placed on commonly used computational procedures. Restricted to students with at least 60 ch completed. Prerequisite: CS 1003 or equivalent.

CE 3983   Civil Engineering Design II   3 ch (1C 4L) [W]
Design of a system or process to meet desired needs within identified constraints and communication of the result to a broader audience. Design topics covered include the identification and application of standards, codes and regulations, and approaches for managing a broad set of design constraints such as health and safety, sustainability, economic, environmental, social, constructability, operability, and ethical. Communication skills developed in this course emphasize interaction with clients and the public. Credit will not be given for both this course and CE4613. Prerequisite: CE 2973.

CE 4613   Construction Engineering II   3 ch (3C)
Construction of temporary works and construction methods. Includes excavations, trenches, stabilization, sheet piling, cofferdams, formwork, falsework, scaffolding, failure and accident statistics, costs and liability. Emphasis on application of the NB Occupational Health and Safety Commission Act and Regulations to construction. Restricted to students with at least 110 ch completed. Credit will not be given for both this course and CE3983. Prerequisite: CE 3603 and CE3973.

CE 4923   Systems Design   3 ch (3C)
Techniques such as multiple linear regression, stepwise regression, time series analysis, forecasting, nonparametric tests, and optimization are applied to the design and operation of civil engineering systems. Prerequisite: STAT 2593.

CE 4973   Team Design Project   4 ch (1C 6L) [W]
Working in teams, students will complete an engineering design project that draws on their knowledge and skills obtained in previous courses. Student teams will design a structure, system, or process to meet a broad range of specified constraints. Students will manage their projects professionally, prepare a comprehensive written report, and present their design work orally. Restricted to students with at least 120 ch completed. Prerequisite: CE 3973 or both CE 2973 and CE3983.

UPPER LEVEL ELECTIVE COURSES

CE 5013   Earthquake Engineering   3 ch (3C)
Historic and analytic evaluation of the effect of earthquakes on structures. The analytic evaluation will be based on an analysis of the dynamic response of the structural system when modelled as a single or multidegree of freedom system. Structural design concepts which minimize the effects of earthquakes will also be covered. Prerequisite: CE 2033.

CE 5043   Structural Engineering 4 ch (3C 2L)
Advanced methods of structural analysis and design, including matrix stiffness analysis of plane structures (trusses, beams and frames). Fundamental concepts related to the stiffness method are introduced during the development of a simple computer program for plane frame analysis, and approximate methods of analysis are used to check computer solutions. Prerequisites: CE 2033 and either CE 3053 or CE 3063.

CE 5053   Reinforced Concrete Design II   4 ch (3C 3L)
Continuation of CE 3053. Includes a review of flexure and shear requirements for limit states design, serviceability limits and deflection calculations, torsion, slender columns, continuity, two-way slabs, and footing design. Consideration of prestressed concrete, strut-and-tie modeling, and comparison with ACI design code requirements. Requires a group design project. Prerequisite(s): CE 2033, CE 3053.

CE 5063   Structural Steel Design II   4 ch (3C 2L)
Materials behaviour, plastic design principles, tension and compression members, beams and connections. Numerical stability analysis, multistorey building design. Computer applications. Prerequisite: CE 2033, 3053, 3063.

CE 5073   Structural Masonry Design   4 ch (3C 2L)
Review of structural principles and codes relating to masonry and properties of masonry components; analysis and design of components; architectural and construction considerations related to masonry. Prerequisites: CE 2033, CE 3053, CE 3063.

CE 5083   Structural Wood Design   3 ch (3C)
Introduction to structural principles and codes relating to wood design. Consideration will be given to the design of individual elements (beams, columns, etc.) and systems of elements (shear walls, laminated bridge decks, etc.), as well as available computer software to assist in wood design. Prerequisite: CE 2033.

CE 5132   Foundation Engineering II   3 ch (3C)
A continuation of earlier soils engineering courses dealing with shallow foundations (including design of reinforced concrete footings), deep foundations, excavations, cofferdams and factors relating to foundation design. Prerequisite: CE 3123.

CE 5141   Embankments I   3 ch (3C)
Engineering for earthfill structures such as dams, dykes, causeways and other embankment structures employed in civil engineering projects. Prerequisite: CE 2113.

CE 5153   Environmental Geotechnics   4 ch (3C 3L*)
Design of sanitary landfills, with emphasis on clay liners and composite liners. Properties of geosynthetics. Geotechnical properties of municipal solid waste. Landfilling procedures. Hydrological evaluation of sanitary landfills. Site selection. Prerequisite: CE2113.

CE 5201   Road Materials and Structures   4 ch (3C 2L)
Soil classification, compaction, and stabilization for optimum use in road construction. Structural and hydraulic aspects of small scale drainage systems for roads. Prerequisites: CE 2113, CE 3713.

CE 5212   Pavement Design I   4 ch (3C 3L)
A study of the design and construction of highway pavements. Production and testing of bituminous materials, design of bituminous mixtures, thickness design for flexible pavements, design of rigid pavements, and construction methods. Prerequisite: CE 2113.

CE 5222   Traffic Engineering   4 ch (3C 3L)
Single vehicle and traffic stream characteristics; traffic studies; surveys, and analysis; traffic control devices; operations and economics of intersections and interchanges; traffic accident studies; legal and administrative aspects. Prerequisite: CE 3201.

CE 5232   Transport Facility Design   4 ch (3C 2L) [W]
Topics focus on the analysis and design of highway and rail infrastructure and incorporate the economic, environmental and operational issues associated with facility development. Aerodrome planning, airport design standards and capacity concepts are also discussed. Special lectures will cover topics such as airport operations, pipeline construction techniques and marine vessel and port design. Prerequisite: CE 3201.

CE 5241   Introduction to Pavement Management Systems   3 ch (3C)
Basic concepts in pavement management; programming of investments over a network of roads; optimization of individual level project investment; pavement evaluation techniques; structure and manipulation of data banks for pavement management systems. Prerequisite: CE 3201.

CE 5411   Water Supply and Wastewater Removal 4 ch (3C 2L)
Layout and design of water and sewer systems including analysis of alternatives in system requirements. Specific topics include water and wastewater volumes, transportation and distribution of water, collection and conveyance of wastewater, and pumping stations for water and wastewater systems. Prerequisite: CE 3713.

CE 5421   Water Quality and Treatment   4 ch (3C 2L)
Applied water chemistry, epidemiological analysis, water analysis, water treatment processes and design, water treatment systems and plant design, public health issues and case studies. The content is tailored towards drinking water quality and treatment issues. This will be supplemented by detailed design of unit operations and processes involved in the treatment of drinking water. Prerequisites: CHEM 1982 (or equivalent) and CE 3403 or CHE 2004, or permission of course instructor.

CE 5432   Wastewater Treatment and Pollution Control 4 ch (3C 2L)
Applied wastewater microbiology, wastewater analysis (physical, chemical, and biological), wastewater treatment processes, industrial and municipal wastewater treatment and management, wastewater treatment systems and plant design. The course content will focus on treatment and management issues of wastewater from industrial, municipal, and domestic sources. Pollution control strategies and protocols are also examined. Prerequisites: CHEM 1982 (or equivalent) and CE 3403 or CHE 2004, or permission of course instructor.

CE 5463 Municipal Solid Waste Management   3 ch (3C)
Application of systems engineering principles and techniques to problems associated with the generation, collection, processing, recycling, treatment and disposal of municipal solid wastes. Modeling and optimization of solid waste management systems using linear, integer & dynamic programming. Design of collection systems, recycling facilities and composting operations. Prerequisites: CE 3403, CE 4923 or CE2913.

CE 5503   Concrete Technology   4 ch (3C 2L)
In this course the properties of cement and concrete materials are studied. Topics include (i) materials for concrete, such as portland cements, supplementary cementing materials, aggregates, and chemical admixtures; (ii) procedures for mix proportioning, batching, mixing, transporting, handling, placing, consolidating, finishing, and curing concrete; (iii) precautions necessary during hot- and cold-weather concreting; (iv) causes and methods of controlling volume changes; (v) commonly used control tests for quality concrete; (iv) introduction to special types of concrete. Applicable ASTM, AASHTO, ACI, and CSA standards are discussed. Prerequisite CE 2512.

CE 5612   Construction: Financial and Industry Issues 3 ch (3C)
The course focuses on the financial aspects of construction including methods and techniques for: estimating costs of construction; project financing and managing risks; and monitoring and controlling costs. The course will also introduce current issues within the industry, primarily from the financial perspective (e.g., infrastructure management, sustainable construction, quality management, technology adoption). Restricted to students with at least 100 ch successfully completed. Prerequisite: CE 4613.

CE 5623   Project Management   4 ch (3C 1T)
Application of management methods for construction projects. Emphasis on supervisory management, contracts, and management methods. Application of critical path methodology for work organization and management control, including planning and scheduling, resource management, optimization techniques and cost control methods. Restricted to students with at least 100 ch successfully completed. Prerequisite: CE 3603.

CE 5702   Open Channel Hydraulics   4 ch (3C 2L)
Fundamental concepts of specific energy, velocity distribution in open channels; uniform flow in channels; gradually varied steady flow, water surface profiles, backwater computations, transitions; rapidly varied steady flow, hydraulic jumps, flow over spillway sections; introduction to unsteady flow. Prerequisite: CE 3713.

CE 5742   Engineering Hydrology 4 ch (3C 2L) [W]
Elements of hydrometeorology, precipitation, storm analysis, stream analysis, stream gauging, ground water hydraulics, evaporation, runoff, hydrograph analysis, unit hydrograph techniques, stream flow routing, flood frequency analysis, snowmelt, introduction to flood forecasting. Prerequisite: CE 3713.

CE 5753   Engineering Hydrogeology   4 ch (3C 3L)
Covers important topics in quantitative hydrogeology, including: principles of saturated and unsaturated groundwater flow, solutions to groundwater flow problems, well hydraulics and pumping tests, and contaminant migration and attenuation processes in groundwater. Prerequisite: CE 2703 or CHE 2703, ESCI 1001, ESCI 1026.

CE 5913   Special Studies in Civil Engineering I   1 ch
(See description for CE 5933.)

CE 5923   Special Studies in Civil Engineering II   2 ch
(See description for CE 5933.)

CE 5933   Special Studies in Civil Engineering III   3 ch
With the approval of the Department Chair and under the guidance of a member of the faculty, a student may perform special studies and investigations related to the undergraduate program. The extent of the work will determine the amount of credit. Students may receive credit(s) for one of CE 5913, CE 5923 and CE 5933 only. Restricted to students with at least 110 ch.

CE 5963   Research Thesis   6ch
The research thesis is an independent project conducted under the supervision of a faculty member over a period of two sequential semesters. Students are responsible for finding a supervisor and initiating the project. Suitable projects may include experimental investigations, field investigations, design projects, computational projects, software development or feasibility studies. Deliverables include a detailed proposal, periodic progress reports, a comprehensive dissertation and an oral presentation. Co-requisite: CE 3973. Restricted to students with 100 ch completed and with a GPA of 3.3 in the previous assessment year or a CGPA of 3.3.

CLASSICS AND ANCIENT HISTORY

Below are brief descriptions for the courses which deal with material in English translation.

Descriptions of Latin and Greek language courses can be found under the GREEK and LATIN course sections.

Note: See beginning of Section H for abbreviations, course numbers and coding.

INTRODUCTORY LEVEL COURSES

1000 and 2000 level courses are designed for students in the first or second year of their programs, and may be taken in any order. The courses are open to all students.

CLAS 1323 Discovering Archaeology   3 ch (3C) [W]
(Cross-Listed: ARCH 1323)
Through the lens of archaeology, students explore the sites, monuments, and artifacts of civilizations (in Mesopotamia, Anatolia, Egypt, the Indus Valley, Greece, Italy, and Roman Britain) that shaped Western society. The Tomb of King Midas, the pyramids of Egypt, the Greek theatre, and Roman amphitheater are among the topics covered.

CLAS 1403 The Ancient Greeks   3 ch (3C) [W]

An illustrated introduction to the religion, literature, art and philosophy of the ancient Greeks.

CLAS 1413 The Romans   3 ch (3C) [W]

A survey of the political, military, literary, and architectural achievements of the Romans.

CLAS 1503 Introduction to Mythology: The Gods 3 ch (3C)
and Heroes of Greece and Rome

A survey of the myths which helped to shape the life and thought of the classical civilizations of Greece and Rome. Emphasis will be placed on myths describing the gods and their powers, the beginnings of the world, the earliest humans, the tales of the heroes, and miraculous experiences in the lives of ordinary persons. Students who have successfully completed CLAS 3503 may not enroll in this course.

CLAS 1703 Greek and Latin Roots of Scientific Terminology 3ch (3C)
Designed for anyone with an interest in the origin of words, this course introduces the student to basic scientific terminology, especially that of the life sciences, through the Greek and Latin sources of these words. This course aids in the understanding of these modern terms by exploring their basic meanings, the connections between these words, how they came to be created, and the rules that govern the formation of new terms.

CLAS 2333 "To Dig is to Explore: Approaches to Classical Archaeology   (Cross-Listed: ARCH 2333)
This course includes a brief survey of the history of archaeological investigations and the scientific methods used in identifying and excavating a site and analyzing the material remains. Representative examples that illustrate the above scientific advances are drawn from major Mediterranean civilizations: Mesopotamian, Anatolian, Egyptian, Persian, Greek, Etruscan, and Roman. A lab component includes cataloguing 'ancient shards' from Greece and Turkey, and copies of Greek and Roman vessels.

CLAS 3003 Ancient History: The Greeks from the   3 ch (3C) [W]
Bronze Age to the Persian Wars (A)

Focuses on the Birth of Ancient Greece and traces its development to the end of the Archaic period. Includes: Greek prehistory, the early historical period, the origin of democracy and the crucial defeat of the Persian invasions of 490 and 480 B.C.

CLAS 3013   Ancient History: Greece in the   3 ch (3C)[W]
Classical Age (A)
Studies the social and political history of Greece in the 5th and 4thcenturies B.C., including Athens' rise to cultural and political brilliance,her rivalry with Sparta, and the Greeks' ultimate failure to resolve theirinternal conflicts in the face of the Macedonian threat.

CLAS 3023   Ancient History: Alexander and the 3 ch (3C) [W]
Hellenistic World (O)
The social and political impact of Alexander the Great, his empire andhis successors on the Mediterranean world, down to the Romanconquest.

CLAS 3033   Ancient History: The Rise of the 3 ch (3C) [W]
Romans (A)
Rome from its village origins to the conquest of the Mediterranean world. Examines the link between Rome's diplomacy and wars of expansion, and her internal politics--the early kings, the tensions and balances of the Republic, and the role of Julius Caesar and others in its collapse by 31 B.C.

CLAS 3043   Ancient History: The Roman Empire (A) 3 ch (3C) [W]

Rome as the capital of western civilization, from the emergence of the imperial system under Augustus to its final decline in Western Europe in the 5th century A.D. Considers the impact of the Roman army, administration, culture and law on ancient and modern thought.

CLAS 3053   The Roman Army (A)   3ch (3C) [W]

Examines the development of the Roman legions, from their beginnings as a peasant conscript army to their imperial conquests and fame as a professional fighting force. Topics discussed include: organization, armament, strategy and logistics, social impact, the Roman navy, auxiliary forces, and the legions' significance as a model for modern armies.

CLAS 3063   Ancient Greek Warfare (O)   3 ch (3C) [W]
This course examines the history of warfare in the ancient Greek world, from the Bronze Age to the Hellenistic period and the rise of Rome. Topics include the development of military theory and practice through the eras of heroic combat, the hoplite phalanx and naval warfare, and the innovative armies of Alexander the Great and his successors; and the social and cultural factors of importance to ancient Greek military history.

CLAS 3073 Ancient History: Jewish Civilization   3 ch (3C) [W]
from the Babylonian Exile to the Great Revolt (A)

An examination of the social, cultural, intellectual and political history of the Jews during the period of the second temple (516 BCE - 70 CE).

CLAS 3083   The Byzantine Empire   3 ch (3C) [W]

A historical analysis of Byzantine civilization from its emergence from the Late Roman Empire to its medieval zenith under Basil II (r. 976-1025). Topics include the development of a distinctive Byzantine culture, its interaction with Western Europe, confrontation with Islam and its civilizing role in Eastern Europe.

CLAS 3093   The Decline and Fall of the 3 ch (3C)[W]
Roman Empire (A)
Traces the more important changes which overtook the Roman world from the late third to the seventh centuries AD. The course concentrates on the Roman experience at the court and in the provinces, and considers some of the dramatic upheavals that swept the empire in this period, which include the change the of the prinicipate into an autocracy, the intrusion of the government in to all aspects of life, the decline of the cities, the politicization of Christianity, and the loss of western provinces.

CLAS 3313   Field School in Classical 3 ch (3C)[W]
Archaeology (A)
This course is an introduction to archaeological field techniques through participation in a field research project in the Classical lands. It introduces students to survey methods, excavation techniques, documentation/recording of field procedures, recovery of artifacts, and their preparation for storage.

CLAS 3323   Byzantine Art and Archaeology (A)   3 ch (3C) [W]

This course presents an overview of the principle monuments and artistic forms of Byzantium from AD 324 to the fall of the empire in AD 1453 and examines how these cultural manifestations reflect contemporary political and religious attitudes.

CLAS 3333 Greek Art and Archaeology (A)   3 ch (3C)[W[

A survey of the major monuments of the art and architecture of the Greeks from the Bronze Age to the Hellenistic period. Students cannot revive credit for both CLAS 2303 and CLAS 3333.

CLAS 3334   Classical Archaeology: 3 ch (3C) [W]
**   Method and Thoery**

In this course students examine the evolution of the discipline of classical archaeology and the scientific approaches to the study of material remains from the classical world: Mesopotamia, Anatolia, Egypt, Greece, Italy and Britain. A pottery lab component will complement this course. *Students may receive credit for only one of the following courses: CLAS2333, or ARCH 2333, or CLAS 3334

CLAS 3343   Roman Art and Archaeology (A) 3 ch (3C)[W]

A survey of the major monument of the art and architecture of the Etruscans and the Romans from the Iron Age to the late Antiquity. Students cannot receive credit for both CLAS 2313 and CLAS 3343.

CLAS 3373   Pompeii and Herculaneum   (A)   3 ch (3C) [W]

A study of the physical remains of the area around Mt Vesuvius, concentrating on Pompeii, Herculaneum and the nearby villas. Topics discussed include: town planning, architectural development, local politics, Roman wall painting, domestic and public space.

CLAS 3403   The Comic Theatre of Greece 3 ch (3C) [W]
**   and Rome (O)**

The development of comedy from the *kômos* in Greece; the reading, in English translation, of an Old Comedy by Aristophanes, a satyr-play by Euripides and a New Comedy by Menander; the development of comedy in Rome through the reading of plays by Plautus and Terence. The history of the theatre, its changing structure, conventions, the production of plays and their performance and the festivals at which they were performed.

CLAS 3413   The Tragic Theatre of Greece and   3 ch (3C) [W]
**   Rome (A)**

The history of the Theatre of Dionysus in Athens and a survey of the origins of Greek tragedy; the reading in English translation of a representative sample of the plays of Aeschylus, Sophocles and Euripides; the dramatic festivals at which they were performed, the production and performance of the plays, the dramatic conventions. The role of the serious theatre in Rome; a tragedy of Seneca, in English translation, is read. Prerequisite: CLAS 1503, or permission of the instructor.

CLAS 3433   The Ancient World on Film (A)   3 ch (3C) [W]

The course aims to help students understand and enjoy the reception of Greek and Roman civilization in Hollywood and European films. History will be studied via cinematic version (such as Troy, Alexander, Spartacus, Life of Brian, Fellini's Satyrcion, Gladiator, etc.) and Greek and Latin literature in translation. Attention will be given to the ways in which filmmakers adapt historical, subjects, and how classical literature is recast as films, offering an exciting commentary on our relationship with our classical heritage. By introducing students to some of the literature and films about the ancient Greek and Roman worlds, it will encourage them to address questions of how they shape our views about the past. The focus will be on analyzing and discussing literature, film and culture within a historical context.

CLAS 3463   History of Modern Greece   3 ch (3C) [W] (O)

An introductory survey course of the history of Modern Greece beginning with the Greek War of Independence in 1821 to World War II. Special attention will be paid to various events and themes (such as the Asia Minor Catastrophe in 1922 and the Greek Diaspora etc.) by utilizing literature and other historical sources and documentaries in order to present the society, culture and politics of Greece and gain a better understanding of the modern Greek identity. There are no prerequisites.

CLAS 3473 Introduction to Modern Greek Literature 3ch (3C)[W] (O) An introductory survey course of the history of Modern Greek Literature in translation. Emphasis will be placed on the history and development of literature from the 19th and 20th centuries by examining a selection of poetry, short stories and novels. Included in this survey are the Nobel Prize winners George Seferis and Odysseas Elytis. There are no prerequisites.

CLAS 3503   The Greek Gods and Their Cults (A)   3ch (3C) [W]

The Greek myths of creation and the Greek gods and their mythology. The historical origins of the gods, the development of Greek religion from pre-historic times. Parallels are adduced from Middle Eastern mythologies. Major Greek religious sites are illustrated.

CLAS 3513   The Trojan War: Myth and History (A)   3 ch (3C) [W]

Fought over the abduction of a woman, the Trojan War has been a part of popular culture for 3000 years. It has been told and retold by poets since Homer, depicted in the arts of ancient Greece through the Middle Ages and Renaissance into modern times, sparked the romantic imaginations of early archaeologists, and most recently been interpreted on the screen in films such as *Unforgiven,* and *Troy.* This course will explore Trojan War through literature, historical texts, archaeology, the visual arts, drama and film.

CLAS 3523   The Mythology and Religion of the 3ch (3C) [W]
**   Romans (A)**

A study of the legends surrounding the foundation and growth of early Rome and of the Italian gods. Roman religion is studied under such headings as prayer, sacrifice, divination, the religious year and calendar, priests and emperor-worship. [Not open to students who received credit for CLAS 4023.]

CLAS 3703   Socrates and the Intellectual 3ch (3C/S) [W]
**   World of Classical Athens(O)**

Examines the central intellectual, political, religious and social controversies of the Golden Age of Greece (450-350 BC), by focusing on Socrates in conflict with the citizens of Athens, the writers of comic theatre, and the new professional teachers, the "Sophists."

CLAS 3723   Ancient Science   (A)   3ch (3C) [W]

An examination of the development of scientific theory and practice among the ancient Greeks and Romans.

CLAS 3733   Ancient Philosophers   (A)   3 ch (3C) [W]

A survey of the various forms of philosophical literature produced in the classical civilizations of Greece and Rome.

CLAS 3803 The World of Jesus (O)

Examines the social, literary, philosophical, and religious milieu of Judea in the time of Jesus.

CLAS 3813   The Early Church (A)   3ch (3C) [W]

The history of Christianity from the apostles to the fifth century: its organization and doctrinal development, and its interaction with Roman civil authority and paganism.

CLAS 3903   Women in Ancient Greece (O)   3 ch (3C) [W]

Examines the portrayal of women in ancient Greek literature and the realities of women's lives as reconstructed from the historical, legal, and archaeological records.

CLAS 3913   Love and Sexuality in 3 ch (3C) [W]
**   Greece and Rome (A)**

A study of Greek and Roman attitudes towards love and sexuality.Literary and artistic evidence will be used to explain why scenes oferotica were widely on display within the ancient home and in the public realm. Analysis of these attitudes in their own context will be combined with a discussion of how they relate to modern values and gender issues. Topics include social morality, homosexuality, marriage andadultery, erotic art, fertility rituals, and pornography.

CLAS 3923   Roman Law (A)   3 ch (3C) [W]

A survey of the development and practice of the Roman legal system,upon which all modern civil law systems are based. Topics include:sources of Roman law and legal institutions; legal procedure; Romanlegal concepts (persons, property, obligations, succession); equity and social change in legal reform; survival and modern revival.

CLAS 3933   Sports and Recreation in   3 ch (3C) [W]
              Greece and Rome (A)
An examination of sport and recreational activities among the ancient Greeks and Romans, the ancient values they reflect and their influence on modern sport in such matters as organization and policing of events, professionalism, athletes as celebrities, and 'blood' sports. Students cannot receive credit for both CLAS 2903 and CLAS 3933.

CLAS 4063   Cesar Augustus: Architect (A)   3ch [W]
              of the Roman Empire
A seminar dealing with the controversial career of Caesar Augustus, from his unexpected rise to power to his establishment of the Imperial system of government at Rome, through systematic analysis of the primary sources, using the Res Gestae, Augustus' own public statement of his achievements, as a starting point. Prerequisite: 60 ch, or permission of the instructor.

CLAS 4303   Exploring Ancient Athens (A)   3 ch (3S) [W]   This course traces the birth, development, and eventual decline of one of the most important city states of Greek antiquity: Athens and its environs. By exploring the archaeological and written records, students work towards an understanding of the topography and monuments of the area from the Bronze Age to Late Antiquity.

CLAS 4313   Topography and Monuments of Rome (A) 3 ch (3S) [W]
A seminar on the topography and monuments of Rome from the IronAge to Late Antiquity, based on the archaeological, literary andepigraphic sources. Prerequisite: 60 ch, or permission of the instructor.

CLAS 4333   Living in the Ancient World: Greek 3 ch (3C) [W]
              and Roman Housing (A)
This course focuses on Greek and Roman dwellings from a socio-historical, archaeological, and anthropological perspective. Students will examine domestic plans, interior decoration (mosaic pavements, wall paintings, sculptural adornment, etc.) household contents, and ancient literary records in order to explore the religious beliefs of the occupants, the social dynamics of family organization (women, children, and slaves), and the role of the household within the private and public spheres.

CLAS 4353   Greek Sculpture (A)   3 ch (3C) [W]

This course examines Greek sculpture, free-standing and relief, from the Archaic period through the Classical and Hellenistic. Special emphasis will be placed on the development of the human form and the representation of pose, as well as the problems of pedimental construction. Material from contemporary arts, such as pottery, will also be used to illustrate the course. Prerequisite: 60 ch, or permission of the instructor.

CLAS 4363   Roman Sculpture (A)   3 ch (3CS) [W]

This course looks at free-standing and monumental sculpture of Ancient Rome, both as an art form and as a socio-political phenomenon. Special attention is paid to imperial portraiture and questions of ideology in both the public and private realms. Prerequisite: 60 ch or permission of the instructor.

CLAS 5003   Directed Studies in Classics   3 ch (3C) [W]

A detailed study of a specific area of Classical Studies. Uses primary sources (in translation) to illuminate the chosen topic. Prerequisites: Permission of the instructor.

CLAS 5013   Topics in Classical Archaeology   3 ch (3C) [W]
Students are introduced to various research methods and skills in Classical Archaeology by working in groups on a specific time period (Bronze Age, Classical, or Hellenistic periods), developing individual projects in consultation with the instructor, and delivering in-class presentations. Prerequisite: permission of the instructor.

OVERSEAS COURSES

CLAS 2643   Rome: the Eternal City I (O)   3ch
An introduction to the history of Rome from ancient times to the Renaissance. Taught on location in Italy. Students may not receive credit for both CLAS 2643 and 3643. Travel costs not included in tuition.

CLAS 3603   The Art and Architecture of Greece I (O)   3 ch [W]

A study of the art and architecture of Greece organized around visits to important archaeological sites and major museums in Greece. Travel costs not included in tuition.

CLAS 3605   Ancient Athens (O)   3 ch
A practical workshop introducing students to the Greek and Roman remains found at archaeological sites and major museums in Greece. Travel costs not included in tuition.

CLAS 3613   Mythology and Archaeology I (O)   3 ch [W]

The mythology and cults of the Greek gods, seen in the context of the archaeological remains of some of their major cult centres, and the Mycenaean origins of the sagas of the Greek heroes from the focus of this course. Travel costs not included in tuition.

CLAS 3623   Remembering War in Ancient Greece (O) 3 ch [W]
A course taught on location in Greece that considers the phenomenon of ancient Greek warfare through onsite investigation of the topography and archaeology of several important battlefields and fortifications within central and southern Greece, as well as the art-historical and material evidence of warfare and its commemoration on display in Greek museums. In addition to reconstructing the context and events of key battles, this course consider how the realities of the battlefield and the commemoration of warfare on physical monuments shed light on ancient Greek politics, society, and culture.

CLAS 3633   The Art of Imperial Rome   3 ch [W]

A study of the art and architecture of Classical Rome organized around visits to important monuments, archaeological sites and museums in Italy. Travel costs not included in tuition.

CLAS 3643   Rome: from Ancient Times to the Renaissance (O)   3 ch

A study of the ancient and mediaeval history of the city of Rome, through on-site examination of the material remains. Students may not receive credit for both CLAS 2643 and 3643. Travel costs not included in tuition.

CLAS 3653   Mythology and Archaeology II   3 ch [W]

Directed study of selected topics in the mythology and cults of the Greek gods undertaken through study of the archaeological remains of major cult centres in Greece. Travel costs not included in tuition.

CLAS 3663   Religion in Ancient Rome (O)   3 ch [W]
A study of religion in Rome from its pagan origins to the rise of Christianity in the late Empire, based on first-hand examination in Rome of temples, altars, churches, sculpture, inscriptions and other material in situ and in museums. Travel costs not included in tuition.

CLAS 3673 Ancient Cities and Civilizations of Western Turkey: 3 ch [W]
              Myth, Cult and History (O)

A study of the history and civilizations of western Asia Minor, in particular the Hittite, Lydian and Graeco-Roman. Myth, cult and history are introduced in varying degrees as appropriate to the various sites visited during the tour. Particular attention is paid to the Greek cities of the Aegean coast, their sanctuaries, public buildings and theatres. Travel costs not included in tuition.

CLAS 3683 The Art and Architecture of Asia Minor: Hellenistic   3 ch [W]
              Roman and Early Christian (O)

A survey of the art and architecture of Asia Minor, organized around visits to important archaeological sites and major museums in Turkey, and studying selected remains from the Hellenistic, Roman and early Christian periods, including sculpture, temple architecture, and examples of the early Christian basilica. Travel costs not included in tuition.

CLAS 3693   Roman Britain (O)   3ch [W]
A study of ancient Roman presence in Britain based on firsthand examination of Roman remains, including visits to Roman cities, villa and bath complexes, museum collections in London and elsewhere, and Hadrian's Wall and other military instillations.

COMPUTER SCIENCE

The *L notation indicates that labs are held on alternate weeks.

The [P] designation is used to identify courses with an extensive computer programming component. Please see the Bachelor of Computer Science degree regulations for further details.

The Timetable should be used to check the term and time a course is offered. Some courses may not be offered every year.

Note: Only undergraduates in their final year and with a CGPA of 3.0 or better are eligible to take 5th level courses.

CS 1003   Programming and Problem Solving   4 ch (3C 1T 3*L)
for Engineers
Introduction to the use of digital computers for problem solving and communicating solutions. Covers use of procedures, decision, loops and arrays focusing on scientific and engineering problem analysis, algorithm design, and program structure. Also includes organizing, tabulating, and graphing program output with different software tools to communicate results. This course is currently taught primarily in Matlab. Prerequisite: High School Mathematics. Corequisites: PHYS 1081 or equivalent, or permission from instructor.

CS 1013   Computer Science Concepts(C/C++)   4ch (3C 1T 2L)
This course explores advanced language features and introduces software engineering. Topics include data abstraction, encapsulation, inheritance, polymorphism, recursion, file processing, use of libraries and modules, numerical applications, machine representation of data, and computer organization. This course may not be taken for credit by BCS, BISys, or BScSwE students. Prerequisite: CS 1003.

CS 1023   Data Structures and Algorithms for Engineers   4 ch (3C 2L)
Introduction to the ideas of abstraction of procedures and data. Implementation and handling of the fundamental data types: lists, stacks, queues, and graphs. Basic concepts of discrete mathematics, elements of combinatorics, aspects of complexity and recursion and algorithm development, including estimation of program resource utilization. This course is currently taught in C. Note: This course may not be taken for credit by BCS, BISys, or BScSwE students. Prerequisite: CS 1003.

CS 1043   Information Technology Fluency   3 ch (3C 1T)
Intended to give students an introduction to Information Technology (IT) fluency.
Topics include: hardware and software concepts, computer interfaces, networking, the Internet, the World Wide Web, HTML, algorithms, spreadsheets, database concepts, digital representation, multimedia, social implications of IT, privacy and security. Note: This course will not be counted for credit by toward degree programs offered by the Computer Science and Engineering faculties.

CS 1055   Web Technologies and Applications   3 ch (3C 1L)
Introduction to basic web enabling technologies such as HTML, XML, CSS, JavaScript and PHP. Design of simple web pages using basic web technologies. Introduction to common web application technologies such as searching, instant messaging, blogging, social networking, audio/video streaming, web geographical information systems, mobile web, web intelligence, and web security and privacy. Basic mechanisms of web application technologies. Comparative studies of web application tools. Learning effective usage of web application tools. Note: This course will not be counted for credit toward degree programs offered by the Computer Science and Engineering faculties.

CS 1073   Introduction to Computer   4 ch (3C 1.5L 1T) [P]
Programming I (in Java)
Covers fundamental concepts such as decisions, loops, arrays, classes, methods and inheritance; focusing on problem analysis, algorithm design, program structure and readability. Introduction to the Java API libraries. Prerequisite: High School Mathematics.

CS 1083   Introduction to Computer 4 ch (3C 1.5L 1T) [P]
Programming II
Continues CS 1073 focusing on problem analysis, algorithm design, program structure and readability. Covers recursion, sorting and searching, data abstraction, encapsulation, inheritance, polymorphism, simple data structures and files, testing and debugging. Prerequisite: CS 1073.

CS 1203   Overview of Computer Science   3 ch (3C 1T)
This course surveys many of the fundamental concepts and theories used throughout computer science. Topics include history of computers, computer hardware, system software, programming languages, networking, theory of computation, social issues, and other topics within computer science. Emphasis is also placed on topics relevant to various areas of study within the BCS program. Prerequisite: None. Note: Intended only for first year computer science students and interested students from other Faculties.

CS 1303   Discrete Structures   4 ch (3C 1T)
Introduces topics in discrete mathematics important in computer science, including: propositional logic, predicate logic using quantifiers, direct and indirect proofs, summation and product notation, mathematical induction, elementary set theory and counting. Students are expected to write mathematical proofs throughout the course. **Note:** credit will not be given for both CS 1303 and MATH 2203. Prerequisite: High School Mathematics.

CS 2033   Software Design for Engineers   4 ch (3C 3L)
An introduction to software design and implementation in the context of a team project emphasizing object-oriented programming and modularization for building reliable and reusable system components. Prerequisites: CS 1023, ECE 2412 or equivalent. Note: This course may not be taken for credit by BCS, BISys or BScSwE students.

CS 2043   Software Engineering I   4 ch (3C 2L)
Introduction to fundamentals of the discipline of software engineering with focus on the software development life cycle. Topics include software development methodologies and processes, requirements analysis, modeling, architecture, design, implementation, testing, and maintenance. Basics of software management are also introduced.
Prerequisite: CS 1083. Note: Credit is not given for both CS 2013 and CS 2043.

CS 2053 Introduction to Game Development 4 ch (3C 2L) [P]
Introduces basic concepts and technologies for computer and video game development, including math and physics foundations for games, core technologies and algorithms in game development, game design and implementation, and game development environments and programming. By taking this course, students will understand various elements and phases of game development. Students will develop simple games during the course.
Prerequisites: CS 2043 or CS 2253.

CS 2063   Introduction to Mobile Application   4 ch (3C 1.5L) [P]
Development
Introduces students to the development of application software for mobile computing platforms. Characteristics of mobile computing platforms versus non-mobile platforms. Mobile application design principles, including design of effective user interaction and factors that affect application performance. Programming common mobile application functionality such as location, orientation, and motion awareness, as well as touch, gesture, and camera input, Interacting with remote APIs (e.g. Google Maps). Students will gain experience creating and testing applications for a selected currently prominent platform. Prerequisite(s): CS 2043 or CS 2253.

CS 2253   Machine Level Programming   4 ch (3C 2L) [P]
Introduces students to lower-level computer operations and the association with higher-level procedural programming constructs. Topics include binary representation of data, instruction formats and execution, assembler programming, scope, functions, user-defined data types using both low- and high-level programming languages. Prerequisites: CS 1083 or equivalent level of programming experience, at the discretion of the instructor. Note: Credit cannot be obtained for CS 2253 by students who have completed both CS 2023 and CS 2813.

CS 2333   Computability and Formal Languages   4 ch (3C 1T)
This course introduces students to some of the fundamental ideas in theoretical computer science: functions and relations, formal languages, finite automata, regular languages, context-free grammars, context-free languages, push-down automata, pumping lemmas, Turing machines, the Church-Turing thesis, recursive and recursively enumerable languages, the Chomsky hierarchy, the halting problem and other unsolvable decision problems, problem reducibility, and fundamental computational complexity classes. Prerequisites: CS 1303, 30 ch, and (CS 1073 or CS 1003).

CS 2383 Data Structures and Algorithms 4 ch (3C 1T)
Presents formal specifications of abstract data types and their data structure representations, operations, and algorithms. Includes priority queues, dictionaries, graphs, heaps, hash tables, binary search trees, balanced trees, and graph adjacency representations. Covers sorting, searching, dynamic storage handling, and fundamental graph algorithms. Asymptotic analysis of time and space complexity are taught and used throughout the course. Students are expected to implement a variety of data structures and graph algorithms. Prerequisites: CS 1083 and CS 1303. Note: Credit is not given for both CS2383 and CS3323.

CS 2525 Microcomputer Applications 3 ch (3C)
Introduces students to several software packages commonly available on microcomputers and discusses criteria for evaluating microcomputer systems in different situations. Note: This course may not be taken for credit by BCS, BISys or BScSwE students. Prerequisite: CS 1003 or CS 1043.

CS 2605 A Selected Language for Programmers (O) 1 ch (1C) [P]
Introduces a selected programming language to students who have already been exposed to at least one programming language. This course is given in 13 1-hour lectures throughout the term. Prerequisite: CS 1083 or equivalent.

CS 2685 C++ Programming for Programmers (O) 1 ch (1C) [P]
Introduces the object-oriented features of C++ to programmers who have already been exposed to Java and C. This course is given in 13 1-hour lectures throughout the term. Prerequisites: CS1083 and CS 2253, or knowledge of Java and C.

CS 2703 Multimedia Applications (O) 3 ch (3C 2L)
Introduction to multimedia applications development. Multimedia building blocks: capturing, storing, editing, retrieving, distributing of sound, pictures, and video clips. Creation of world wide web pages, authoring tools. NOTE: Not intended for BCS, BISys or BScSwE students. Credit will not be given for both CS 2703 and CS 3703. Prerequisites: CS 1043, and CS 2525.

CS 2999 Problem Solving for Programmers 3ch (3L) [P]
This course entails a hands-on approach to problem solving for computer programmers. Under instructional guidance the students will work on programming problems that represent basic classes of problems found in computer science. Concepts in data structures, algorithms, geometry, and software development and testing are covered. Prequisite: permission of instructor. Corequisite: CS 2253.

CS 3003 Biocomputing in Drug Design I 5 ch (3C 3L)
Introduction to biocomputing in the pharmaceutical industry. Topics include molecular modeling, rational drug design, high throughput screening and combinatorial chemistry, protein modeling and 3D bioinformatics. Course includes lectures and a computer laboratory component. Note: This course is also cross-listed as CHEM 3003 and may be taken for either Computer Science or Science credit. Prerequisites: CHEM1001,1012 and BIOL 1001, 1012, or permission of instructor. CHEM 2421 or BIOL 2033 are recommended.

CS 3025 Human-Computer Interaction 3 ch (3C)
Software design for interactive computing. Topics include: human-computer interaction principles, interface design guidelines, the design and execution of usability studies. The characteristics of various styles of interaction are explored. Emphasis is on user-oriented interfaces. Students design, implement, and perform a usability study on an interactive software application. Prerequisites: 60 ch and (CS 2043 or MAAC 3102 or permission of instructor).

CS 3043 Software Engineering II (O) 4 ch (3C 3L)
Examines software development processes and management, visual modeling and Unified Modeling Language, requirements capture, use case analysis, system design and implementation, components, forward and reverse engineering, software engineering tools, testing techniques, configuration management, and project management. Prerequisite: CS 2043. Note: Credit is not given for both CS 3013 and CS 3043.

CS 3113 Introduction to Numerical Methods 3 ch (3C)
Intended for Computer Science and Engineering students. Error analysis, convergence and stability. Approximation of functions by polynomials. Numerical quadrature and differentiation. The solution of linear and non-linear equations and the solution of ordinary differential equations. This course will emphasize the understanding of numerical algorithms and stress applications in the applied sciences, as well as the influence of finite precision and arithmetic on computational results. Credit will not be given for both CS 3113 and MATH 3413. Prerequisites: (CS 1003 or CS 1073) and (MATH 2213 or MATH 1503).

CS 3383 Algorithm Design and Analysis 4 ch (3C 1T)
This course examines the characteristics of algorithms that lead to efficient computer solutions for discrete problems. A variety of different algorithm classes and design techniques, including divide and conquer, greedy, dynamic programming, and backtracking, are introduced and compared. Algorithmic strategies and computational techniques used for distributed systems and intelligent systems are also examined. Prerequisites: CS 2333, CS 2383, and (STAT 2593 or STAT 3083). Note: Credit is only given for one of CS 3383, CS 3913 and CS 3933 .

CS 3413 Operating Systems I 4ch (3C 2L) [P]
This course examines the fundamental role of an operating system in relation to the operation of applications. Essential theory of operating systems is covered, including processes, process synchronization, interprocess communications, process scheduling, storage (primary and secondary) management, resource sharing, security, I/O, and user interfaces. At least one of the major Unix shell languages will be covered. Prerequisites: CS2253.

CS 3503 Systems Analysis, Design and Project 4 ch (3C 1T) [W] Management
Introduces students to the life cycle of information systems. Covers techniques and tools used in systems analysis and project management. Emphasizes communication skills, both written and oral, as well as team skills. Prerequisites: INFO 1103 and 60 ch.

CS 3613 Programming Languages 4 ch (3C 1T) [P]
Building on students' knowledge of procedural and object oriented programming, this course is a comparative study of modern models of programming. Models such as declarative, concurrent, and relational programming are introduced, and relationships between various models are explored. Formal syntax and semantics of programming languages, as well as basic concepts of programming language translation and interpretation are presented. Prerequisites: CS 2253 and 2333.

CS 3703 Multimedia Design 3 ch (3C)
Introduction to the design and production of multimedia applications. Includes issues in capture, storage, and effective use of images, sound, and video; animation; multimedia and hypermedia design principles; authoring tools. Prerequisites: CS 1073 and 60 ch.

CS 3853 Computer Architecture and Organization 4ch (3C 2L)
Introduction to computer organization and architecture, digital logic, interfacing and I/O strategies, memory architecture, functional organization, multiprocessing, performance enhancements. Prerequisite: CS2253. Note: Credit is not given for both CS 3853 and CS 3813.

CS 3873 Net-centric Computing 4 ch (3C 2*L)
Introduction to fundamentals of data communication and application programming in a networked environment. Topics include data transmission, data link concepts, networking concepts, network security, application protocols, net-centric computing and web programming. Prerequisite: CS 2253.

CS 3997 Professional Practice 3 ch (3C) [W]
Covers social context of computing, professional and ethical responsibilities, risks and liabilities of computer-based systems, intellectual property, privacy and civil liberties, and I.S.P. certification through CIPS. Instructs students in the preparation of technical reports in Computer Science. Involves an independent study component resulting in a technical report, typically a survey paper. Covers technical writing, oral presentation and library skills. Prerequisites: Enrolment in the BCS or BISys program and 60 ch completed.

CS 4003 Biocomputing in Drug Design II 4 ch (3C 2L)
A follow-up of CS 3003/CHEM 3003. Topics include pharmacophore perception, solvation models, free-energy calculations, quantitative structure activity relationship (QSAR), virtual drug libraries, chemical diversity and cheminformatics. Course includes lectures and computer laboratory component. Note: This course is cross-listed as CHEM 4003 and may be taken for either Computer Science or Science credit. Prerequisite: CHEM 3003 or CS3003.

CS 4015 Software Architecture and 4 ch (3C 2L) [P] Design Patterns
(Cross Listed: SWE 4403)
Examines pattern-oriented software architecture and development, architectural styles and patterns, design patterns, pattern systems and applications, pattern languages, and implementation techniques in various programming languages. Prerequisite: CS 2043 or permission of the instructor.

CS 4115   Numerical Methods for Differential Equations   3 ch (3C)
The numerical solution of ordinary differential equations, and partial differential equations of elliptic, hyperbolic, and parabolic type. This course is a basic introduction to finite difference methods, including the associated theory of stability, accuracy and convergence. Students will gain practical experience using state-of-the-art numerical solvers and visualization tools while solving practical problems from the physical and biological sciences. Cross-listed as MATH4503. Prerequisite: One of , MATH 3043, MATH 3073, MATH 3413, MATH 3503, CS 3113, CHE 3418; or ME 3522.

CS 4405   Operating Systems II   4 ch (3C 1L) [P]
Covers the structure and design of operating systems. Processor management. Storage management, input/output, interprocess communication, and interrupt handling. Real-time systems, centralized systems, multiprocessor and distributed systems. Prerequisites: CS3413 and (CS 3853 or ECE 3221)

CS 4515   Systems Analysis and Design II (O)   4 ch (3C 1T) [W]
Involves the application of systems analysis and design methodologies to actual business problems. Projects make up a large portion of the course. Emphasizes communication skills and teamwork. Limited enrolment. Prerequisite: CS 3503.

CS 4725   Introduction to Artificial Intelligence (O)   4 ch (3C 2*L)
Introduction to intelligent agent design, problem solving using search techniques, the use of mathematical logic for knowledge representation and reasoning, decision making under uncertainty, machine learning techniques. Prerequisites: CS 2333 and CS 2383.

CS 4735   Computer Graphics 4 ch (3C 3L) [P]
Covers interactive 3-dimensional computer graphics program development using object-oriented tools. Includes keyboard and mouse interaction, callback functions, windows and viewports, drawing parametric curves and surfaces, affine transformations, the camera model and graphics pipeline, geometric modeling using polyhedral meshes, flying a camera, arcball scene interaction, perspective projection, and visual realism via colour, lighting and texture. Prerequisites: CS 2253 and (MATH 1503 or MATH 2213).

CS 4745   Introduction to Parallel Processing (O)   4 ch (3C 2L)
Parallel computer architectures, design and analysis of parallel algorithms, parallel programming languages, case studies, selected numerical and non-numerical applications. Prerequisite: CS 3853.

CS 4805   Embedded Systems (O)   4 ch (3C 1T)
This course will give an overview of the characteristics and design of embedded systems. Topics include formal models and specification languages for capturing embedded system behavior; techniques for specification, exploration and refinement; tools for validation, verification, and simulation; and quality and performance metrics. Prerequisites: CS3413 and CS 3853.

CS 4815   Advanced Computer Architectures (O)   4 ch (3C 3L)
Study of design of advanced computer architectures. Instruction-level parallel processors (ILPs), pipelined processors, VLIW architectures, superscalar processors. Instruction-level data-parallel architectures: SIMD architectures, associative and neural architectures, data-parallel pipelined and systolic architectures, vector architectures. Thread and process-level parallel architectures, multi-threaded architectures, distributed memory architectures, shared memory architectures. Prerequisite: CS 3853.

CS 4825   Microcomputer Systems (O)   4 ch (3C 3L)
The organization of microcomputer systems will be examined in detail. Peripherals are considered as building blocks and their architecture and operation are discussed. The modular structure of control software in a real-time environment is studied including interrupt handling, polling and handshake operations. Introduction to single-chip microcomputer and development systems. Prerequisite: CS 3853.

CS 4835   Computer Assisted Logic Design   4 ch (3C 3L)
Analysis of sequential machines; synchronous and asynchronous operations; design of sequential machines. Algorithms in computer-assisted logic design. Universal logic elements and threshold logic. Control logic for Digital Systems. Prerequisite: CS 3853.

CS 4905   Introduction to Compiler Construction (O)   4 ch (3C 2*L) [P]
Introduces the primary concepts and methodologies used to build compilers. Covers lexical analysis, predictive and LR parsing, compiler compilers and error handling. Syntax-directed translation using abstract parse trees, visitors, symbol tables and type checking. Object code generation including the activation record stack, parameter passing, intermediate representation trees, instruction selection, tree tiling and register allocation. Prerequisite: CS 2333.

CS 4935   Advanced Algorithmic Techniques   4 ch (3C 1T)
This course covers advanced algorithmic techniques for analyzing and handling intractable and complicated tractable problems. Topics include NP-completeness and problem reductions, randomization, approximability, special case analysis, and network flow algorithms. Prerequisite: CS 3383.

CS 4965   Computational Biology (O)   3 ch (3C)
Gives an overview of computational problems and algorithms for problems associated with a variety of analyses of biolgoical molecular data. Focuses on the computational complexity of these problems and algorithms, and an understanding of the problems and potential solutions. Topics include string and sequence matching, structure comparison and analysis, evolutionary trees, and gene expressions analysis. Some commonly used tools will also be examined. No prior knowledge of biology is required. Prerequisite: CS 3383.

CS 4983   Senior Technical Report   2 ch (2C) [W]
Builds on the skills developed in CS 3997 through the preparation and presentation of a technical report, which is typically a critical analysis paper. Prerequisite: CS 3997.

CS 4995   Topics in Computing (O)   4 ch
A selected area of computing with a unifying theme will be explored in depth at an advanced level. This course will be offered only occasionally, with the course topic determined by the instructor and the Faculty of Computer Science. Prerequisites: Normally, enrolment in the BCS, BISys or BScSwE program, at least 100 ch completed, and permission of the instructor.

CS 4997   Honours Thesis   4 ch [W]
This course provides the student with the opportunity to undertake a project at a depth not provided elsewhere in the curriculum. Planning the thesis is done in the term prior to completion. The project topic must have the approval of a supervisor before the start of term. The student submits detailed proposal, schedule, progress reports, and final thesis report to the thesis coordinator with the supervisor's approval. A seminar is required. Detailed guidelines available from coordinator in the preceding term. Offered as an eight month course. Prerequisite: CS 3997. Open to all CS students in their final year with a B average in the previous assessment year or a B cgpa. To receive an Honours designation please refer to the CS Curriculum regulations in the program Section of the Calendar.

CS 4998   Open Source Project   4 ch [P]
An Undergraduate Capstone Open Source Project (UCOSP). Students gain hands-on experience with real-world development practices in a realistic environment while simultaneously learning and applying some core concepts of Computer Science. As part of a national initiative, senior undergraduate students from across Canada work together on open-source software projects. Students work in distributed teams with individuals from other Canadian universities. Prerequisites: Instructor approval and at least 90 ch completed.

CS 4999   Directed Studies in Computer Science (O)   4 ch
Students may pursue directed studies in specific areas and topics related to Computer Science. The content and process of each directed study will be through negotiation between a student and the supervising faculty member(s). Prerequisite: Faculty approval and at least 100 ch.

CS 5725   Neural Networks (O)   4 ch (3C 1T)
Introduction to the theory, architectures, and application of Neural Networks. Topics include fundamental models of artificial neural networks, learning rules, supervised, unsupervised and reinforcement learning in single and multi-layer neural networks, radial-basis function networks, principal component analysis, self-organizing maps,adaptive resonance theory, stochastic machines, learning capacity and generalization. Prerequisites: CS 2333 and 3 terms of calculus and statistics.

CS 5865   Advanced Data Communications   4 ch (3C 3L2*L)
**   and Networking (O)**
The course covers advanced concepts of the analysis and design of data networks and their operation: architecture, media, communication channel characteristics, routing, protocols and protocol architecture, including modeling and performance analysis. Includes introduction to network simulation. Prerequisite: CS3873.

DRAMA

Note: See beginning of Section H for abbreviations, course numbers, and coding.

Introductory-Level Courses

DRAM 1173   Introduction to Acting and Performance   3ch (plus Performance   practical work)
(Cross-Listed: ENGL 1173)
An introduction to acting suitable for students at all skill levels, from beginners to experienced performers. Instruction will cover the basics of voice, movement, improvisation, script analysis, and monologue and scene work, culminating in a final performance project.

Intermediate-Level Courses

DRAM 2170   Principles Drama   6ch (3 hours/ wk plus practical Production *(Cross-Listed: ENGL 2170)*   **work)**
An introduction to the fundamentals of acting and technical theatre (including carpentry, set construction, lighting, sound, and prop and costume design). Instruction centres on 1-2 full-scale theatre productions mounted by the class for Theatre UNB. Rehearsal, workshop, and performance time additional to regular class hours required. Open to students at all levels.

Advanced-Level Courses

DRAM 3170 Advanced Drama 6 ch (3 hours/wk plus practical work) Production
(Cross-Listed: ENGL 3170)
A project-based course that builds on DRAM/ENGL 2170 by offering advanced training in acting, directing, and design for the theatre. Instruction centres on 1-2 full-scale theatre productions mounted by the class for Theatre UNB. Rehearsal, workshop, and performance time additional to regular class hours required. Prerequisite: DRAM/ENGL 2170 or equivalent.

DRAMA 4170   Thesis Production   6 ch (practical work) and Independent Project
Open to students completing the final year of a Minor in Drama. Working in groups, students produce a full-scale production for Theatre UNB. The second requirement for the course is to complete an independent project designed to further students' knowledge of a theatre discipline of their choice. Both halves of the course are completed under the supervision of the Director of Drama.
Prerequisite: DRAM/ENGL 2170 and/or DRAM/ENGL 3170 and permission of the Director of Drama. **Note:** Students can take no more than 6ch of DRAM/ENGL 4170, DRAM/ENGL4173, and 4174 for credit.

DRAM 4173   Thesis Production   3 ch (practical work)
(Cross-Listed: ENGL 4173)
Open to students completing the final year of a Minor in Drama. Working in groups, students produce a full-scale production for Theatre UNB, under the supervision of the Director of Drama. **Prerequisite:** DRAM/ENGL 2170 and/or DRAM/ENGL 3170 and permission of the Director of Drama. **Note:** Students can take no more than 6ch of DRAM/ENGL 4170, 4173, and 4174 for credit.

DRAM 4174   Independent Drama Project   3 ch (practical work)
(Cross-Listed: ENGL 4174)
Open to students completing the final year of a Minor in Drama. Under the supervision of the Director of Drama, students complete an independent project designed to further their knowledge of a theatre discipline of their choice.
Prerequisite: DRAM/ENGL 2170 and/or DRAM/ENGL 3170 and permission of the Director of Drama. **Note:** Students can take no more than 6ch of DRAM/ENGL 4170, 4173, and 4174 for credit

EARTH SCIENCES

Students should note that in the Science Faculty the minimum acceptable grade in a course which is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C' or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is begin taken for the first time in the final year.

Note: See Courses -> Saint John or Fredericton-> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

ESCI 1001   The Earth: Its Origin, Evolution and Age   3 ch (3C)
Novas and Supernovas; Solar Nebula Theory, Catastrophism and Uniformitarianism. Earth as a heat engine. Origin, growth and main features of the Earth's crust. Origin and evolution of oceans, continents, and the atmosphere. The rock cycle, seafloor spreading, plate tectonics, mountain building and deformation of the Earth's crust. Earthquakes, igneous and metamorphic processes and their products, including mineral resources. Credit can be obtained for only one of ESCI 1001 or ESCI 1063.

ESCI 1006   Introduction to Geology Laboratory I   2 ch (3L)
A laboratory course designed to accompany ESCI 1001. An introductory study covering topographic and geological maps (bedrock and surficial) and their interpretation; construction of cross sections; identification of common minerals, igneous, sedimentary and metamorphic rocks; geological structures (map analysis as predictive tool); radiometric and relative age dating and the geological time scale; coastal processes; glaciations and glacial deposits; aspects of plate tectonics. Pre- or co-requisite: ESCI 1001.

ESCI 1012   Earth Processes, Resources and   3 ch (3C) the Environment
Natural resources and environmental problems in context of the Earth's physical, biological and chemical processes.

ESCI 1017   Introductory Geology Laboratory II   2 ch (3L)
A laboratory course designed to accompany ESCI 1012. This course concentrates on environmental geology, especially the biosphere and hazards. It covers fossils and fossilization, volcanic eruptions, earthquakes, floods, mass wasting (landslides and flows), meteorite impacts, and ground water issues. Pre- or co-requisite: ESCI 1012.

ESCI 1026   Geology Lab for Engineers   2 ch (3L)
An introductory study covering topographic and geological maps (bedrock and surficial) and their interpretation; construction of cross sections; identification of common minerals, igneous sedimentary and metamorphic rocks; geological structures (map analysis as a predictive tool); dating and geological time scale; coastal processes; mass wasting (especially the recognition and amelioration of hazards related to debris flows, avalanche and landslides); and glaciations and glacial deposits (especially glacial deposits in eastern Canada and their significance to engineers).

ESCI 1036   Geology Lab for Foresters   2 ch (3L)
An introductory study covering topographic and geological maps (bedrock and surficial) and their interpretation; construction of cross sections; identification of common minerals; igneous, sedimentary and metamorphic rocks; geological structures; dating and the geological time scale; coastal processes; mass wasting (in terrane analysis, and the recognition and avoidance of hazards); and glaciations and glacial deposits (especially in eastern Canada and their relevance to foresters).

ESCI 1063   Earth Systems Geology (How the Earth Works)   3 ch (3C)
Designed primarily for students in the faculties other than Science, Engineering and Forestry and Environmental Management. Surveys the origin of the Earth as part of the solar system, formation of a dynamic planet, geophysical and geochemical characteristics, development and evolution of life, plate tectonics, geomorphology, rocks and minerals, deformation, sedimentation, climate change and geological hazards. Geological concepts are discussed through reference to features in parks and other famous sites across Canada. Credit can be obtained for only one of ESCI 1001 or ESCI 1063.

ESCI 1703   Field School (1 week)   3 ch [W]
Introduction to field observations, traversing, sampling and mapping in the first week of May or before classes begin in the fall. Accomodation expenses (Fredericton) paid by the student. Prerequisites: One of ESCI 1006, 1026, or 1036 and one of ESCI 1001 or 1012, or approved equivalent.

ESCI 2022   Engineering Geology   5 ch (3C 3L)
A study of geological materials and hazards for site investigation and assessment risk and remediation; engineering classification of geological materials, properties and relationships; engineering in the existing and changing environment and exacerbation of natural processes; geological constraints for construction, foundations, tunnelling, waste disposal and mining, with case histories of geological problems in engineering projects. Prerequisites: ESCI 1001, 1026, or equivalent or permission of the instructor.

ESCI 2131   Earth Materials I   5 ch (2C 3L) [W]
Appraisal of the materials properties of minerals and selected ceramics. Fundamentals of silicate chemistry and behaviour of the major rock-forming minerals at varying pressures temperatures. Laboratories focus on describing the physical properties of the more common minerals and on their identification in hand specimen. Pre- or co-requisites: ESCI 1001, one of ESCI 1006, 1026 or 1036. Recommended co-requisite ESCI 2211.

ESCI 2142   Earth Materials II   5 ch (2C 3L)
Lectures examine the composition, crystallography and optical properties of minerals and rocks, the thermodynamic parameters that control the behaviour of geological systems such as pressure, temperature, activity and fugacity and the kinetic parameters that control rates, crystallisation of rock description and identification using orthoscopic and conoscopic polarizing microscopy techniques. Prerequisites: ESCI 2131.

ESCI 2151   Earth Science and Society   3 ch (3C)
An in-depth examination of topical societal issues related to earth science (e.g., the uranium cycle, climate change and sea level rise, shale gas and groundwater resources, metals in the environment, mine development and remediation, earthquakes. Tsunamis, active volcanism, medical geology, planetary geology, asbestos, and industrial mineralogy). Topics will vary according to recent geological events and societal uses

ESCI 2202   Biogeology   5 ch (2C 3L)
Nomenclature and taxonomy of main invertebrate groups. Paleoecology and factors governing distribution of modern and ancient organisms. Fossilization processes, life and death assemblages. Selected microfossil groups; taxonomy, function and affinities.

ESCI 2211   Sedimentolgy I: Process,   5 ch (3C 2L)
              Product, Stratigraphy
Lectures and labs cover: physical properties, mineralogy, and classification of sediment and sedimentary rock; origin of sediment, including weathering, biogenic sediment production, and precipitation; fluid flow, gravitational, chemical, and biological influence on sediment erosion, transportation, deposition, reworking, and lithification; sedimentary structures; and an introduction to stratigraphy. Pre- or co-requisite: ESCI 1001, one of ESCI 1006, 1026 or 1036. Recommended co-requisite: ESCI 2131.

ESCI 2321   Structural Geology I   5 ch (2C 3L)
Emphasis on description and classification of folds, faults, foliations, lineations and joints, and the use of primary structures. Labs include geological maps and cross sections, and stereographic projection. Pre- or co-requisites: ESCI 1001, one of ESCI 1006, 1026 or 1036. Recommended co-requisite: ESCI 2131 and 2211.

ESCI 2602   Principles of Geochemistry   5 ch (2C 3L) [W]
Origin of elements. Theories of the origin and chemical evolution of the earth, atmosphere, and oceans. Laws governing the distribution of elements in the earth. Application of phase diagrams to petrologic problems of the crust and mantle. Chemical weathering. Use of stable and radioactive isotopes in geology. Geobarometry and geothermometry. Hydrothermal process and base-metal ore deposits. Prerequisites: CHEM 1012, 1017 (or equivalent), MATH 1013 or 1063, ESCI 2131.

ESCI 2703   Field School (2 weeks)   6 ch [W]
Principles of stratigraphy and geological mapping. Provides two weeks supervised training in field work and preparation of stratigraphic sections, geological maps, and cross sections. At least the cost of accommodation expenses are paid by the student. Prerequisites: ESCI 2131, 2211, 2321.

ESCI 3131   Origin of Igneous and Metamorphic Rocks   5 ch (2C 3L) [W]
Petrology of igneous and metamorphic rocks with emphasis on their macroscopic textures, mineral associations, classification and field relations. Laboratories concentrate on the identification of the common igneous and metamorphic rocks using hand specimens and thin sections. Prerequisites: ESCI 2131, and 2142 or approval of instructor.

ESCI 3201   Historical Geology (A)   5 ch (2C 3L)
Selected topics in paleontology and earth evolution including biostratigraphy, taphonomy, nature of the fossil record, lagerstatten, mass extinctions, paleobiology, origin of life, Precambrian life, fossil communities. Offered alternate years. Prerequisite: ESCI 2202.

ESCI 3322   Structural Geology II   5 ch (2C 3L)
Stress and rain, introduction to deformational behaviour of rocks. Origin of folds, foliations, lineations, joints and faults. Geometrical analysis. Labs will include simple experiments and advance map problems. Prerequisites: ESCI 2321, 3131.

ESCI 3411   Rock Mechanics   5 ch (3C 2L) [W]
An introduction to the deformation and fracture of rocks when subjected to natural or man-imposed stress field. The concepts of stress, strain, stress-strain relations; creep and strength are applied to geological materials. The mechanisms involved in the failure of continuous, discontinuous and layered rocks are discussed. Prerequisites: ESCI 2321, MATH 1013 or 1063.

ESCI 3442   Environmental Geology (A)   4 ch (3C 1L) [W]
An introduction to the global water cycle and water balance, catchment water balance, measurement and estimation of water balance parameters, aspects of sediment transport and erosion, monitoring the distribution of contamination by sediment sampling. Assignments focus on aspects of catchment water balance. Seminars and terms papers are based on topics of regional and global importance with respect to water availability and quality. Prerequisites: ESCI 1001, ESCI 1012, and one of ESCI 1006, ESCI 1026, ESCI 1036.

ESCI 3482   Mineral Resources, Economics, and   3 ch (3C)
              the Environment
This course presents various types of mineral deposit resources, integrated with economic and environmental considerations with impacts related to exploration and mining activity. Prerequisites: ESCI 1101, 1012 and one of ESCI 1006, ESCI 1026 or ESCI 1036.

ESCI 3492   Petroleum Geoscience (A)   5 ch (2C 3L)
This multi-disciplinary subject is covered by introductory lectures on: chemical composition of petroleum (particularly oil and gas); the environment by petroleum (e.g. subsurface conditions, associated rock-types); theories of petroleum generation; migration and accumulation of oil and gas; sedimentology and heterogeneity of reservoir rocks; structural and stratigraphic traps; exploration and development of petroleum resources; Canadian petroleum resources; and world petroleum reserves. Lab focus on exploration methods, including geochemical fingerprinting, core analysis, and interpretation of petrophysical and seismic data. Prerequisites ESCI 1001, 1012, and one of 1006, 1026, or 1036. Recommended: ESCI 2211, 2321.

ESCI 3621   Exploration Geochemistry (A)   5 ch (2C 3L)
Application of geochemistry to mineral exploration. Distribution and controls on element migration in rocks and soils. Recognition of anomalous concentrations. Selected case histories. Laboratory covers common analytical methods rock, soil, and water samples. Prerequisite: ESCI 2602.

ESCI 3631   Geochemistry of Natural Waters   5 ch (3C 3L) [W]
The principles of chemical equilibria, reaction kinetics and transport applied to natural water systems. Chemical weathering and diagenesis. Chemistry of surface waters, ground water and the oceans. Geochemical cycles. Applications to environmental problems Labs include chemical analysis of water, carbonate equilibria and geochemical modeling. Prerequisite: ESCI 2602 or permission of the instructor.

ESCI 3703   Field School (2 weeks)   6 ch
Principles of structural geology and geological mapping. Provides two weeks supervised training in field work and preparation of an independent structural map and report of a selected area. At least the cost of accommodation expenses are paid by the student. To be taken as part of the final year of degree program. Prerequisites: ESCI 2703, 3322, 3131.

ESCI 3713   Environmental Geology Field School (2 weeks)(A)   6 ch
Applications of geological, geochemical, geophysical and hydrological methods to an environmental site investigation. Typically includes one week of field work followed by one week for the analysis of data and preparation of a comprehensive written report summarizing the field investigation, synthesizing results, drawing conclusions, and making recommendations. A cost will be associated with this course. Prerequisites: ESCI 2703, 3442, 3631.

ESCI 3803   Work Term Report I   CR
A written report on the scientific activities of the work term. Credit for the course is dependent in part on the employers evolution of the student's work activities. Students must be accepted into the Geology Coop program to register for this course.

ESCI 4112   Igneous and Metamorphic   5 ch (2C 3L) [W]
Petrogenesis (A)
Study of Igneous and metamorphic rocks emphasizing the processes responsible for their formation in terms of heat, pressure and fluid effects related to tectonic setting. Laboratories primarily concentrate on the acquisition of observational skills via hand specimens and detailed petrographic work supported by interpretation of geochemical and isotopic datasets. Prerequisite: ESCI 3131 or equivalent.

ESCI 4152   Volcanology (A)   5 ch (2C 3L)
Physical voloconology, textural, petrologic, and petrogenetic study of ultramafic to felsic volcanic systems in a variety of tectonic environments are examined. Emphasis on magma/melt properties, phase relations and composition, crystallization processes, and gas exsolution and groundwater interaction processes are key. Laboratory studies emphasize petrology of volcanic and volcaniclastic rocks in a variety of geological settings. Prerequisites: ESCI 2131, 2142, 3131.

ESCI 4212   Sedimentology II: Petrography   5 ch (2C 3L)
Palaeoenvironments, Sequence Stratigraphy (A)
Labs cover microscopic examination of sedimentary rocks (classification, porosity, and digenesis) and exercises relating to palaeogeography and stratigraphic correlation. Lectures focus on modern and ancient sedimentary environments and facies (including rivers, lakes, deltas, estuaries, beaches, barrier islands, shallow and deep oceans), and sequence stratigraphy. Prerequisites: ESCI 2142, 2211.

ESCI 4312   Geotectonics   3 ch (3C/S/T)
Seminar course investigating the principles of crustal growth and recycling, plate tectonics, plate motions, plate margin processes, mantle anisotropy, and their application to Phanerozoic, Proterozoic, and Archaen mantle and lithosphere evolution. Prerequisite: ESCI 3131, 3322.

ESCI 4322   Flow of Rocks (A)   5 ch (2C 3L)
Application of material science to rock deformation. Theory of rock deformation. Development of microstructure and fabric in deformed rock. Labs will be concerned with observation and measurement of microstructure and fabric. Prerequisite: ESCI 2211, 3322.

ESCI 4401   Applied Glacial Geology   5 ch (3C 3L) [W]
Study of the mass balance of glaciers and characteristics of flow, erosion and deposition by active and stagnant ice masses, facies relationships in processes and products of glaciated terrain, and assessment of terrain from air photos, maps, geophysical and core data. Practical applications include: relevance of sample collection and anlyses for geotechnical evaluation and mineral prospecting, and identification of industrial resources and terrain hazards. Prerequisites: ESCI 2211, 2321 or permission of the instructor.

ESCI 4412   Applied Rock Mechanics (A)   5 ch (3C 2L) [W]
The acquisition and use of geological data in the construction of engineering structures sited in rocks. The design of slopes in rock considering both the two and the three dimensional cases of sliding failure. The analysis of failed slopes to determine the cohesion along the sliding surface. The improvement of rock slopes including the design of rock anchors. Prerequisites: ESCI 1001, ESCI 1012 and one of ESCI 1006, ESCI 1026 or ESCI 1036.

ESCI 4442   Mineral Resource Utilization (A)   5 ch (3C 2L)
Mineral exploration, evaluation, exploitation, processing, marketing and conservation.

ESCI 4452   Environment Impact Assessment (A)   4 ch (3C 1L)
Introduction to environmental impact assessment (EIA) from the Canadian perspective, covering the history, scope and need for EIA, as well as the general approach and regulatory framework used in Canada and New Brunswick. The majority of the course focuses on geosciences in environmental investigations. Topics include: goals of investigations; physical processes of dispersion in the atmosphere, surface water, groundwater and glacial systems; important geochemical concepts that influence the transport and fate of contaminants in the environment. Prerequisites: ESCI 3442.

ESCI 4461   Economic Geology I 5 ch (2C 3L)
General features of mineral deposits, their origin, localization and classification, with emphasis on exploration, evaluation and development. Prerequisite: ESCI 3131 or approval of instructor.

ESCI 4472   Economic Geology II (A)   5 ch (2C 3L)
Advanced features of mineral deposits, their origin, localization and classification, with emphasis on exploration, evaluation and development. Prerequisite: ESCI 3131 or approval of instructor.

ESCI 4501   Applied Geophysics I (A)   5 ch (3C 3L)
Introduction to the principles, survey procedures and interpretation techniques of the gravity magnetic, and gamma radiation methods of geophysical exploration. Applications of these methods to geological mapping, mineral and hydrocarbon exploration, engineering and environmental applications. Prerequisites: MATH 1013 or 1063, PHYS 1061 or equivalent, 1062 or equivalent. Recommended: MATH 2513 or 2013.

ESCI 4512   Applied Geophysics II   5 ch (3C 3L)
Introduction to principles, survey procedures and interpretation techniques of electrical, electromagnetic, and seismic methods of geophysical exploration. Applications of these methods to from mineral and hydrocarbon exploration as well as engineering and environmental investigations Prerequisites: MATH 1013 or 1063, PHYS 1061 or equivalent, 1062 or equivalent. Recommended: MATH 2513 or 2013.

ESCI 4611   Physical Geochemistry (A)   3 ch (3C)
Application of thermodynamics and kinetics to geological problems. Multi-component equilbria and activity coefficients. Water-rock interactions. Prerequisites: CHEM 2601 or ESCI 2602.

ESCI 4612   Isotope Geochemistry (A)   5 ch (5 C/L) [W]
Theory and application of stable and radiogenic istope geochemistry in geology. Coverage includes radiometric dating, radiogenic and table isotope systems in petrology and geochemistry, and applications of radiogenic and stable isotopes to the solution of problems in lithospheric evolution, paleoclomatology and environmental geochemistry. Prerequistes: ESCI 2602, 3131.

ESCI 4803   Work Term Report II   CR
A written report in the scientific activities of the work term. Credit for the couse is dependent in part on the employer's evaluation of the student's work activities. Students much be accepted into the Geology Coop program. To register for this course. Prerequisite: ESCI 3803.

ESCI 4900   Thesis Project   8 ch [W]
Students who intend to undertake a thesis project, either as an elective course or as a requirement for Honours BSc degree, are advised to consult with their intended faculty supervisor near the end of their third year. Students must have a CGPA of 3.0 or better. Additional requirements and guidelines for the project can be obtained from the Director of Undergraduate Studies. A written request for admission to the Honours program and/or for permission to take this course must be submitted by the student to the Departmental Chair no later than October 1 of the student's final year; the letter must state the provisional title of the project and the name of the faculty member who has agreed to supervise the project.

ESCI 4913   Independent Studies in Geology   3 ch
Advanced studies in a topic in geological sciences. The topic is to be chosen jointly by the student, advisor and Chair of the Department. May be taken for credit more than once. Title of the topic will appear on transcript. Prerequisite: Permission of the department.

ECONOMICS

ECON 1013   Principles of Microeconomics   3 ch [3C]
Economics studies the way individuals and groups make choices, how those choices are affected by incentives, and whether the resulting social arrangements can be improved by government interventions. Economics divides itself into two halves: micro and macro. Microeconomics focuses on smaller chunks of reality than macroeconomics. It focuses on individuals, firms, and products and seeks to understand (among other things) how prices and wages are determined the effects of taxation, price ceilings (or price floors) and quotas. Key concepts provide a tool kit to analyze individual and group behaviour and the effects of public policy. Students with credit in ECON 1001, 1014, or 1073 may not take this course for credit.

ECON 1014   Principles of Microeconoimcs: 3 ch (3C) [W]
     Critical Perspectives
This course is an alternative introduction to microeconomics. The aim is to be less comprehensive than ECON 1013, but to go deeper into the core topics to provide a more thorough critical perspective. In the process, the political and philosophical ideas underlying conventional economic conclusions are examined. The limitations of conventional economic reasoning, and the biases that may exist, are exposed. Students with credit in ECON 1001, 1013 or 1073 may not take this course for credit.

ECON 1023   Principles of Macroeconomics   3 ch (3C)
Economics divides itself into two halves: micro and macro. Macroeconomics is the study of larger chunks of reality than microeconomics, aggregates such as a country's gross national product, its rate of inflation, and its unemployment rate. The standard ('neoclassical') model is constructed to explain interest rates and exchange rates, and helps us understand how the government can stabilize the economy, and the limitations of government policy, in an increasingly globalized world. This model also helps us understand why some countries are rich and others are poor. Students with credit in ECON 1002, 1024 or 1073 may not take this course for credit.

ECON 1024   Principles of Macroeconomics: 3 ch (3C) [W]
     Critical Perspectives
This course is an alternative introduction to macroeconomics. As in ECON 1023, the standard 'neoclassical' model is presented and explained. While this model has long been criticized by heterodox economists - those in other schools of thought than the neoclassical school - there was until recently a consensus within the neoclassical school itself. The 2007 financial meltdown, and the subsequent Great Recession, has changed that. This course exposes students to the ongoing debates, their historical roots, and their political implications. Students with credit in ECON 1002, 1023 or 1073 may not take this course for credit.

ECON 1073 Economics for Engineers   3 ch (3C)
An introductory course designed for students in engineering and computer science programs. Topics covered include price, production and cost theory; aggregate supply, aggregate demamd; money and banking; public finance; and international economics. Open only to to engineering and computer science students. Students who take this course may not take any other first year economics course for credit.

ECON 2008   The Chinese Economy in Transition (O) 3 ch (3C)
This course surveys the working of the contemporary Chinese economy in its various aspects. Topics to be covered include the background to Chinas economic reform and its process, Chinas economic transition, factors contributing to Chinas fast economic growth, economic institutions, economic policy, and economic issues in contemporary China. Normally taught on location.

ECON 2009 Understanding Economics Through 3 ch [W]
          Film (O)
This course develops a vocabulary and a set of tools to analyse films, and utilizes the motion picture to establish the context for teaching economics concepts. Plots and subplots of selected films are used to illustrate problems and issues that are amenable to economic analysis. Through a combination of readings, lectures, discussion and films, students will develop a set of skills characterized as an economic way of thinking. The course is designed for undergraduates with no previous economic training.

ECON 2203   Introduction Economic Governance 3 ch (3C) [W]
This course introduces students to the role and functions of the public sector in the economic system. Topics include the rationale for government activities, the emergence of public/private collaborative initiatives, the impact of specific government programs, overall fiscal policy and government stabilization programs, policies designed to stimulate economic growth, and policies designed to protect the environment. These policies are considered in the context of intergovernmental fiscal relations and the inherent potential for conflict between different levels of government.

ECON 3013   Intermediate Microeconomics 3 ch

Microeconomics has two main purposes. First, it is a foundation course in the study of economics; it provides the essential building blocks for higher level economics and finance courses. Second, microeconomics can be directly applied to help solve the day-to-day decisions of business managers; issues such as pricing, production, advertising, and strategic interaction. It achieves this through extensive use of real-world examples and short case studies. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), or ECON 1073.

ECON 3015   The Economics of Strategic Thinking   3 ch (3C)
Strategic thinking is the art of outdoing an adversary, knowing that the adversary is trying to do the same to you. All of us must practice strategic thinking at work as well as in everyday life. As a business manager, political adviser, lawyer and in the day-to-day pursuits of life (such as buying a car) you will be trying to win the competition. This unit is about the basic principles students can adopt in the attempt to become a better competitive strategist in business and daily life. The unit draws these principles from the fields of business, politics, law, sports, warfare, fiction and modern art forms such as the movies. Prerequisite: First-year microeconomics [ECON 1001, 1013, 1014 or 1073], or permission of the instructor.

ECON 3023   Intermediate Macroeconomics 3 ch

Macroeconomics seeks to understand the way in which national economies function, and they way they interact with each other at the international level. Key questions are: the determination of a country's standard of living and rate of growth; the causes of recessions, unemployment, and inflation; the determinants of exchange rates and the benefits (or costs) of currency unions; and the determinants of interest rates. This course is an essential building block for higher level study in economics and finance, and is indispensable for understanding stock markets and financial investment. Prerequisite: 3 ch of first-year macroeconomics (ECON 1002, 1023 or 1024), or ECON 1073.

ECON 3055   Public Policy Analysis   3 ch

Provides students with the analytical tools to evaluate public policy. It will cover the following topics: the role of government in market economies, the constitutional division of responsibilities in the Canadian federation, the criteria for evaluating public policy; the economic tools used to evaluate public policy, the economic analysis of selected government policies, the economics of intergovernmental fiscal relations. Prerequisite(s): 3 ch of first-year microeconomics (ECON 1001, 1013, 1014) and 3 ch of first-year macroeconomics (ECON 1002, 1023, or 1024), ECON 1073.

ECON 3103   Introduction to Money and Banking   3 ch

Introduces theory of money, history of monetary systems, deposit creation, central and commercial banking, monetary policy and foreign exchange. Prerequisite: 3 ch of first-year macroeconomics (ECON 1002, 1023, or 1024), or ECON 1073.

ECON 3203   Public Finance Analysis   3 ch (3C)

Analyzes federal, provincial, and local expenditure and taxation by governments. Both theory and evidence (with an emphasis on Canadian institutions) are emphasized. Prerequisite(s): 3 ch of first-year microeconomics (ECON 1001, 1003, or 1014), or ECON 1073.

ECON 3204   The Taxation of Personal Income: 3 ch (3C)
Principles and Practice (O)

The taxation of personal income in Canada. Topics include the concept of taxable income; capital gains; dividends; deduction vs credits; tax rates; economic efficiency and equity; form alternatives of taxation. The Canadian tax treatment of personal income is examined in detail. Pre-requisite: First-year macroeconomics [ECON 1001, 1013, 1014 or 1073], or permission of the instructor.

ECON 3205   The Taxation of Business Income: 3 ch
Principles and Practice (O)

The taxation of corporate income in Canada. Topics include the structure of the corporate tax system; the concept of integration; typical tax planning strategies. Taxation of partnerships and trusts will be discussed briefly. The Canadian tax treatment of personal income is examined in detail. Pre-requisite: ECON 3204.

ECON 3401   International Economics: Trade   3 ch

Introduces the theory of international trade. Topics include mercantilism, comparative advantage, gains from trade, terms of trade, factor endowment and industrial organization models of trade, income distribution effects of trade, international movements of capital and labour, protectionism, trade agreements and economic development. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014) and 3 ch of first-year macroeconomics (ECON 1002, 1023, or 1024), or ECON 1073. ECON 3013 recommended.

ECON 3412   International Economics: Finance   3 ch

Introduces the financing of trade and capital flows among nations. Topics include balance of payments, foreign exchange markets and exchange rates, macroeconomic policy under fixed and flexible exchange rates, and international monetary systems Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014) and 3 ch of first-year macroeconomics (ECON 1002, 1023, or 1024), or ECON 1073; ECON 3023 recommended.

ECON 3504   Regional Economic Theory and   3 ch
Policy

Concerned with the general theory of regional economic disparities and economic development, and the role of governments (federal and provincial) in alleviating disparities. Emphasizes current problems and policies pertaining to Atlantic Canada. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), or ECON 1073.

ECON 3505   Information Technology and the   3 ch (3C) [W]
Canadian Economy

Blends economic analysis, economic history and public policy to spotlight the role of economics in the context of the revolution in information technology. Topics include: the structural evolution of the Canadian and regional economies, the emergence of knowledge based industries, the economic costs and benefits of education, the demographic and skill composition of Canada's labour force, the economics of technological change and the contemporary role of the information technology, the impact of information technological developments on human rights, the role of the private and public sectors in the new transnational global economy. Prerequisite: First-year microeconoimcs [ECON 1001, 1013, 1014 or 1073], or permission of the instructor.

ECON 3601   Business Statistics   3 ch (3C)
(Cross-Listed: ADM 2623)

Introduces the methods of data presentation and analysis, and their application to business problems, including measures of data description, probability concepts and distributions, and statistical design theory. Also considers sampling theorem, hypothesis testing using different techniques. Prerequisites: 33 ch, MATH 1823, and 1833 or equivalents. Student may not receive credit for both ECON 3601 and ADM 2632.

ECON 3602   Management Science   3 ch (3C)
(Cross-Listed: ADM 2624)

Presents a variety of applications of optimization models to business problems such as allocation, blending, and scheduling. Introduces concepts production planning, inventory control, network models and sequencing. Prerequisites: ADM 2623. Students may not receive credit for both ECON 3602 and ADM 2624.

ECON 3628   Advanced Statistics for Finance   3 ch (3C)
(Cross-Listed: ADM 3628)

Examines theory behind statistical techniques such as analysis of variance, simple and multiple regression, non parametric methods of estimation of hypothesis testing, and time series analysis. Examines the applications of these techniques to problems in finance and other areas of business administration. Prerequisite: ADM 2623. Students may not receive credit for both ECON 3628 and ADM 3628.

ECON 3665   Mathematical Economics I: Economic 3 ch
Analysis

Emphasis is on use of mathematical tools in economic theory. Prerequisite: Both first-year microeconomics (1001, or 1013 or 1014) and first-year macroeconomics (1002, or 1023 or 1024) or ECON 1073, plus Mathematics requirement for Honours and "A" majors.

ECON 3702   Cost-Benefit Analysis   3 ch [W]

Principles of cost-benefit analysis including consideration of welfare economics, the treatment of intangibles, non-efficiency considerations,time discounting, evaluation criteria, uncertainty and risk. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), ECON 1073.

ECON 3705   Canada and the New   3 ch (3C) [W]
Global Economy

This course will examine the Canadian economy in the context of the new global economy of 21st century. Economic theory, economic history and public policy will be the backdrop for a discussion of the trilogy of interactive economic forces that define the new global economy-globalization, trade liberalization and the information technology and communication revolution. Prerequisite: First year microeconomics [ECON 1001, 1013, 1014, or 1073].

ECON 3724   Economics of Human Resources   3ch

How do employers recruit the best employees for the job? How important is money relative to other factors when it comes to hiring and keeping employees? Should good performance on the job be rewarded or should bad performance be penalized? The purpose of this unit is to provide the student with the economic tools of analysis to answer these questions as well as many other important questions in the area of human resource management. Topics include education and training decisions, hiring and turnover, compensation and worker incentives, measuring performance, promotions as a motivator, and team-based production. The analysis of the main issues will be reinforced and complemented with reference to a series of firm-level case studies. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), or ECON 1073.

ECON 3744   Recreation Economics (O)   3ch (3C)

Discusses applications of economic principles to outdoor recreationplanning and policy decisions. Management and allocation issues areaddressed with emphasis on approaches which make outdoorrecreation as socially beneficial as possible at the lowest possible cost. 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014) or ECON 1073.

ECON 3755   Environmental Economics   3 ch

Examines interaction of ecological and economic systems. Considers population growth and food supply, non-renewable resources, and population. Prerequisite: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), ECON 1073, or permission of the instructor

ECON 3766   Economics of Climate Change (A)   3 ch (3C)

Climate change is posing a significant challenge to world economies. This course focuses on valuing the consequences of climate change and assessing the costs of mitigation and adaptation. The efficiency of alternative policy instruments such as carbon taxes, tradable emissions permits, voluntary initiatives, and others are assessed. Existing instruments, such as carbon taxes in British Columbia and carbon credit trading on the Chicago Climate Exchange are reviewed and critiqued. The potential contribution of these instruments to the overall achievement of Kyoto Protocol targets set by various countries is examined. Prerequisites: 3 ch of first-year microeconomics (ECON 1001, 1013, or 1014), or ECON 1073, or permission of the instructor.

ECON 3775   The Economics of   3 ch (3C) [W]
Canadian Immigration
An analysis of the role of international migration on the course of Canadian economic development. Prerequisites: Both first-year microeconomics (1001, or 1013 or 1014) and first-year macroeconomics (1002, or 1023 or 1024) or ECON 1073.

ECON 3801   Economics of Transportation I   3 ch
Examines the role played by transportation in the location of economic activity and other aspects of economic development. Prerequisite: Both first-year microeconomics (1001, or 1013 or 1014) and first-year macroeconomics (1002, or 1023 or 1024) or ECON 1073.

ECON 3815   Introduction to Health Economics   3 ch (3C)
The course discusses applications of economic principles and empirical analysis health and health policy. It considers such matters as the demand for health care, and the supply of health services both through health practioners and hospitals; the economic effects of health insurance, health economic evaluation techniques, and public policy formulation. Emphasis is on Canadian health programs and policies. Prerequisites: 3 ch of first-year microeconomics (ECON 1001, 1013, 1014) or ECON 1073.

ECON 3845   Introduction to Law and Economics   3ch [W]
This course applies the tools of economic analysis to the study of legal rules and institutions. Topics and case studies in three core areas of the law - property, contracts, and crime and punishment - are used to illustrate and develop two related ideas. The first is that economic principles have guided significant developments in the evolution of the law in many areas, and an understanding of these economic principles will lead to a better understanding of the law as it is currently practiced. The second is that economic analysis can be used to assess and critique current law from a social perspective, leading to improved public policy evaluation and formation in all areas of civil and criminal law. Prerequisite: First-year microeconomics [ECON 1001, 1013, 1014 or 1073], or permission of the instructor.

ECON 3865   Energy Economics   3 ch

Applies economic theory to energy issues. Demand for energy and supply of energy are explored in terms of non-renewable and renewable energy resources. Markets for energy resources are discussed. Specific attention is directed to petroleum markets and OPEC behaviour. Public policy issues associated with the energy sector such as the environment and sustainability are addressed. Prerequisite(s): Any first year economics course.

ECON 3905   Contemporary Issues in the   3 ch [W]
Canadian Economy

Examines a variety of contemporary economic issues, including inflation, unemployment, economic growth, regional disparity, monetary and fiscal policies, the new international economic order, bilateral and multilateral trade agreements. Prerequisites: Any First Year Economics Course.

ECON 4013   Advanced Microeconomics   3 ch (3C)

Focuses on advanced theory of choice. Topics include choice under uncertainty, the theory of the firm, oligopoly theories, game theory, general equilibrium, and the distribution of income. Prerequisites: ECON 3013 and ECON 3665 or ECON 3013 and an equivalent to ECON 3665.

ECON 4023   Advanced Macroeconomics   3 ch (3C)

Emphasizes core neo-classical theories as well as Keynesian and post-Keynesian models. Prerequisites: ECON 3665 (or equivalent) and ECON 3023.

ECON 4625   Econometrics I   3 ch

Introduction to basic econometric techniques for estimating and testing economic models. Topics include: review of basic statistics, the nature of econometric models and economic data, regression analysis, hypothesis testing, and applications. Emphasis is on intuition and applications. Prerequisites: Any first year economics course and 6 ch Introductory Statistics (e.g. ECON 3601/ADM 2623, ECON 3628/ADM 3628).

ECON 4665   Mathematical Economics II   3 ch

Economic applications of optimizing techniques are considered primarily in the context of linear models. Prerequisites: ECON 3665, or MATH 2003 and 2013, and ECON 3013.

ECON 4673   Introduction to Game Theory (O)   3 ch (3C)
(Cross-Listed: MATH 3373)
Strategic games, n-person games in normal form, dominated strategies, Nash equilibrium, mixed strategies and mixed strategy equilibrium, games with perfect information, games with imperfect information, Bayesian games, extensive games. The course introduces basic non-cooperative game theory and analytical tools for decision makers (consumers, firms, politicians, governments). It is suitable for Mathematics, Economics, Management Science, Political Science, Social Science and Science students or any student with a minor in such disciplines, in particular those in the Mathematics/Statistics-Economics option. Prerequisites: MATH 1823 and MATH 1833; or MATH 1003 and MATH 1013 ;or MATH 1053 and MATH 1063 ; or ECON 3013; or permission of the instructor.

ECON 5013   Topics in Microeconomic Theory   3 ch

Considers the advanced theory of production and consumer demand, expected utility theory, theory of the market, elements of game theory, general equilibrium and welfare. Prerequisites: ECON 3013 and ECON 4013.

ECON 5023   Topics in Macroeconomics   3 ch

Examines neoclassical, Keynes and Keynesian models, and static, dynamic, equilibrium and disequilibrium models. Prerequisites: ECON 4013 and 4023.

ECON 5285   Public Policy Research   3 ch (3R)

This course provides practical experience in public policy analysis through supervised research. Students will complete research projects assigned by the instructor. These projects are policy-oriented and are chosen in consultation with sponsoring agencies. A formal presentation of the results is required at the end of the course. Prerequisites: ECON 3013, ECON 3023 or permission of the instructor.

ECON 5515   General Regional Economic Theory   3 ch

Examines the history and evolution of location theory from the standpoint of individual producers in urban centers. Prerequisite: Some background in Economics.

ECON 5625   Econometrics II   3 ch

Review of matrix algebra. Errors in variables, instrumental variables, simultaneous equations, qualitative and limited dependent variables, dynamic models, model selection criterion, causality, unit roots, single equation cointegration methods. Emphasis is on practical application of simultaneous methods. Prerequisite: ECON 4625 or permission of the instructor.

ECON 5645   Applied Econometrics   3 ch

This course builds on the material covered in ECON 4625 Econometrics I. There are two main objectives to the course: first, to extend the classical model to consider a variety of related topics that are central to data analysis in the social sciences, including discrete and limited dependent variables, lagged dependent variables, panel data, and simultaneous equations; and second, to develop the application of the theory to empirical analysis by considering a variety of real-world examples. Prerequisite: ECON 4625.

ECON 5724   Economics of Human Resources   3 ch

Attention given to the economics of the education process, the theory and implications of innovation, the effects of education and technological change on the distribution of income, and the role of education and technological change in economic growth. Prerequisites: ECON 3013 and 3023.

ECON 5755   Environmental Economics II   3 ch

Applies economic theory to real-world environmental issues. The theory of environmental externalities is first explored. Then various applications are introduced such as environmental valuation techniques, computable general equilibrium modeling, and environmental accounting procedures. Such environmental issues as deforestation, urban air pollution, and water pollution will be covered. Prerequisite(s): ECON 3755 or permission of the instructor.

ECON 5805   Transportation Economics I (A)   3 ch (3C)

This course focuses on basic tools of economic analysis to determine demand and supply in transportation markets. Considerable attention is devoted to the derivation of market and aggregate demand for transportation services as well as to cost functions as determinants of supply of transportation services. Efficient pricing of transportation services is analysed. Investment criteria are reviewed to determine the efficient pricing. Market failures and imperfections of transportation markets are examined. Prerequisites: ECON 3013 and ECON 3023.

ECON 5815   Health Economics   3 ch (3C)

The course discusses and analyses the health economics literature. A set of topics will be selected by the instructor for consideration. Likely topics will include demand theory and measurement as applied to health care markets, production and supply theory (in the context of health markets), health economic evaluation methods, managed competition approaches to health care, and public policy analysis. Other topics may be introduced in accordance with the instructor's priorities, or the specific interests of the students. ECON 3013, ECON 3023 or the permission of the instructor.

ECON 5825   Industrial Organization: Theory   3 ch

Covers welfare economics of competition and monopoly, determinants of industrial structure, theories of industrial pricing, rationalization, technological innovation, and foreign ownership. Prerequisites: ECON 3013, or at discretion of instructor.

ECON 5835   Industrial Organization: Policy   3 ch

Economics of regulation and intervention, anti-combines policy, policy issues concerning the control of mergers, monopoly, predatory pricing, collusion, resale price maintenance. Prerequisite: ECON 5825, or at discretion of instructor.

ECON 5989   Topics in Economics I   3 ch (R 1S)

Directed study/reading programs. Workshops or seminars will be held as required. Students should apply to the Department of Economics in September or January for permission to take one of these courses.

ECON 5999   Topics in Economics II   3 ch (R 1S)

Directed study/reading programs. Workshops or seminars will be held as required. Students should apply to the Department of Economics in September or January for permission to take one of these courses.

EDUCATION

ED courses are normally not available to non-education students. Exceptions are ED 4791, ED 3021, ED 3031, ED 3043, ED 3063.

**ED 3011   Professional Ethics for Practitioners of   3 ch
                     Adult Education**

Introduction to ethical theory and philosophical approaches to reflective practice emphasizing self-examination, decision making, and ethical standards in the field of adult education. Participants use field experience to support readings and case studies.

ED 3015   Practicum in Adult Education   3 ch

Practical, field-based learning-based on an individualized learning contact and completed in teaching, learning or other appropriate adult education settings such as training, literacy, tutoring, curriculum development, etc. The intent of the practicum is to help learners develop observational, critical and reflective skills as well as skills appropriate to their work with adults.

**ED 3021   Human Development and Learning: An   3 ch
                     Overview**

Developmental perspectives on human growth and learning.

**ED 3022   First Nations Epistemology   3 ch
                (Ways of Knowing)**

Development of personal and social identity among children in First Nations communities. Implications for classroom practice.

ED 3024   Understanding the Adult Learner   3 ch

Explores the characteristics of learners in formal and non-formal education settings and identifies learning processes and conditions as they influence adult learning.

ED 3031   The Education of Exceptional Learners   3 ch (3C)

Provides the student with an introduction to the field of knowledge associated with exceptional learners.

ED 3033   Teaching in a Cultural Context   3 ch

How teachers respond effectively to the culture of children as individuals and to the culture of their people, with regard to a variety of cultural contexts, including Canadian aboriginal cultures.

ED 3041   The Theory and Practice of Education   3 ch (3C)

Introduces the dominant theories which influence and shape current thinking and practices in school environments today. Key ideas, their origins, teaching responsibilities, and the components of professional practice are discussed. The course is intended to orient education students to teaching as a profession.

ED 3042   History of Educational Ideas   3 ch (3C)

A course designed to inform beginning teachers about the most significant ideas (and the people who originated them) that have influenced the development of contemporary education.

ED 3043   First Nations Education   3 ch (3C)

Traditional First Nations pedagogy and concepts of education in comparison with those which have shaped formal schooling. Roles and responsibilities of schools, teachers, and communities in educating First Nations students.

ED 3044   History of Childhood   3 ch (3C)

A course that follows the changing public perception and treatment of children in western society from the Seventeenth Century to the present. Children in Maritime Canada are featured prominently.

ED 3051   School Law and Organization   3 ch (3C)

An overview of the legal, organizational, financial and professional aspects of schools and school systems.

ED 3061   Students, Schools, Equity and Social Justice   3 ch (3C)

Explores the social, economic, cultural and political contexts of learners' lives, discourses of social difference, equity and social justice. Topics include: sexism, gender bias, racism, class oppression, homophobia, and heterosexism, harassment and violence, and the questions these issues raises for schools, curricula and classroom practice.

ED 3063   Health Promotion in Schools   3 ch (3C)

Examines concepts and inter-relationships among nutrition, exercise, and well-being within educational contexts.

**ED 3110   Methods and Strategies in Adult   6 ch
              Education: An Introduction**

Examines key topics in applied terms to prepare new instructors for the first year of teaching. Topics include: planning instructional segments; writing objectives; evaluating students, programs and teaching; using and assessing teaching strategies, audio-visual aids and learning resources. Students will participate in micro-teaching activities.

**ED 3113   Communication Practices for Adult   3 ch
              Education**

Identifies general theories of and strategies for oral, written and visual communications. Students will be expected to assess their skill levels in all three areas.

ED 3114   Introduction to Workplace Learning   3 ch

Designed to provide learners with an appreciation of the origins and trends in workplace learning. The course will examine the workplace as a learning environment. Various approaches to adult learning within the changing context of work will be examined.

**ED 3115   Methods and Strategies in Adult Education 3 ch
              (online version)**

This course examines methods and strategies to facilitate effective adult education programs. Topics include: planning instructional segments; writing objectives; evaluating student work, programs and teaching; using and assessing teaching strategies, and learning resources.

ED 3362   Access to Literacy   3 ch (3C)

Although the teaching of reading is regarded as one of the fundamental tasks of the school system, there is relatively little attention paid to what is being read. In this course students will learn: how to find out about books; how to recognize a genuine work of imaginative literature when they encounter one; and how to talk about books among themselves and with children.

ED 3415   Developing Numeracy   3 ch (3C)
The study of number relationships and approaches to developing number sense in children and adults.

ED 3416   Developing Geometrical Concepts   3 ch (3C)

The study of geometric relationships and approaches to developing spatial sense in children and adults.

**ED 3475   Movement Education for the Elementary   3 ch (3C)
              Teacher**

Overview of physical education programs in elementary schools. Program planning, practical work.

**ED 3512   The Nature(s) of Science: Implications for   3 ch (3C)
              Teaching Science**

Provides an opportunity for participants to explore their models of the nature of science and consider the implications these models have on teaching and learning science.

ED 3513   Science Education Policy and Practice   3 ch (3C)
An introduction to current policies and practices in science education.

**ED 3561   Introduction to Second Language   3 ch (3C)
              Education***

Examines the principles of learning and teaching a second language (SL). Emphasizes the development of communicative SL activities and the creation of learner-centred lesson plans. * Required course for CTESL candidates. Students may receive credit for ED3561 or ED 3562 but not both.

ED 3562   Français langue seconde I - Secondaire   3 ch (3C)

Examen des principes de base de la didactique du français langue seconde (FLS) au secondaire ainsi que lexploration des pratiques de lenseignement du FLS au secondaire. *Required course for secondary French second language specialists. Pre-requisite: A French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Post Secondary Education, Training and Labour.

ED 3621   Introduction to the Social Studies   3 ch (3C)

Consideration of the history of social studies, debates about the content of social studies and the current state of social studies in Canada.

ED 3641   Geography in Education   3 ch (3C)

Scope and purpose of geography in education. Trends and source materials, including the use of maps, air photos, satellite images. Two laboratory sessions.

**ED 3862   Information and Communication   3 ch (3C)
              Technology I**

This course is designed to introduce students to basic concepts and practices in the integration of application software within curriculum-based topics. Emphasis is placed on the development of electronic portfolios of technology- enhanced teaching materials for the classroom.

ED 3943   Introduction to Technology Education   3 ch (3C)

Examines the development of technology education as a field of study and explores the context in which technology is taught in schools, applied in industry and its impact on society. Current technology applications are examined in areas such as: transportation, construction, communication, manufacturing and bio-technologies.

**ED 4000   Student Teaching for BEd (4 year)   18 ch
              Program1**

Fifteen weeks of school and classroom experience. Additional regulations are included in the Education General Regulations under Field Experiences Practicum (Student Teaching) in Section G of the Calendar. Prerequisite: Only students who have been officially admitted to the BEd (4 year) program may register for ED4000. For further information contact the Chair of the Student Teaching Department.

ED 4012   Diversity and Inclusion in Adult Learning   3 ch
Examines culturally-defined values, beliefs, and assumptions; how cross-cultural communication plays out in formal and informal situations, work environments, and the wider community; and how to create quality international and cross-cultural learning experiences. Develops practical strategies for ensuring meaningful inclusion and for creating safe climates that model the principle of valuing differently acquired wisdom.

ED 4031   Towards Diversity in the Classroom   3 ch (3C)
Examines how schooling reproduces and produces social inequality and explores liberatory pedagogical practices, particularly in relation to dimensions such as class, "race", gender, and sexuality.

ED 4032   Adult Learners with Exceptionalities 3 ch
This course examines the nature of 'special needs' in relation to sensory, cognitive, physical, emotional and/or learning capabilities in adults, and considers various approaches and strategies for meeting the unique needs of these adult learners.

ED 4042 Introduction to Adult Education 3 ch
Examines the development of adult education as a field of practice and explores the characteristics of adult education in a variety of contexts with specific emphasis on national and provincial contexts.

ED 4045   Issues in Training and Development   3 ch

Explores theoretical and practical components of workplace training designed to improve organizational effectiveness and individual performance. Learners examine emergent training topics in a variety of workplace contexts. Prerequisite: ED 3024.

ED 4061   Advising and Monitoring Adult Learners   3 ch

Examines the characteristics of helping relationships in educational and work settings. Focus will be on the development of skills and strategies conducive to effective advising, coaching and mentoring through collaborative learning, reflection and practice. Prerequisite ED 3024.

ED 4075   Reflection on Second Language Theory   3 ch
and Practice

Examination of fundamental issues in second language education such as definitions and assessment of bilingualism, early and later acquisition of a second language, cognitive effects of bilingualism, evaluation of second language education programs, literacy and multi-literacy.

ED 4089   Gifted Education: Introduction   3 ch (3C)

The identification, development and approach to the gifted and talented are examined in terms of their intellectual, social and emotional characteristics.

ED 4102   Transition to Adulthood   3 ch

Explores the principles of adult learning and their application to teaching, planning, problem solving, and motivating learners who are in transition from full-time attendance in educational programs to adult work and life roles.

ED 4110   Methods and Strategies in Adult Education: 6 ch
Theory and Practice

Based on learners' needs, interests and experience, theoretical and practical components of instructional strategies are explored in-depth. Particular attention is paid to the integration of instructional methods and strategies with adult learning models.

ED 4113   Introduction to Distance Learning in Adult   3 ch
Education

Provides an opportunity to explore and become familiar with currently available learning technologies to deliver distance education programs and courses. Use of these technologies will be required throughout the course.

ED 4115   Issues in Adult Literacy   3 c

This course provides and introduction to adult literacy education as well as critically examining the research and theory about adult literacies. Adult learning prinicples, instructional strategies and techniques that are used to develop adult literacy skills will be examined. Course topics include, but are not limited to, digital literacy, barriers to literacy, the development of language and literacy skills in groups, as well as literacy coaching.

ED 4164   Techniques of Teaching   3 ch (3C)

Students will learn to design lessons following lecture, Socratic discussion, or combination formats and learn the appropriateness of each. Classroom skills of positioning, elocution, questioning, listening, eye contact, and so on will be learned and practised in mini-teaching sessions in front of small peer groups. Causes of student behavior problems will be analyzed and strategies for dealing with disruptive students developed.

ED 4191   Independent Studies   3 ch

Students will normally be limited to 6 ch of independent study. Prerequisite: Permission of an instructor is required before registration.

ED 4451   Health Education   3 ch (3C)

Examines curriculum and pedagogy in a range of elementary, middle and secondary school programs that come under the rubric of health education. Includes analyses of underlying assumptions, the organization of knowledge, and pedagogical approaches to this subject area.

ED 4561   Evaluation de la competence langagiere en   3 ch
francais

Ce cours examine le quoi, le pourqoui, et le comment de l'évaluation en salle de classe. On explorera les practique exemplaires reliées à l'évaluation formative (au service de l'apprentissage et en tant qu'apprentissage), ainsi que l'évaluation sommative (l'évaluation de l'apprentissage). Les sujets abordés comprendront l'évaluation standardisée, la clarté des objectifs d'évaluation et d'apprentissage, le développement des techniques d'évaluation, et la communication des résultats. Notez: Ce cours est obligatoire pour tout étudiant inscrit à la concentration en français langues seconde, et i lest l'équivalent de ED 5175 Classroom Assessment. On peut recevoir de crédits pour ED 4561 Évaluation et apprentissage our ED 5175 Classroom Assessment mais non pas pour les deux cours.

ED 4562   Advecned Studies in ESL Education 3 ch (3C)

Examines communicative language teaching in the context of ESL classrooms. Emphasizes varied teaching methods, curriculum development and evaluation of second language learning. Prerequisite: ED 3561 or ED 3562 or equivalent.

ED 4567   Francais langue seconde II – Secondaire   3 ch (3C)

Examen en profondeur de l'enseignement du français langue seconde dans divers programmes du niveau secondaire. * Required course for secondary French second language specialists. Pre-requisite: ED 3562 and a French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Post Secondary Education, Training and Labour.

ED 4568   Francais langue seconde I – Elementaire   3 ch (3C)

Examen des principes de base de la didactique du français langue seconde (FLS) à l'élémentaire ainsi que l'exploration des pratiques de l'enseignement du FLS à l'élémentaire. * A required course for elementary French second language specialists. Pre-requisite: A French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Post Secondary Education, Training and Labour.

ED 4569   Francais Langue second II – Elementaire   3 ch

Examen en profondeur de l'enseignement du français langue seconde dans divers programmes de l'élémentaire. *A required course for elementary French second language specialists. Pre-requisite: ED 4568 and a French oral proficiency certificate with a minimum level of Advanced from the New Brunswick Department of Post Secondary Education, Training and Labour.

ED 4621   Learning to Learn about Teaching, Social Studies   3ch (3C)
and Science

Elementary school prospective teachers will explore the notion of teaching and learning a discipline through the study of teaching social studies and science.

ED 4643   Geography of Canada   3 ch (3C)

Investigation of pedagogical approaches to settlement patterns, urbanization, resource development, land use and economic characteristics of the various regions. Attention given to applications in the New Brunswick school curriculum.

ED 4686   Teaching First Nations Learner   3 ch (3C)

Teaching methods, learning strategies, program planning, with emphasis on a particular learning level.

ED 4688   Teaching First Nations Children's Literature   3 ch (3C)

Examines the philosophy and process of teaching First Nations Literature in an integrated curriculum for primary and elementary children. Includes practical classroom experience.

ED 4791   Nutrition Concepts   3 ch

An examination of nutrients in the human diet, the relationship between diet and health, nutritional assessment, nutrition education, dietary guidance and current nutrition issues. **Note:** Credit will not be given for both ED 4791 and KIN 3481.

ED 4862   Information and Communication Technology II   3 ch (3C)

An advanced course in the integration of ICT in the classroom. Students should have previously taken ED 3862 or be able to demonstrate sufficient background knowledge in application software. Focus will also include emerging trends in educational technologies.

ED 4863   Computers in the Classroom   3 ch (3C)

This course will study current research and practices in the integration of computer technology in Business Education, ICT, and other subject areas. Students are required to demonstrate best practices in the areas of using computers as a tool, tutor and tutee in education in the development and presentation of technology enriched lessons within their area of curriculum.

ED 4864   Educational Software Analysis   3 ch (3C)

This course is designed to examine current trends and research in educational software evaluation. Students will focus on both curriculum-based software as well as administrative applications intended for professional use in and out of the classroom

**ED 4973   Special Topics in Education or Special   3 ch (3C)
           Topics in Technology Education**
Research of current and emerging trends and development in technology, Technology Education and educational/instructional technology.

**ED 5000   Field Studies Practicum for Consecutive and   15 ch
            Concurrent Programs**
Fifteen weeks of school and classroom experience. Additional regulations are included in Education General Regulations under Field Experiences Practicum, Section F. Prerequisites: 1) Admission to the BEd (Consecutive or Concurrent program); 2) 30 ch in B.Ed. courses including: At the secondary level 9 ch in one area of concentration; At the elementary level 12 ch including ED 5424 , a course in Literacy at the elementary level, ED 5511 or ED 3621 and a course in either Art, Music or Physical Education; 3) at least 90 ch of course work in the other degree for concurrent students; 4) CGPA at least 2.0; 5) Students must have been enrolled in the B.Ed. for one year from the formal date of their admission before they are eligible for an Internship. 6) Completion of ED 4001 and ED 4002 or ED 4003 and ED 4004 . 7) Police Background Check (**See Note:** Section G: Field Experiences Placements and Practicum.)

ED 5001 Teaching and Learning Theories I   2 ch (2.5C)
This course introduces teaching as a reflective, professional practice focused upon three themes: Learning and Learners; Establishing a Classroom Context to Support Learning; and Professional Concerns for Teachers. Field experience is central to the course with students expected to apply course ideas in classroom and reflect on that experience in seminars.

ED 5002 Teaching and Learning Theories II   2 ch (2.5C)
As a culmination of Teaching and Learning Theory I and II, this course will facilitate students integrating their personal backgrounds, academic and professional education through the development of a significant project. Projects will be shared with peers as well as the broader professional and public community in a senior conference.

ED 5003 Teaching and Learning Theories III 2 ch
As a culmination of Teaching and Learning Theory I and II, this course will facilitate students integrating their personal backgrounds, academic and professional education through the development of a significant project. Projects will be shared with peers as well as the broader professional and public community in a senior conference

ED 5010 Advanced Practicum in Adult Education 6 ch
A practical, field-based learning experience in which learners will apply and practice previously acquired adult education principles and practices and will monitor themselves through using mentoring, collaboration, and peer consultation. Prerequisite: Practicum in Adult Education, or its equivalent.

ED 5011 Preparing for Prior Learning Assessment 3 ch
Through the use of reflection, self-assessment and personal journals, participants will create an experience-based dossier which will describe their personal philosophy, current professional practices, and needs for further learning. Prerequisite: ED 3024 or equivalent.

ED 5013 Special Topics in Education 3 ch
In consultation with faculty advisor. (Intended for students in the DAUS.)

ED 5022 Transformative Learning 3 ch
Explores new concepts for working with adult learners. Investigates critical thinking, critical self-reflection and transformative learning. Prerequisite: ED 3024 or equivalent.

**ED 5031 Creating Supportive Environments   3 ch (3C)
            for Learning**
Examines theory and practice related to learning environments and strategies for dealing with behaviour challenges and for children with various types of special needs.

ED 5032 Inclusion from the Early Years 3 ch (3C)
An examination of personal, societal and school assumptions about the meaning and importance of inclusion in life and learning from childhood. Inclusive models of education will be examined.

ED 5033 Special Topics in Education 3 ch
In consultation with faculty advisor. (Intended for students in the DAUS.)

ED 5035 Inclusionary Practices 3 ch
This course is designed to enhance prospective teachers' knowledge of diverse student learning needs and specific strategies for enhancing the learning environment for all students.

ED 5043 Special Topics in Education 3 ch
In consultation with faculty advisor. (Intended for students in the DAUS.)

ED 5044 The School and Society 3 ch (3C)
Study of Interrelationships between community, students and schools.

ED 5045 Philosophies of Education 3 ch (3C)
A study of various contemporary formulations of the meaning, aims, methods, and purposes of education, as well as the theories of human nature from which they are drawn.

ED 5046 Educating At-Risk Students 3 ch (3C)
Characteristics of the at-risk student. Psychological, social, and economic effects of dropping out. Remedial strategies involving learning, teaching, counselling, school climate, and school organization. Exemplary programs for at risk students and for dropout prevention.

ED 5050 Practicum 12 ch   The
school based experience component of the BEd involves one day per week in one's assigned school during the fall and winter terms as well as a two-week, three-week and seven-week block practica at points through the fall and winter term.

ED 5053 Middle Level Education 3 ch (3C)
Of interest to both experienced and student teachers, this course will focus on the physical, intellectual, psychological and social characteristics of 10- to 14-year-olds and the implications for effective instruction. Additional topics will include Middle School organization, curriculum integration, and teaming.

ED 5054 Changing Roles in the Education Workplace 3 ch (3C)
Reflection on professional relationships among teachers, administrators and parents. Recent changes in school law and a study of decision making processes in education will be considered.

ED 5062 Cultural Constructions of Childhood 3 ch (3C)
An historical examination of cultural constructions of childhood and family and the implications of these various constructions upon the education of young children.

ED 5065 Personal Growth and Helping 3 ch (3C)
Examines the major theories which explain how people develop and function from a psychological, emotional, social, and spiritual perspective and how this information may be used to help others in educational environments.

ED 5070 Cultural Contexts of Education 6 ch (3C)
This course examines history, philosophy, social contexts, and law as they relate to education. Through each of these disciplines we explore the broad concerns and impacts of policy, ethics, and equity, with connections to curriculum and pedagogy. The format will be a combination of lectures and seminars.

ED 5072   Teaching Gifted Students   3 ch
An examination of school wide enrichment models, curriculum differentiation, and the social and emotional needs of gifted learners. Note: In addition to work on campus, students will be required to complete a Fall practicum requirement either in their public school setting or independently. (Course offered in Summer Session only.) Prerequisite: Permission of the instructor is required before registering.

ED 5075 History of Education 3 ch (3C)
Current problems: aims, curriculum, teaching, administration and ideas viewed from an historical perspective.

ED 5076 Religion and Spirituality in Education 3 ch (3C)

This course will examine the controversial issue of religion and spirituality in education. It will examine how faith and visions of life impact education, values and the philosophy of education, religion and the history of education, visions of life in the curriculum, faith expressions in the classroom, and teaching about religion and spirituality.

**ED 5078 Communication Disorders in the   3 ch (3C)
           Classroom**
This course will provide an introduction to speech and language development in preschool children. It will also provide an overview of academic and classroom difficulties that may result from impairments in speech and/or language.

ED 5086 Special Education Field Experience 3 ch
Provides a school-based experience working with students with special needs under the direction of faculty and resource teachers. Enrolment is limited. Prerequisite: ED 3031. Permission of the instructor is required before registering.

ED 5091 Learning Disabilities: Introduction 3 ch (3C) Concepts, definitions and terminology. A preventive approach.

ED 5096 Behavioural/Emotional Disorders 3 ch (3C)
An overview of various emotional and behavioral disorders of children and young people and the ways in which coping and management strategies can be applied to develop self-discipline and control. Prerequisite: ED 3031 or ED 5035.

ED 5097 Differentiating Instruction in the   3 ch (3C)
Classroom
This course will allow teachers to explore current research on differentiation; familiarize themselves with many strategies for differentiating content, process and product; develop differentiation lesson plans including pre-assessment strategies as well as classroom management strategies intended for classroom application.

ED 5098 Counselling/Special Education Internship I 3 ch
Prerequisite: BEd or permission of the Chair.

ED 5099 Counselling/Special Education Internship II 3 ch
Prerequisite: BEd or permission of the Chair.

ED 5102 Curriculum and Evaluation in the Early Years 3 ch (3C)
Examines characteristics of early years learners and the role of the teacher as observer and curriculum developer in theory and practice.

ED 5105 Connecting Home and Schooled Literacies 3 ch (3C)
This course will examine the theory and practice of connecting home and school for the development of a literate community.

ED 5141 Orientation to Counselling 3 ch (3C)
Examines the role of the guidance counsellor at all levels in the public education system. Topics include: comprehensive school counselling programs, services, individual and group counselling, consultation, student appraisal, educational and career planning.

ED 5142 Career Guidance 3 ch (3C)
Explores the ways to stimulate career development at each level within the public education system. Topics include: definition of career guidance, theories of vocational development, career education in the curriculum, and career assessment and counseling.

ED 5143 Group Theory and Skills 3 ch (3C)
Explores the theory and experiences necessary to understand group dynamics and effective group skills with applications to the public education system. Topics include: group dynamics, leadership, team building, decision-making, communication, effective use of controversy and creativity in group decision making.

ED 5154 Power of Images   3 ch (3C)
(Cross Listed: FNAT 3703)
Explores the visual mode of learning to reveal its subtle and not-so subtle power to communicate and inform. Images found in fine arts, computer graphics, design, advertising, and journalism provide the subject matter for analysis. Images will be investigated in terms of their cultural, social, and historical contexts. To understand how images communicate, methods of analysis and image-making will be explored. Prerequisite: previous course in visual art, art education, or media.

ED 5156 Special Topics in Adult Education (0) 3 ch
Designed to explore areas of special interest or concern in adult education.

ED 5157 Adult Education and Community   3 ch
Development
Practitioners in various disciplines can build the capacity of communities to drive socioeconomic and systemic change necessary for enhanced sustainability. This course explores various adult education-related principles and strategies and enables participants to work on community development problems. (Offered every other year.)

ED 5161 Curriculum Theory 3 ch (3C)
Theory, current trends, and the role of the teacher in curriculum development.

ED 5162 Integrated Curriculum for the First   3 ch (3C)
Nations Learner
Culture-based education: design, development, and implementation. Appropriate evaluation and assessment.

ED 5164 Learning with Technology in Adult Education 3 ch
Utilization of a range of instructional technologies, application of educational technologies for teaching and learning. **Note: This course may not be taken by Computer Science students.**

ED 5166 Cultural Studies and Critical Pedagogy 3 ch (3C)
The study of the entire range of a society's arts, beliefs, institutions, and communicative practices and its application to education.

ED 5167 Interpreting Play for Curriculum Development 3 ch (3C)
An exploration of the literature on play including play as reflective pedagogy. A variety of theoretical perspectives will be brought to the interpretation of children's play. The teacher's role in creating physical and social environments that facilitate cognitive, emotional, social, spiritual and physical growth will be examined.

ED 5171   Assessing Adult Learning   3 ch
Identification of the principles and techniques underlying a variety of assessment methods for learning and teaching. Students will be expected to construct instruments and apply alternative assessment strategies.

ED 5173 Educational Statistics 3 ch (3C)
Statistics; descriptive and inferential. Includes central tendency, variability, normal curve, correlation and regression, probability, hypothesis testing, chi square, "t" test.

ED 5174 Introduction to Standardized Testing   3 ch (3C)
Instruments
An examination of selected standardized tests used in the public school system.

ED 5175   Classroom Assessment   3 ch (3C)
An examination of current assessment issues, procedures, and techniques and how these can be used to improve teaching and student learning.

ED 5181 Feminist Theory and Education 3 ch (3C)
Explores how feminist theories have re-thought educational practice, with specific focus on issues of knowledge, curriculum, classroom pedagogy, research, and educational policy.

ED 5182   Problem Solving with Young Children   3 ch (3C)
(Subject, Learner Levels)
Examines research and theory of problem solving with young children. Emphasizes teacher's role as facilitator of problem solving across the curriculum.

ED 5184 Parental Involvement in Schooling 3 ch (3C)
A critical examination of the theory and practice of parental involvement in schooling. A variety of current practices will be examined to explore how professional and parental knowledge/expertise are distinguished and how power relations are constructed.

ED 5191 Independent Studies 3 ch
Students will normally be limited to 6 ch of independent study. Prerequisite: Permission of an instructor is required before registration.

ED 5209   Theories and Practices of Visual Arts Education   3 ch
Addresses the history, rationales, developmental theories, curriculum planning, and basic art-making skills essential for teaching art at the elementary, middle, and high school levels. Visual understanding and how it can be increased through school art programs is a key consideration.

ED 5211   Integrated Learning through Art   3 ch
Art education theories and practices as they apply to learning across the curriculum. Prerequisite: ED 5209 or a previous course in visual art or art education.

ED 5212 Curriculum Development in Art Education 3 ch (3C)
Knowledge, skills, and understanding for developing art curricula at various learning levels. Prerequisite: ED 5209 or a previous course in visual art or art education.

ED 5213 Issues in Art Education 3 ch
An examination of local, national, and international issues currently being debated in art education. Prerequisite: ED 5209 or a previous course in visual art or art education.

ED 5272 Changing Teaching Practice 3 ch (3C)
Examination of teaching practices in light of current pedagogical theory. Specific attention to varying learning styles and modalities, developmental issues and student centered learning.

ED 5273 Interdisciplinary Instruction 3 ch (3C)
Explores the theory and practice of interdisciplinary teaching with specific reference to each of the elementary, middle level, and secondary levels of schools.

ED 5300   Literacy Block (O)   12 ch
Addresses the theoretical underpinnings and implementation methods of the six strands in the teaching of literacy: reading, writing, listening, speaking, viewing and visual representation. (Offered only in Trinidad and Tobago).

ED 5313   Cultural Studies through Theatre   3 ch (3C)
(Elementary, Middle, Secondary)
Theatre practices rooted in critical theory and cultural production will engage participants in an exploration of inclusive practices. No experience necessary.

ED 5314 Drama Across the Curriculum   3 ch (3C)
(Middle, Secondary)
Group process drama will be employed to study in any curriculum subject, such as history, mathematics, science and social studies. No experience necessary.

ED 5315 Dramatization of Literature   3 ch (3C)
(Elementary, Middle)
The interpretation and understanding of literature will be studied through various theatre practices, including readers' theatre, chamber theatre, monologues, dramatic scripts, and other media such as film.

ED 5352 Teaching Writing   3ch (3C)
This course introduces discourses about and approaches to teaching and evaluating writing in schools, including traditional approaches, writing process, genre modelling and critical studies.

ED 5353 Teaching Secondary English I 3 ch (3C)
Aims, materials, methods of teaching language, literature, and composition. Middle school and high school.

ED 5354 Teaching Secondary English II 3 ch (3C)
A sequel to ED 5353. Emphasis on planning course units, evaluation in English, and the integration of English and other subjects. Prerequisite: ED 5353.

ED 5355   Literacy Learning in the Early Years   3 ch
Current theories of the nature of literacy learning and their relationship to instructional practices in the early years.

ED 5356   Literacy Learning in the Middle School   3 ch
Current theories of the nature of literacy learning and their relationship to instructional practices in the middle years.

ED 5357   Poetry K-12   3 ch
Poetry is probably the most reluctantly taught subject in the school system. Yet it offers one of the most potent links with our cultural and linguistic heritage. This course provides access to texts and to a range of discussion strategies that can be used throughout the school system.

ED 5358 Critical/Cultural Literacy   3 ch (3C)
(Middle, Secondary)
An examination of literature from different cultural groups using the theories and pedagogical practices of critical literacy.

ED 5359   Cultivating Proficient Readers   3 ch

This course provides opportunities to learn a range of reading, learning and assessment strategies that address readers' strengths, needs and passions across content areas.

ED 5361 Challenging the Authority of Texts 3 ch (3C)

English studies are predicated on textual "authority"; something "authored" and "true." Students will be introduced to contemporary discourses which teach otherwise. Practical approaches offer alternative strategies to formalism structures bogging down English studies in schools.

ED 5362 Symbolic Representation in Children's Play,   3 ch
Pictures and Print

Examines theory in practice of young children and symbolic representation as the context of their emerging literacies.

ED 5422 Teaching High School Mathematics 3 ch (3C)

Focus on appropriate methodology for teaching mathematics at the high school level. Prerequisite: A previous course in mathematics education and 12 ch of mathematics (MATH) or 6 ch of mathematics and 6 ch of chemistry or physics.

ED 5423 Teaching Middle School Mathematics 3 ch (3C)

Focus on appropriate methodology for teaching mathematics at the middle school level. Prerequisite: ED 3415 or corequisite or permission of instructor.

ED 5424   Teaching Mathematics in the Elementary School   3 ch

Focus on appropriate methodology for teaching mathematics at the elementary school level. Students must demonstrate an adequate mastery of the mathematics content underlying the curriculum prior to completion of this course. Prerequisite or co-requisite: ED 3415 or a MATH course.

ED 5427   Trends in Mathematics Education   3 ch

Current issues in teaching mathematics, Grades K-12. Prerequisite: Teaching experience; at least one previous course in mathematics education.

ED 5428 Mathematics Across the Curriculum 3 ch (3C)
Explores ways in which mathematics fits into an integrated curriculum, grades K-12.

ED 5429 The Role of Language in the Teaching   3 ch (3C)
of Mathematics
Examines how the language of mathematics affects its acquisition and how appropriate use of writing and literature can enhance the learning of mathematics. Prerequisite: methods course or teaching experience in mathematics.

ED 5451 Special Topics in Health Education 3 ch (3C)
Explores specific areas of current interest and concern in health education, as defined by students, faculty, and classroom teachers.

ED 5478 Health and Physical Education in the 3 ch
Elementary School
Examines curriculum and pedagogy in elementary health and physical education programs.

ED 5488   Teaching of Games for the Secondary Physical   3 ch
Education Teacher
Concepts, skills, strategies for games taught in secondary schools. Practical application. Prerequisite: ED 5492 or permission of the instructor.

ED 5492   Introduction to the Teaching of   3 ch
Secondary Physical Education
An introductory methods class that examines the meaning of being physically educated, the nature of the school physical education curriculum and the instructional process.

ED 5493   Teaching Methods in Secondary   3 ch
Physical Education
Teaching process: styles, materials, space, facilities, and equipment. Practical application. Prerequisite: ED 5492 or permission of the instructor.

ED 5494 Teaching Physical Education 3 ch
A post-internship course for secondary physical education majors. Emphasis on contemporary trends in teaching physical education in public schools. Practical application.

ED 5495   Learning Through Outdoor Experiences   3 ch
This course introduces students to the theory and practice of teaching in an outdoor context. Students will be exposed to a variety of outdoor experiences and relevant teaching techniques and skills. It will culminate in an overnight camping trip.

ED 5505   Teaching Science in Elementary School   3 ch
The course will focus on the mindset and methods for teaching science at the elementary school level. Students will become familiar with using their content knowledge, pedagogical skills and their specific context to adapt and teach the elementary science curricula. This course will help students prepare effective science learning environments that embody an inquiry and constructivist approach to teaching.

ED 5511   Introduction to Science Education   3 ch
This course provides an introduction to the teaching of science that focuses on preparing to teach science while challenging their expectations and assumptions regarding science. The Nature of Science, lesson planning, curricular adaptation, assessment, inquiry-based learning, technology integration, and the barriers to learning science are some of the topics covered within the course.

ED 5512 Science Education and the Learner 3 ch
Designed to explore areas of interest or concern in science education. Prerequisite: ED 5511 or permission of the instructor.

ED 5513   Advanced Studies in Science Education I   3 ch
Advanced studies in the teaching and learning of science for the early years/middle school/young adult learners. Prerequisite: Introductory Methods course.

ED 5514   Special Topics in Science Education I   3 ch
Designed to explore areas of interest or concern in science education. Prerequisite: ED 5511 or permission of the instructor.

ED 5521 Science Education Seminar and Project 3 ch
Students who select either of the certificate programs will participate in advanced discussions concerning science education and develop projects that reflect some area of science education they would like to explore further and which demonstrate their understanding of science education.

ED 5566 Field Experience in TESL 3 ch
A practicum in the area of teaching English as a second language (TESL). This course is a requirement for students enrolled in the Certificate in TESL.

ED 5567 Specialized Techniques in ESL Teaching 3 ch (3C)
The custom-designed course will provide participants with a wide range of field-tested ESL techniques. The process will be active and interactive. Interaction will vary between small and large-group sessions.

ED 5620   Introduction to Teaching   6 ch
                    Secondary Social Studies
Students will develop initial competence in selected aspects of social studies teaching. Prerequisite: The equivalent of an academic minor (24 ch) in subjects related to social studies (e.g. history, geography, political science, classics, economics, sociology, and anthropology). Co-requisite or prerequisite: ED 3621. Concurrent students should register for this course in the year preceding their internship.

ED 5621   Introduction to Social Studies   3 ch
                    in Elementary Education
Students will explore the nature of social studies as a school subject and develop initial competence in select aspects of teaching elementary social studies.

ED 5622   Global Education   3 ch
An examination of the global education movement and its implications for curriculum and instruction. Students will be involved in a cross cultural experience, the examination of global education materials, and a curriculum development project. Prerequisite: 3 ch in teaching methods.

ED 5623 Teaching Canadian Studies 3 ch
An examination of the ways in which school curricula in social studies and language arts have dealt with the question of Canadian identity and the exploration of alternative ways to treat that topic. Various conceptions of Canadian identity will be examined along with the historic, geographical and cultural forces that have given rise to them.

ED 5683 First Nations Education Seminar 3 ch (3C)
Historical trends and contemporary issues in classroom practice and curriculum development.

ED 5684   The Anthropology of Knowledge   3 ch   *(Cross-Listed: ANTH 5684)*

Education is quintessentially a cultural matter. No matter what the context – be it in the formal education systems found around the world, or the many informal ways of passing on skills, knowledge, position, prestige and power – education is about culture. A systematic comparison of learning institutions and practices in a range of different cultural settings reveals a lot about our own understandings of teaching, learning and the management of knowledge as well as those from other cultures. Restricted to upper level students, or the permission of the instructor.

ED 5685 Developing First Nations   3 ch (3C)
                    Languages and Literacies
Identifies and examines the development of Mi'kmaq-Maliseet literacies' concepts and the relationships with language that define First Nations literacy in primary and elementary children.

ED 5691 Instructional Design Processes 3 ch (3C)
Introduction to instructional systems design (ISD) and alternative new processes, used to develop e-learning and classroom materials. Students will explore ways these processes may be used and will have opportunities to implement them.

ED 5698 Multimedia Studies in Education 3 ch (3C)
The theoretical and practical applications of multimedia technologies across the curriculum will be explored.

ED 5699 Cultural Studies through Multimedia 3 ch (3C)
Critical analysis of the cultural products and practices surrounding multimedia in education will be examined.

ED 5973 Special Topics in Technology Education   3 ch
Research of current and emerging trends and development in technology, Technology Education and educational/instructional technology.

ED 5975 Presentation Strategies in Technology Education 3 ch (3C)
Development of presentation competencies: delivery strategies, techniques, learning styles, management and resources.

ED 5976 Instructional Technology Across the Curriculum 3 ch (3C)
A critical examination of the role of instructional technology across the curriculum. Technologies and strategies for integration to enhance classroom instruction will be developed and evaluated.

ED 5977 Program Development in   3 ch (3C)
                    Technology Education
Principles and practices for determining knowledge, skills, and attitudes for teaching/learning.

Trinidad 4 year BEd

ED 3052   School Law   3 ch
An overview of the legal, organizational, financial and professional aspects of schools and school systems. (Only offered in Trinidad and Tobago).

ED 5170   Assessment in Education   6 ch
This course will deal with the what, why and how of classroom-based assessment. It will examine exemplary practices related to formative assessment (assessment for and as learning), as well as summative assessment (assessment of learning). The course will also examine the nature and purpose of large-scale assessment within education. Topics will include defining clear learning/assessment targets and standards-based assessment, designing assessment techniques, matching assessment with learning, and communicating assessment results. (Only offered in Trinidad and Tobago)

ED 5300   Literacy   12 ch
Addresses the theoretical underpinnings and implementation methods of the six strands in the teaching of literacy: reading, writing, listening, speaking, viewing and visual representation. (Only offered in Trinidad and Tobago)

ED 5900   Field Studies Practicum for 4 Year BEd   12 ch
Twelve weeks of school and classroom experience. Pre-requisite: only students admitted to the BEd (4 year) program in Trinidad and Tobago may register.

ED 5910   Practicum   6 ch
A practical field based professional growth experience in which learners will apply theory and monitor their praxis through mentoring and peer consultation. A portfolio will be produced that outlines best practice and professional growth. (Only offered in Trinidad and Tobago)

ED 5920   Aesthetics   9 ch
Examines music, visual art, and physical education both separately and based on curricular integration. Technical skills in each area are presented along with effective ways to implement these subjects in schools. Teaching resources and issues related to arts and education in different cultures are also examined. (Only offered in Trinidad and Tobago)

ED 5930   Teaching and Learning Citizenship & Social   12 ch
                    Studies

This course has been designed for practicing teaching professionals who have responsibilities directly related to citizenship and social studies education. The focus is upon the development of professional knowledge and skills that teachers require in assisting their students to be effective learners in citizenship and social studies education. The course will emphasize an evidence based approach to teaching and learning with participants being required to demonstrate a close knowledge of the related research and to demonstrate its application in their daily planning and practice.
The course will require students to become closely acquainted with generally accepted best practice in citizenship and social studies education based on an analysis of programs in England, Australia, the United States and Canada in light of current programming priorities in Trinidad and Tobago. The course structure will address several major themes including a detailed consideration of teaching approaches that assist students in learning: detailed information, concepts, skills and values. . (Only offered in Trinidad and Tobago)

ED 5940   Teaching Elementary Mathematics   12 ch
Focuses on the teaching and learning of mathematics at the elementary school level. Demonstration of methods occurs within a framework that develops content knowledge and mathematical connections underlying curricular topics. Projects and discussion draw upon the individual contexts within which teachers work. (Only offered in Trinidad and Tobago)

ED 5950   Curriculum and Administration   12 ch
Enhances professional practice by providing teachers with a research based framework for evaluating teaching, reflecting on professional experience, and planning in collaboration with colleagues to improve curriculum and professional practice. Tools are presented to help teachers assume leadership positions within schools. (Only offered in Trinidad and Tobago)

ED 5960   Science in Primary Schools   9 ch
An opportunity for participants to examine some of the more important educational theories directly related to teaching elementary and intermediate school science. The course will provide a series of interactive opportunities testing various methods and techniques of teaching science. (Only offered in Trinidad and Tobago)

ED 5980   Inclusive Education   6 ch
This course is designed to enhance teachers' knowledge of the diverse needs of students with special needs as well as knowing how to apply evidence based practices to meet their needs in the classroom. (Only offered in Trinidad and Tobago)

EDUC 1010   Children's Literature for Primary School Teacher   6 ch
This course draws on a rich variety of children's literature including picture books, poetry, plays, short story and non-fiction, and some Caribbean post-colonial literature. Throughout the course students will investigate the ways literature can act as a catalyst for writing and representing in the early years. (Only offered in Trinidad and Tobago)

EDUC 1025   History, Philosophy and Sociology of Education   3 ch
The aim of the course is to introduce students to a comparative/cross-cultural approach to understanding education and to encourage them to rethink the development of educational ideas, systems and practices by drawing attention to different cultural and historical contexts. In helping students question and challenge dominant ideas about education and its purposes, the module will use auto/biography, literary contexts and globalized movements in education. Topics will include: purposes and processes of a comparative approach to understanding education; the development of educational ideas, their values and practices; culture and education; globalization and education; and education and the post-colonial experience. (Only offered in Trinidad and Tobago)

EDUC 1030   Mathematics for Primary School Teachers   6 ch
The course will attend to aspects of content knowledge through emphasis on connections between mathematical ideas and a sense of mathematical process. Core content areas will include: number systems and properties; operations (including alternate methods of computation); basic number theory (eg. divisibility tests); a survey of geometry (tessellations, shapes, properties, constructions); probability and statistics; measurement; algebra and any other topics pertinent to the current primary mathematical curriculum in Trinidad and Tobago. (Only offered in Trinidad and Tobago)

EDUC 1045   Caribbean History   3 ch
This course of study seeks to expose students to those key themes and events that ought to be familiar to all peoples of the Caribbean. Those who are desirous of becoming teachers ought to have a strong sense of those precedents that would have shaped and fashioned education and the contexts in which they are currently working or will eventually be working. History is not a discrete discipline in the primary curriculum and ideally this course will address Caribbean history within the context of social studies education. (Only offered in Trinidad and Tobago)

EDUC 1050   Science Concepts and Process for Trinidad   6 ch
and Tobago Primary Teachers
This course will delve into the core science strands that underpin the Trinidad & Tobago science curricula (organisms; ecosystems; matter and materials; structure and mechanism; energy, and earth and space) and then integrate them across the standard levels and with each other. Particular emphasis will be placed on the processes of science; gathering objective evidence, analysis, developing inferences, drawing conclusions and making predictions. Finally, it is a fundamental goal of this course to provide the willingness and confidence to embrace science as an interesting and important part of the Caribbean region. (Only offered in Trinidad and Tobago)

EDUC 1065   Geography   3 ch
This course of study seeks to expose students to key themes in physical and human geography, thus helping in the understanding and application of spatial models and concepts to the study of geography. Those who are desirous of becoming teachers ought to have strong sense of the geographic phenomena that have shaped and are shaping human existence. Geography is not a discrete discipline in the primary curriculum and ideally this course will address geography within the context of social studies education. (Only offered in Trinidad and Tobago)

EDUC 1075   Art Education   3 ch
Students will explore how Art Education can serve to inspire, motivate and promote the creative imagination among students. Teaching and learning strategies will include developing: sensitivity to the elements of Art and Craft; imaginative and conceptual abilities; manipulative skills; verbal response skills; and artistic expressions and folkways that represent the multi-ethnic society of Trinidad and Tobago. (Only offered in Trinidad and Tobago)

First Nations Bachelor of Teacher Education Program (FNTEP)

ED 5800   Teaching Literacy in the Early School Years   12 ch
Addresses the theoretical underpinnings and implementation methods of the six strands of literacy: reading, writing, listening, speaking, viewing, and representing with particular emphasis on issues encountered by First Nations learners.

ED 5820   Curriculum and Administration   9 ch
Enhances professional practice by providing teachers with a research-based framework for evaluating teaching, reflecting on professional experience, and planning in collaboration with colleagues to improve curriculum and professional practice. Particular emphasis is placed on successful strategies that enhance learning in public schooling for First Nations learners.

ED 5830   Social Studies Education   9 ch
Focuses on the development of professional knowledge and skills that teachers require in assisting their students to be effective learners in social studies education. Emphasis is placed on an evidence based approach to teaching and learning with participants being required to demonstrate a close knowledge of the related research and to demonstrate its application in their daily planning and practice. First Nations world-views are the basis from which all topics are explored.

ED 5840   Teaching Mathematics in the Early School Years   12 ch
Focuses on a framework that develops content knowledge and mathematical connections underlying curricular topics. Projects and discussions draw upon the individual context within which teachers work, especially teachers of First Nations learners.

ED 5860   Science Education   9 ch
Helps teachers develop effective science teaching skills and innovative ways to integrate science with other disciplines in the curriculum. First Nations world-views and connections with nature are integrated into the content.

ED 5880   Exceptional Learners   6 ch

Introduces the field of knowledge associated with exceptional learners. A theoretical overview is explored of the definitions, causes, and incidence rates of major types of disabilities and exceptionalities. Attitudes toward people with disabilities and exceptionalities are examined.

ELECTRICAL AND COMPUTER ENGINEERING

See beginning of Section H for abbreviations, course numbers and coding. The * denotes labs which are held on alternate weeks.
A <u>minimum</u> grade of C is required for all prerequisites and all core and technical elective courses used for credit towards the B.Sc.E degree.
NOTE: Not all technical electives are offered every year. Please check with the ECE Department and/or the online timetable.

ECE 1813   Electricity and Magnetism   4 ch (3C 1T 2L)
An introduction to the fundamentals of electricity and magnetism and applications. Covers concepts of charge, voltage, current, power, energy, electric and magnetic fields, and the electromagnetic spectrum. Includes resistors, resistance, Ohm's law, Kirchhoff's voltage and current laws, some electrical properties of materials. Electric sources, simple series, parallel, and series-parallel DC circuits and branch current analysis are examined. The basic concepts of digital switching logic are introduced, including gates and truth tables. Energy conversion and simple electric machines are examined. The behaviour and use of common sensors and transducers are discussed. Prerequisite: two years of high school physics. Corequisite: Math 1003.

ECE 2214   Digital Logic Design   3ch (3C 1T)
An introductory course to practical aspects of digital system design. The course covers digital logic design, including basic design concepts and implementation technology, number representation, synthesis of combinatinal and sequential logic, and the use of HDL and computer-based tools.
Prerequisites: CS 1003 or CS 1073 or equivalent. Recommended ECE 1813 or EE 1813. Co-requisite: ECE 2215.

ECE 2215   Digital Logic Design Laboratory   1 ch (2L)
This is an introductory course to practical aspects of digital system design. Course includes the design of digital circuits with CAD tools and VHDL hardware description language. Prerequisites: CS 1003 or CS 1073 or equivalent. Recommended ECE 1813 or EE 1813. Co-requisite: ECE 2214

ECE 2412   Simulation and Engineering Analysis   4 ch (3C 1.5L)

An introduction to modeling and numerical methods as applied in the solution of engineering problems. The solution of nonlinear equations, polynomials, curve fitting, numerical integration and difference equations. Simulation tools such as MATLAB will be used. Prerequisites: CS 1003 or CS 1073 or equivalent; ECE 1813 or EE 1813 or equivalent; MATH 1013; MATH 1503 or equivalent.

ECE 2683   Electric Circuits and Machines   4 ch (3C 1T 3*L)
(for non electrical)

Network analysis including AC. Introduction to transformers, DC machines and AC machines. Cannot be used for credit by students in the Electrical Engineering and Computer Engineering programs. Prerequisites: ECE 1813 or EE 1813 or equivalent, MATH 1013, MATH 1503.

ECE 2701   Electric Circuits and Electronics   4 ch (3C 1T 3*L)
(for non-electricals)

Network analysis including AC. Introduction to electronic devices, circuits, and motors. Cannot be used for credit by students in the Electrical Engineering and Computer Engineering programs. Prerequisites: ECE 1813 or EE 1813 or equivalent, MATH 1013, MATH 1503.

ECE 2711   Electric Circuits   4 ch (3C 1T 3*L)

Basic DC circuits: Network analysis and theorems. AC circuits: introduction of phasors, Network analysis and theorems applied to AC circuits. Prerequisites: MATH 1013, ECE 1813 or EE 1813 or equivalent.

ECE 2722   Circuits and Systems   4 ch (3C 1T 3*L)
Network analysis. Transient and steady state responses. Transfer functions, complex frequencies, poles and zeros, Laplace Transforms. Frequency Response and Bode Plots. Filters (passive and active). Prerequisites: ECE 2711 or EE 2711 and MATH 1503 or equivalent. Corequisite: MATH 3503 or equivalent.

ECE 3031   Electrical and Computer   4 ch (3C 1T 1.5L)
Engineering Design
The emphasis is on application of design methodologies to electrical and computer engineering design problems in some of the major areas of Electrical Engineering. Topics include: design specifications and requirements, simulation and construction, laboratory measurement techniques, design verification, the implementation cycle, environmental impact, project management, economic evaluation and safety assessment. One or more design projects form an integral part of the course. Prerequisites: ECE 2722 or EE 2722, ECE 2213 or CMPE 2213 or ECE 2214 and ECE 2215, ECE 2412 or CMPE2412, ENGG 1001, ENGG 1003, ENGG 1015. Co-requisite: ECE3111 or EE 3111.

ECE 3111   Electronics I   4 ch (3C 1T 3*L)
An introduction to analog electronics using a device-based approach. The course starts with basic nomenclature and the ideal amplifier model concept. Semiconductor diodes, BJTs and MOSFETs are then introduced followed by how these devices can be used to implement single-stage small-signal amplifiers. To compliment this overall analog approach, the use of both BJTs and MOSFETs in digital logic gates is also covered which in turn introduces the concept of noise margins. Prerequisite: ECE2711 or EE 2711 or ECE 2701 or EE 2701.

ECE 3122   Electronics II   4 ch (3C 1T 3*L)
This course follows a similar approach to Electronics I (ECE3111), however in this more advanced course, the ideal devices introduced earlier are replaced with real devices. The overall theme of this course is frequency response and feedback techniques as applied to small-signal amplifiers. In addition, circuit modeling using a computer is introduced and used as a design aid. Prerequisite: ECE 2722 or EE 2722, ECE 3111 or EE 3111.

ECE 3213   Advanced Software Engineering   4 ch (3C 3*L)
The methods and tools of software engineering applicable to engineering systems (such as real time or embedded systems) are considered with engineering emphasis. Topics include design tools and techniques, project management, requirements definition, specifications, testing, verification and validation, maintenance for the engineering system context. Prerequisite: CS 2033.

ECE 3221   Computer Organization   4 ch (3C 1T 3*L)
Register transfer systems and datapaths, microprocessors, microprocessor architecture and operation, instruction formats, assembly language programming, procedures and parameter passing, system bus timing, interfacing memory IO ports, serial and parallel data transfer, interrupts. Prerequisites: ECE 2213 or CMPE2213 or ECE 2214; CS1023 or CS 1083. Co-requisite: ECE 2215.

ECE 3232   Embedded Systems Design   4 ch (3C 2L)
A hardware oriented course with emphasis on the components and techniques used in the design of embedded systems. Topics include system design methodologies and techniques, microcontroller hardware design, software design using C, testing and implementation. A team project will be used to provide the opportunity to apply the content of this course to the development of an embedded application. Most lecture material will be delivered in the context of this project. Prerequisite:CS1023 or CS1083; ECE 3221 or CMPE3221.

ECE 3242   Computer Architecture   4 ch (3C 3*L)
Important aspects of computer architecture will be covered with a unifying theme of computer system performance. Topics include computer evolution, system busses, main memory, cache memory, memory management, CPU structure, CPU pipelining, superscalar processors, reduced instruction set computers, 64-bit processors, and parallel processing architectures. Prerequisite: ECE 2215, ECE 3221 or CMPE3221.

ECE 3312   Systems and Control   4 ch (3C 1T 3*L)Mathematical models of dynamic systems, linear systems, analysis in the time and frequency domain, stability, Routh-Hurwitz and Nyquist stability criteria, feedforward and feedback control, PID controllers, principles of feedback design. Prerequisites: ECE 2722 or EE 2722, MATH 3503, ENGG 1082.

ECE 3511   Signals   4 ch (3C 1T 1.5*L)Signal theory. Discrete-time (DT) and continuous-time (CT) signals. Power and energy signals. Linear time-invariant transformations and the convolution integral/sum. DT and CT Fourier Series, DT and CT Fourier Transforms and their properties. Power/energy spectrum. Sampling Theory. The Discrete Fourier Transform. Prerequisite: ECE 2722 or EE 2722and MATH 3503. Co-requisite: STAT 2593.

ECE 3612   Electric Machines and Design in   4 ch (3C 1T 2L)
            Sustainable Energy Systems Covers the basic theory of transformers, DC motors/generators and AC polyphase machines, including synchronous and induction machines. This material is augmented with the application and design of such machines utilized in Sustainable Energy systems. Prerequisites: ENGG 1082, MATH 2513, ECE 2711 or EE 2711.

ECE 3812   Data Communications and Networking   4 ch (3C 3*L)
Data transmission fundamentals including signal encoding, error control, flow controls, multiplexing, switching. Protocol architectures (OS, TCP/IP). Network protocols peer to peer, medium access control, routing. Local area networks: Ethernet, wireless. Prerequisites: ECE3221 or CMPE3221.

ECE 3821   Electromagnetics I   4 ch (3C 1T 1.5L)
Transmission lines, wave equation, Maxwell's equations, uniform plane waves, radiated waves, safety standards, introduction to antennas and propagation. Prerequisites: MATH 3503, MATH 2513, ECE 2711 or EE 2711.

ECE 3832   Electromagnetics II   4 ch (3C 1T 1.5L) Electrostatics, magnetostatics, material properties, Smith chart, waveguides (including optical), antennas, and radar. Prerequisite: ECE 3821 or EE 3821.

ECE 4040   Electrical and Computer 7 ch (1*C 6L) [W]
            Engineering Design Project
Working in teams, students will complete an electrical engineering design project that draws on their knowledge and skills obtained in previous courses. Student teams will design a structure, system, or process to meet a broad range of specified constraints. The development process should consider a broad range of constraints including health and safety, sustainable development and environmental stewardship. Students will manage their projects professionally, prepare a comprehensive written report, and present their design work orally. Prerequisites: CS 1023 or CS 1083, and 52 credit hours of ECE core courses.

ECE 4133   Instrumentation Design   4 ch (3C 3*L)This course considers the design of a general-purpose data acquisition system. The electronic design engineer of today can no longer be thought of as a digital or analog designer. Consequently, this course melds the analog and digital electronics areas with a unified engineering approach emphasizing the practical aspects involved. Computer aided design tools are used wherever possible. Prerequisites: ECE 3122 or EE 3122, ECE 3221 or CMPE3221.

ECE 4143   Electronic Circuit Deign (O)   4 ch (3C 3*L)
Considers the philosophy and practice of the design of semiconductor circuits. Prerequisite: ECE 3122 or EE 3122.

ECE 4173   Devices and Circuits for VLSI   4 ch (3C 3*L)
Introduction to circuit design and layout. Basic digital gates and clocked systems. Basic RF circuits and components and devices for RF. CAD tools for simulation and layout. Prerequisites; ECE 2213 or CMPE2213 and ECE 3122 or EE 3122.

ECE 4251   Real Time Systems   4 ch (3C 2L)
Real time system design and implementation: basic concurrency theory including scheduling, mutual exclusion and process management, task synchronization and communication, operating system kernels, real time system hardware, software for real time embedded systems. Prerequisite: ECE 3232 or CMPE3232.

ECE 4253   Digital Communications   4 ch (3C 3*L)
Covers the fundamentals of digital communications, coding and modulation techniques, telecommunications, modems and modern applications, and current international standards. Prerequisites: ECE3221 or CMPE3221; ECE3511 or EE3511.

ECE 4261   Digital Systems Design   4 ch (3C 3*L)
Advanced study of the digital system design methodology. Design methods, models and approaches including: RTL Design, SOC design and testing methodologies, Intellectual Property (IP) reuse, software-hardware co-design, hardware description languages (HDL), structural and behavioral models, design for low power. One or more design projects. Prerequisite: ECE 3232 or CMPE3232.

ECE 4273 VLSI Systems Design   4 ch (3C 3*L)
Methods and tools for the design of FPGA-based digital circuits with focus on large-scale systems, i.e. digital signal and arithmetic processors, microcomputers. VLSI design process, standards, constraints, implementation, technology-dependent optimization, simulation, testing, and verification. Multi-FPGA systems. FPGA-based peripheral devices. One or more design projects. Prerequisite: ECE 4261 or CMPE4261.

ECE 4323   Industrial Control Systems   4 ch (3C 3*L)
Introduces the industrial context for the application of control theory, including system modeling and problem definition, determining system components and architectures, dealing with limitations and constraints (nonlinearity, disturbances), standard and advanced controls design and tuning methods. Computer-aided controls engineering is emphasized (algorithms/MATLAB). Prerequisites: ECE 3312 or EE 3312 or CHE 4601 or ME 4362.

ECE 4333 Robotics   4 ch (3C 3*L)
This is a project based course where students design a variety of subsystems that are integrated and tested on a mobile robot. Topics include: actuators, PWM, H-bridges, position and range sensors, velocity sensors, optical sensors and switches, strain gauges, position and velocity control, electro-mechanical subsystems, planning and trajectory generation, computer software and hardware interfacing. . Prerequisites: ECE 3221 or CMPE3221 or equivalent, ECE 3312 or EE 3312 or equivalent

ECE 4343   Haptics   4 ch (3C 3*L)
Haptics is the science and technology of experiencing and creating touch sensations in human operators. This course will cover the three interrelated domains of human physiology, mechanisms, and control, to develop kinaesthetic and tactile haptic displays that render a variety of environments. Course content consists of equal parts of at-home reading, in-class instruction of theoretical concepts, and in-lab application. Prerequisites: ECE 3312 or ME 3623.

ECE 4433 Safety Critical System Design   4 ch (3C3*L)
This elective covers the reliability, availability and fault tolerance of computer systems. It introduces topics related to fault-tolerant computing and reliability of hardware and software implementation of engineering systems. It includes fail-safe and fail-operate computer systems design, qualitative analysis of safety-critical systems, risk analysis, fault tolerance techniques, repairability and redundancy. Prerequisite: STAT 2593 and ECE 3312 or EE 3312.

ECE 4523   Communications Systems   4 ch (3C 3*L)
Introduces analog and digital communication in the presence of noise. Techniques and application of basic information theory. Prerequisite: ECE 3511 or EE 3511.

ECE 4531   Digital Signal Processing I   4 ch (3C 3*L)
Fundamentals of discrete-time processing. Difference equations and their solutions; the Z transform and its properties. Transfer function, frequency response, impulse response, and realization structures for discrete-time systems, cross-correlation and power spectral density. Discrete time filters: types, effects of pole-zero placement, the Bilinear Transform. Circular convolution and the DFT. Prerequisites: ECE 2213 or CMPE 2213, ECE 3511 or EE 3511.

ECE 4542   Digital Signal Processing II   4 ch (3C 3*L)
Fourier Methods, Fast Fourier Transform, Filter design, Windows, State Variable Methods, Estimation. Prerequisite: ECE 4531 or EE4531.

ECE 4623   Advanced Electrical Machines   4 ch (3C 3*L)
Covers principles of operation, controls and applications of single phase induction motors, permanent magnet machines including permanent magnet synchronous machines and brushless DC motors, servo motors, and other special electrical machines. Prerequisite: ECE 3612 or EE 3612.

ECE 4633   Power System Analysis   4 ch (3C 3*L)
Introduces many components of a power system. Prerequisites: ECE 3612 or EE 3612, ECE 2722 or EE 2722 or ECE 3312 or EE 3312.

ECE 4643   Power Electronics   4 ch (3C 3*L)
Deals with high current rectifiers and inverters. Design parameters and practical firing circuits are analyzed. Prerequisites: ECE 3111 or EE 3111, ECE 3612 or EE 3612.

ECE 4823   Communications and Network   4 ch (3C 3*L)
                    Engineering
Advanced network architectures: RSVP, MLPS, RTP. Modeling and simulation of data networks: queuing models for media access, error control and traffic management protocols, modeling of traffic and inter-arrival time, performance analysis. Network protocol design. Network management and security. Prerequisites: STAT 2593 ; ECE 3221 or CMPE 3221.

ECE 4833   Microwave Engineering   4 ch (3C 3*L)
Topics related to modern microwave systems including design and measurement of passive microwave circuits. Prerequisite: ECE 3832 or EE 3832.

ECE 4843   Optical Fiber Communications   4 ch (3C 3*L)
Optical fibers: properties, structure and fabrication. Ray optic and electromagnetic characterizations: modes, waves, power launching and coupling. System design, applications and economics. Prerequisite: ECE 3821 or EE 3821, or ECE 3832 or EE 3832.

ECE 4913   Independent Project 4 ch (8L) [W]
An independent project. Students work under the supervision of a chosen faculty member. Students are responsible for finding a supervisor and initiating the project. Deliverables include a comprehensive report detailing the work. Prerequisite: successful completion of 110 ch in the engineering program.

ECE 4923   Introduction to Biomedical   4 ch (3C 3*L)
                    Engineering
Application of electrical engineering to living systems and to health care. Prerequisite: ECE 3111 or EE 3111.

ECE 4933   Special Studies in Electrical Engineering   1 ch
With the approval of the Department Chair and under the guidance of a member of the faculty, a student may perform special studies and investigations related to the undergraduate program. Restricted to students in their final year of study.

ECE 4943   Topics in Computer Engineering   4 ch (3C 3*L)
A selected area of computer engineering with a unifying theme will be explored in depth. The topics covered are selected from one or more of the following areas: parallel processing, operating systems, concurrent system performance, network based parallel computing, embedded system issues, algorithms in real-time, computer system modeling and analysis. Prerequisite: ECE3232 or CMPE3232.

ENGINEERING

ENGG1001 Engineering Practice Lecture Series   **0 ch (1C)**

A guest lecture series intended to introduce students to the engineering profession. Speakers from various engineering disciplines and job functions share their career experiences and discuss exciting engineering projects underway in the region.

ENGG1003   Engineering Technical   4 ch (2C, 3L) [W]
             Communications

Oral, written and visual communication skills are developed as important tools used by engineers. Technical writing style is taught through the preparation of reports and summaries, and oral communication skills are improved through public speaking and the preparation of formal presentations. Computer-aided design is introduced and used to enhance visualization skills. The importance of information literacy is stressed. Various types of engineering drawings are presented and engineering unit conversions are practiced.

ENGG1015   Introduction to Engineering Design 2 ch (1C, 2L)
             and Problem Solving

This course introduces engineering design methodology and develops basic problem solving techniques. Under the supervision of senior students and with the guidance of industry engineers, students work both individually and in teams on real engineering design projects for the local community in a simulated engineering consulting environment. Project planning, team-building, leadership and responsible care are discussed. Laboratories are used to demonstrate problem solving techniques for analytical and open-ended problems, and life-long learning is emphasized by having students integrate co-requisite and researched material into a structured design process. Co-Requisites: ENGG1003 , PHYS 1081 , MATH 1003 , MATH 1503

ENGG1082   Mechanics for Engineers   4 ch (3C 1T 2L)

Introduction to the fundamental concepts of vector analysis, and its application to the analysis of particles and rigid bodies. The static analysis of particles and rigid bodies, including practical applications such as the analysis of trusses, frames and machines. The static analysis of structural systems including the analysis of internal forces and bending moments in beams. The analysis of kinematics of particle motion along straight and curved paths. The analysis of kinetic motion for particles based on force and acceleration, and work and energy. The course topics focus on visualizing concepts in mechanics, and developing problem solving strategies. Prerequisite: PHYS 1081 , MATH 1003 and MATH 1503 (or MATH 2213 or equivalent).

ENGG4013   Law and Ethics for Engineers   3 ch (3C)

General introduction to the legal and ethical aspects of engineering practice. Social responsibilities of engineers, the engineering act and code of ethics, occupational health and safety, sustainable development, environmental stewardship, employment equity, legal duties and liabilities of the professional engineer, contracts, the tort of negligence, labour law, intellectual and industrial property, conflict resolution. Restricted to students with at least 100 ch in the engineering program. Limited enrolment; priority given to students in their final year of engineering.

ENGG4025 Multidisciplinary Design Project 8 ch (2C 2T 4L) [W]

Full-year design course (fall and winter of same academic year) which may be taken in place of the final year design course in any engineering program. Working in multidisciplinary teams of 4 or 5 students, students will work on a design project sponsored by an outside client. The proposed solution should meet a broad range of constraints including health and safety, sustainable development and environmental stewardship. Deliverables include progress reports and presentations, a final report including engineering drawings, and if applicable, a prototype. Weekly lectures will cover topics relevant to the design projects and will include presentations by guest speakers. The weekly tutorial hours are designated for scheduled meetings with project co-mentors . Prerequisites: Restricted to students who have met the requirements of the capstone design course in their program and have received approval from their degree program coordinator

ENGLISH

ENGLISH

General Notes on Courses

Courses whose numbers begin with the digits 3 and 4 are normally open only to students in their third and fourth years. Courses whose numbers begin with the digit 5 are normally open only to students in Honours.

There is a prerequisite of 6 credit hours in English at the introductory or intermediate level for all advanced-level courses in English, unless special permission is obtained from the instructor of the advanced-level course.

Each spring the Department compiles a Handbook with detailed descriptions of courses to be given in the following academic year. For information about instructors, texts, methods of instruction, assignments and examinations required, etc., you should consult this Handbook, available from the Department office. For further information, consult the instructors.

Other Literatures: Consult the course listings for Classics, French, German, Greek, Latin, Russian, and Spanish, and for World Literature and Culture Studies.

English as a Second Language: Consult the course listings for AESL (Academic ESL).

Drama program: Consult the course listings for DRAM.

Film program: Consult the course listings for FILM.

Note: See beginning of Section H for abbreviations, course numbers, and coding.

Introductory-Level Courses

Note: All introductory courses in English emphasize writing skills and provide many opportunities for students to practice and improve their writing.

ENGL 1000   Introduction to Modern Literature in   6 ch (3C) [W]
               English

This course introduces students to a diverse range of literary works written in English, primarily from the twentieth and twenty-first centuries, including short stories, poems, plays, and novels. These works demonstrate how literature can open up new understandings about societies and histories both within and beyond our local experience. The selection of texts varies from section to section, but all sections devote one-third of class time to developing writing skills, and the course places considerable emphasis on critical reading. ENGL 1000 welcomes all students with an interest in English, and it is normally required for English Majors and Honours.

ENGL 1103   Fundamentals of Clear Writing   3 ch (3C) [W]

A study of the basic principles of clear prose writing, focusing on essay structure and organization, paragraph structure, sentence structure, grammar, punctuation, and word choice, as well as revising and proofreading. Students will submit numerous written assignments.

ENGL 1104   Fundamentals of Effective Writing   3 ch (3C) [W]

A further examination of the basic principles of prose writing, with special attention to larger patterns of organization and development used in prose exposition and argument. **Prerequisite:** a grade of C or better in ENGL 1103, or equivalent.

ENGL 1144   Reading and Writing   3 ch (2C 1T) [W]
              Non-Fiction Prose

By studying non-fiction prose models and by writing essays, students will work to improve their writing, explore techniques to craft effective essays, and develop critical and analytical skills applicable to a wide range of disciplines. Tutorials use exercises and discussions to assist this development.

ENGL 1145 An Introduction to Prose Fiction   3 ch (2C 1T) [W]
Two weekly lectures examine a variety of short stories (and perhaps one or two novels) from the nineteenth, twentieth, and twenty-first centuries. Weekly small tutorials teach critical and writing skills (such as grammar, punctuation, organization, and argumentation) applied to the course readings.

ENGL 1146 An Introuction to the Novel (O)   3ch (2C 1T) [W]
Examines a brief range of novels from the nineteenth and twentieth centuries.

ENGL 1173 Introduction to Acting and Performance   3ch (3C plus
(Cross-Listed: DRAM 1173)   practical work)
An introduction to acting suitable for students at all skill levels, from beginners to experienced performers. Instruction will cover the basics of voice, movement, improvisation, script analysis, and monologue and scene work, culminating in a final performance project.

Intermediate- Level Courses

ENGL 2170 Principles of Drama Production   6 ch (3 hours/wk)
(Cross-Listed: DRAM 2170)   An introduction to the fundamentals of acting and technical theatre (including carpentry, set construction, lighting, sound, and prop and costume design). Instruction centres on 1-2 full-scale theatre productions mounted by the class for Theatre UNB. Rehearsal, workshop, and performance time additional to regular class hours required. Open to students at all levels.

ENGL 2195 Creative Writing: Poetry 3 ch (3C/WS) [W] [LE]
                 and Drama
Introduction to the writing of poetry and drama, with a focus on basic technique, style, and form. Combines writing exercises and lectures on the elements of writing, but also introduces the workshop method, by which students provide critiques of each other's work and develop editorial skills. May include assigned readings.

ENGL 2196 Creative Writing: Fiction and   3 ch (3C/WS) [W] (LE)

         Screenwriting

Introduction to the writing of fiction and to screenwriting, with a focus on basic narrative technique, style, and form. Combines writing exercises and lectures on the elements of writing, but also introduces the workshop method, by which students provide critiques of each others work and develop editorial skills. May include assigned readings.

ENGL 2263 Shakespeare and Film (O)   3 ch (3C) [W]

Film directors have transformed Shakespeare into one of today's hottest cultural properties, rekindling a profitable relationship with the world's greatest playwright that dates back to the first days of late-nineteenth-century cinema. The screen has now overtaken both the written text and the stage as the medium in which most people discover and appreciate Shakespeare. In this course we shall study some examples of this flourishing exchange between Shakespeare and film in terms of artistic expression and social practice. Required readings include single-volume editions of the plays; a film studies handbook; and screenings of the films (at least two versions of each play).

ENGL 2603 Literature of Atlantic Canada (O) 3 ch (3C) [W]
An exploration of poetry, fiction, and drama written, in English, by Atlantic Canadians that emphasizes the prevalent themes explored by Maritime and Newfoundland authors, such as the search for personal and regional identity, human relations to landscape and the natural world, and the meaning of the "home place." Authors may include Alden Nowlan, Milton Acorn, Rita Joe, David Adams Richards, John Steffler, Mary Dalton, Anne Compton, Wayne Johnston, Lisa Moore, Anne Simpson, George Elliott Clarke, Sue Goyette, Michael Crummey and Tammy Armstrong.

ENGL 3083 Literary Theory and Critical Practice 3 ch (3C) [W]
A study of the development of literary theory and criticism, with some attention to critical practice. The course covers major approaches to literary interpretation, such as deconstruction, gender studies, Marxism, new historicism, postcolonial studies, and psychoanalysis. Readings will include excerpts from theorists such as Jacques Derrida, Michel Foucault, Julia Kristeva, Judith Butler, and Homi Bhabha. Required for the Single and Joint Honours programs..

ENGL 3103 Creative Writing: Studio   3 ch (3WS) [W]
             Course (O)
A studio course offers students the opportunity to work on an independent creative writing project supervised by a faculty member of the English Department or by a person approved by the Director of Creative Writing and the Chair of the Department. Students wishing to take a studio course must find a faculty member willing to supervise the project. The project may explore a single genre in depth or may be a multi-genre work. Readings will typically be assigned in addition to the writing done for the course. Students will meet regularly with the supervisor in editorial sessions to discuss the writing in detail and to discuss assigned readings. The course must not include writing done for another course or workshop

ENGL 3113 Advanced Expository Writing and   3 ch (3C) [W]
             Rhetoric (O)
A workshop course in expository prose, intended for those who expect writing to be an important element in their careers. There will be frequent reading and writing assignments, and discussion of student work in the class.

ENGL 3123 Creative Writing: Poetry   3 ch (3WS) [W]

A creative writing course aimed at developing skills in the writing of poetry. It involves prescribed readings, exercises, workshops, and discussions.

ENGL 3143 Creative Writing: Short Fiction   3 ch (3WS) [W]

A creative writing course aimed at developing skills in the writing of short fiction. It involves prescribed readings, exercises, workshops, and discussions.

ENGL 3153 Creative Writing: Non-Fiction (O)   3 ch (3C) [W]

A creative writing course aimed at developing skills in the writing of non-fiction. It involves prescribed readings, exercises, workshops, and discussions.

ENGL 3163 Creative Writing: Drama (O)   3 ch (3WS) [W]

A creative writing course aimed at developing skills in the writing of drama. It involves prescribed readings, exercises, workshops, and discussions.

ENGL 3170 Advanced   6 ch (3hours/wk plus
             Drama Prouction   practical work)
              (Cross-Listed: DRAM 3170)

A project-based course that builds on ENGL/DRAM 2170 by offering advanced training in acting, directing, and design for the theatre. Instruction centres on 1-2 full-scale theatre productions mounted by the class for Theatre UNB. Rehearsal, workshop, and performance time additional to regular class hours required. **Prerequisite:** ENGL/DRAM 2170 or equivalent.

ENGL 3175 Director's Theatre   3 ch (3C)

Explores a number of theatrical texts from the viewpoint of the stage director. Students will study selected scripts as performance texts for the contemporary stage rather than as literary artifacts. Prerequisite: ENGL 2170, ENGL 3170, or equivalent knowledge of and experience in practical theatre production.

ENGL 3183 Creative Writing: Screenwriting   3 ch (LE)

                 for Short Formats

                 (Cross-Listed: FILM 3183)
This course guides writers through the basics of short format screenplay structures and introduces them to basic story, character, and dialogue principles. Students will be exposed to a wide range of short films in a variety of genres and forms so that they can explore the limits and possibilities of briefer forms of cinematic storytelling.

ENGL 3186   Creative Writing: Feature Screenplay   3 ch (LE)

This intensive course guides writers through the basics of feature screenplay structure, character principles, archetypal storytelling, writing and rewriting strategies, and 'the biz.' Classes are a combination of lectures, discussion, and workshops. **Prerequisite:** ENGL/FILM 3183 or equivalent writing experience with permission of the instructor.

ENGL 3260 Shakespeare   6 ch (3C) [W]

A study of selected plays.

**ENGL 3263 Shakespeare's Predecessors and   3 ch (3C) [W]
                          Contemporaries (A)**

A study of English medieval and Renaissance drama, excluding Shakespeare.

**ENGL 3283   Early Renaissance Poetry   3 ch (3C) [W]
                          and Prose (A)**

Examines a wide variety of sixteenth-century poetry and prose, including sonnets and other lyric poetry, allegorical epic, early prose fiction, statements on literary theory, and contemporaneous commentary on political events, as well as early translations of a few major works of the European Renaissance. Also explores the historical and intellectual contexts of the works, and the politics and social structures of this age of exploration and experimentation.

**ENGL 3284   Poetry and Prose of the Later   3 ch (3C) [W]Renaissance
(including Milton) (A)**

Examines a wide variety of non-dramatic poetry and prose from the end of the reign of Elizabeth I to just after the Restoration (1660). The course explores the poetry of Donne and the Metaphysical poets, Jonson and the Cavalier poets, Marvell, and the gradually more numerous women writers; it also examines the new forms of prose and includes a selection of Milton's works.

ENGL 3343 The British Novel I (A)   3 ch (3C) [W]

A study of the early development of the novel, from the beginnings to the early nineteenth century, including such novelists as Defoe, Richardson, Sterne, Burney, Henry and Sarah Fielding, and Austen. Some attention will be paid to the social contexts of the emerging genre, and to its roots in such forms as the letter, the newspaper, and broadsheet criminal biography.

**ENGL 3385   Restoration and 18th-Century   3 ch (3C) [W]
                    Literature (A)**

A study of selected works of eighteenth-century literature. The emphasis in the course (whether it focuses on drama, poetry, or prose) will depend upon the instructor.

ENGL 3400   The Romantic Period (A)   6 ch (3C) [W]

A study of English literature written between 1789 and 1832 in the context of intellectual, social, political, and religious forces. The course will focus on the Romantic poets but will include a selection of prose texts from the period. **Note:** Students cannot obtain credit for both ENGL 3400 and ENGL 3406.

ENGL 3406   The Romantic Period (O)   3 ch (3C) [W]

A study of English literature written between 1789 and 1832 in the context of intellectual, social, political, and religious forces. The course will focus on the Romantic poets but may include a brief selection of prose texts from the period. **Note:** Students cannot obtain credit for both ENGL 3406 and ENGL 3400.

ENGL 3410   Victorian Literature (A)   6 ch (3C) [W]:

This course studies selected British Victorian authors, such as Thomas Carlyle, Robert Browning, Elizabeth Barrett Browning, Emily Bronte, Alfred Tennyson, George Eliot, Charles Dickens, D.G. Rossetti, Christina Rossetti, Matthew Arnold, and John Ruskin. Although th course may include some fiction, its main focus is on poetry and essays. The literature will be studied in its historical context, with substantial attention paid to the rich historical and cultural developments of this eventful era. **Note:** Students cannot obtain credit for both ENGL 3416 and ENGL 3410.

ENGL 3416   Victorian Literature (O)   3 ch (3C) [W]

Studies selected British Victorian authors, such as Robert and Elizabeth Barrett Browning, the Brontës, Tennyson, Eliot, Dickens, and Ruskin. Although the course may include some fiction, its main focus is on poetry and/or essays. **Note:** Students cannot obtain credit for both ENGL 3410 and ENGL 3416.

ENGL 3443 The British Novel II (A)   3 ch (3C) [W]

A study of major novels from the mid nineteenth century to the early twentieth century.

ENGL 3535   Modern British Poetry (A)   3 ch (3C) [W]

This course explores a variety of British poems from the twentieth and twenty-first centuries, including examples of traditional artistic concerns, technical innovations, war protest, social criticism, whimsy, emotional turmoil, and political commentary. The primary focus is on the detailed examination of a small number of selected works.

ENGL 3540 The Modern British Novel (A)   6 ch (3C) [W]

This exploration of ten British novels from the twentieth and twenty-first centuries reveals the period's wide range of both social concerns and literary techniques. The varied selection of the course offers intriguing stories that display the complexities of human relationships and social conventions as well as the possibilities of technical experimentation. A sense of the overall development of the modern novel is provided by the inclusion of both early representatives and novels published within the last few years.

ENGL 3608 Canadian Literature to 1900 (A)   3 ch (3C) [W]

A survey of Canadian non-fiction prose, poetry, fiction, and drama from early narratives of encounter to 1900, examining key cultural and historical moments in the development of Canada as a nation. Authors may include Jacques Cartier, Samuel de Champlain, Joseph Brant, Oliver Goldsmith, Susanna Moodie, Anna Brownell Jameson, Catherine Parr Traill, George Copway, Mary Ann Shadd, Louis Riel, E. Pauline Johnson, Charles G.D. Roberts, Sara Jeannette Duncan, Bliss Carman, and Archibald Lampman. Note: Students cannot obtain credit for both ENGL 3608 and 3610 or for both ENGL 3608 and 3640.

ENGL 3610 Canadian Prose and Poetry (O)   6 ch (3C) [W]

A study of the development of Canadian writing, with emphasis on poetry and shorter prose works. Note: Students can obtain credit for only one course in each of the following pairs: ENGL 3610/3608, ENGL 3610/3684, ENGL 3610/3688, ENGL 3610/3698.

ENGL 3640 Canadian Novel (O)   6 ch (3C) [W]

A study of selected Canadian novels. Note: Students can obtain credit for only one course in each of the following pairs: ENGL 3640/3608, ENGL 3640/3684, ENGL 3640/3688, ENGL 3640/3698.

ENGL 3688 Canadian Literature from 1900 to 1970 (A) 3 ch (3C) [W]

A survey of English-Canadian non-fiction prose, poetry, fiction, and drama from the turn of the century to 1970, with a focus on the development of Realism and Modernism in Canada. Authors may include Jessie Sime, Stephen Leacock, L.M. Montgomery, Robert Service, Frederick Philip Grove, E.J. Pratt, F.R. Scott, A.M. Klein, Dorothy Livesay, P.K. Page, Sinclair Ross, Sheila Watson, Elizabeth Smart, Al Purdy, and Chief Dan George. Note: Students can obtain credit for only one course in each of the following pairs: ENGL 3610/3688, ENGL 3640/3688, ENGL 3684/3688.

**ENGL 3698 Canadian Literature from   3 ch (3C0 [W]
            1970 to the Present (A)**

A survey of English-Canadian fiction, poetry, drama, and non-fiction prose from 1970 to the present. Authors may include Margaret Atwood, Michael Ondaatje, Northrop Frye, Margaret Laurence, Robert Kroetsch, Alice Munro, Leonard Cohen, Rudy Wiebe, Maria Campbell, Rohinton Mistry, M. Nourbese Philip, Thomas King, Miriam Toews, and Joseph Boyden. **Note:** Students cannot obtain credit for only one course in each of the following pairs: ENGL 3610/3684, ENGL 3610/3698, ENGL 3640/3698, ENGL 3684/3698.

ENGL 3707 American Literature before 1820 (A) 3 ch (3C) [W]
A survey of American poetry and prose from colonial times to the early nineteenth century, examining key cultural and historical moments in the development of the United States as a nation. Texts will include contact narratives, Puritan poetry and memoirs, revolutionary-era fiction and plays, and the earliest published work by Native- and African-American writers. **Note:** Students cannot obtain credit for both ENGL 3703 and ENGL 3707.

ENGL 3708 American Literature from 3 ch (3C) [W]
1820 to 1900 (A)
Authors may include Ralph Waldo Emerson, Henry David Thoreau, Edgar Allan Poe, Herman Melville, Nathaniel Hawthorne, Emily Dickinson, Walt Whitman, Frederick Douglass, Harriet Jacobs, Rebecca Harding Davis, Louisa May Alcott, Mark Twain, Edith Wharton, and others. **Note:** Students cannot obtain credit for both ENGL 3743 and ENGL 3708.

ENGL 3724 American Poetry Since 1900 (A) 3 ch (3C) [W]
A close study of selected works of American poetry written since 1900, ranging from modernist to more recent writing. . Poets may include Robert Frost, T.S. Eliot, Ezra Pound, H.D., William Carlos Williams, Marianne Moore, Wallace Stevens, Langston Hughes, Claude McKay, Elizabeth Bishop, Robert Lowell, Sylvia Plath, John Ashbery, Rita Dove, and others.

ENGL 3744 American Fiction since 1900 (A) 3 ch (3C) [W]
A close study of selected works of twentieth- and/or twenty-first-century American novels and short fiction, ranging from modernist to recent writing. Authors may include Henry James, Willa Cather, F. Scott Fitzgerald, Ernest Hemingway, William Faulkner, Nella Larsen, Zora Neale Hurston, Ralph Ellison, Flannery O'Connor, Thomas Pynchon, Don DeLillo, Maxine Hong Kingston, Louise Erdrich, Toni Morrison, and others.

ENGL 3815 Literatures of the 3 ch (3C) [W]
Postcolonial World (A)
A survey of writing in English from one or more regions such as Africa, the Caribbean, South Asia, and Australia/New Zealand. The major genre studied will normally be fiction, although drama, poetry, and/or non-fictional prose may also be included. Texts studied exemplify themes characteristic of formerly colonized societies (e.g., the impact of inherited power relations; racial consciousness and conflict; place and displacement; language, identity, and difference) and are discussed in their historical, cultural, and political contexts. Specific regions and texts will vary from year to year.

ENGL 3877 Modern Drama (A) 3 ch (3C) [W]
A survey of major developments in twentieth-century theatre. Plays will be studied with attention to their often controversial engagements with social and political issues, moral debates, and theatrical conventions, as well as their connections to movements such as realism, modernism, expressionism, and absurdism.

ENGL 3883 Women's Writing in English (A) 3 ch (3C) [W]
A study of women's writing in English from a range of historical periods. Texts will vary from year to year, but will include poetry, drama, fiction, and/or non-fiction written primarily by British, American, and Canadian women. Attention will also be paid to relationships between women's writing and history, contemporary feminist and gender theory, and social issues such as identity, sexuality, class, and race.

ENGL 3903 Film Theory 3 ch (3C) [W]
(Cross Listed: FILM 3903)

This course introduces students to the major debates in the field of film theory, including (but not limited to) Early Silent Film Theory, the Soviet Montage-Theorists, Russian Formalism and the Bakhtin School, the Historical Avant-gardes, French Auteur Theory and its Americanization, Third World Film and Theory, Genre and Authorship, Marxist film theory, Spectatorship, Feminist Film Theory, Cognitive and Analytic Theory, Postcolonial Film Theory, Race and Ethnicity in Cinema. **Note:** Students who already have credit for ENGL 3193 cannot obtain credit for ENGL 3903 or FILM 3903.

ENGL 3905 The City in Cinema (O) 3 ch (3C) [W]

This course explores the relationship between the screen and cityscape within the context of a range of films, genres, historical periods, and urban locales in order to show that cinema owes much of its nature to the historical development of urban space and that cinema has shaped our view of the city. Grounding our discussion of the 'cinematic city' in film theory and urban theory (Benjamin, Kracauer, Baudrillard, Foucault, Deleuze, Lacan, Lefebvre and others), we will examine the cinematic forms most significantly related to the city, including early cinema, documentary film, film noir, science fiction, the New Wave, migrant and diasporic cinema, and postmodern cinema. Possible films to be screened: *Metropolis, Things to Come, The Man with the Movie Camera, Berlin: Symphony of a Great City, The Maltese Falcon, The Blue Dahlia, Dark Passage, Manhattan, Annie Hall, Street of Crocodiles, Taxi Driver, Boyz N the Hood, Three Colors: Red, Crash, Collateral, Berlin Alexanderplatz, Dekalog, Blade Runner, Dark City, Menace II Society, Safe, SubUrbia, Sin City, Paris je taime, and others.*

ENGL 3906-9 Film Genre (A) 3 ch (3C) [W]
Each course in the Film Genre series explores the history, iconography and socio-cultural significance of one particular genre through a number of case studies. Possible genres include Science Fiction, Film Noir, Westerns, Gangster Films, Horror Films, Screwball Comedies, etc. **Note:** Students who already have credit for ENGL 3973 cannot obtain credit for ENGL 3906 "Film Genre: Science Fiction."

ENGL 3916-9 National Cinemas (A) 3 ch (3C) [W]
Each course in the National Cinemas series explores significant historical periods, movements, styles, film theories, directors, and topics in the development of particular national and/or transnational cinemas. Possible topics include Classical Hollywood Cinema, American Cinema of the 1960s and 70s, post-1989 European cinema, the French New Wave, Canadian Auteurs, Contemporary American Cinema, post-World War II Italian Cinema, Race and Gender in American Cinema, Contemporary French Cinema, and others. **Note:** Students who already have credit for ENGL 3966 cannot obtain credit for ENGL 3916 "National Cinemas: Canadian Film."

ENGL 4170 Thesis Production and Independent Project 6 ch
(Cross-Listed: DRAM 4170) (practical work)
Open to students completing the final year of a Minor in Drama. Working in groups, students produce a full-scale production for Theatre UNB. The second requirement for the course is to complete an independent project designed to further students' knowledge of a theatre discipline of their choice. Both halves of the course are completed under the supervision of the Director of Drama. **Prerequisite:** ENGL/DRAM 2170 and/or ENGL/DRAM 3170 and permission of the Director of Drama. **Note:** Students can take no more than 6ch of ENGL/DRAM 4170, 4173, and 4174 for credit..

ENGL 4173   Thesis Production   3 ch (practical work)
(Cross-Listed: DRAM 4173)

Open to students completing the final year of a Minor in Drama. Working in groups, students produce a full-scale production for Theatre UNB, under the supervision of the Director of Drama. **Prerequisite:** ENGL/DRAM 2170 and/or ENGL/DRAM 3170 and permission of the Director of Drama. **Note:** Students cannot obtain credit for both ENGL/DRAM 4173 and ENGL/DRAM 4170.

ENGL 4174   Independent Drama Project   3 ch (practical work)
(Cross-Listed: DRAM 4174)

Open to students completing the final year of a Minor in Drama. Under the supervision of the Director of Drama, students complete an independent project designed to further their knowledge of a theatre discipline of their choice. **Prerequisite:** ENGL/DRAM 2170 and/or ENGL/DRAM 3170 and permission of the Director of Drama. **Note:** Students cannot obtain credit for both ENGL/DRAM 4174 and ENGL/DRAM 4170.

Special Topics in English

These courses explore topics of general interest through selected texts. Since these courses change annually, students should consult the departmental Undergraduate Handbook for each year's offerings. Students from other faculties are invited to enroll.

Honours Seminars

These seminars are intended specifically for students in the English Honours Program. However, other students who have demonstrated a high level of competence in literary studies may be admitted to the seminars when space is available by applying to one of the Co-Directors of Majors and Honours, preferably before the general university registration period. The subjects of Honours seminars change each year. Interested students should consult the Department's Undergraduate Handbook.

ENGL 5000   Honours Report in English Language 6 ch [W]

By arrangement with the ELLE Program Director. Students will select a topic, compile a reading list, and produce a 40-60 page report based on this program of reading.

ENGL 5004   Old English II (O)   3 ch (3C) [W]

Continues the study of the Anglo-Saxon Period begun in Old English I. Considers a greater number of texts, and demands a more sophisticated level of literary and linguistic analysis. In addition to the regular course work for ENGL 3004, a seminar presentation and a paper based on it will be required. Students may not get credit for both ENGL 3004 and ENGL 5004. Prerequisite: ENGL 3003.

ENGL 5005   Directed Reading in English   3 ch [W]
Language and Linguistics

A reading course at the Honours level for ELLE students only. Students will develop a program of reading and assignments in one of the following areas: composition, rhetoric, semantics, generative linguistics, historical linguistics.

ENVIRONMENT AND NATURAL RESOURCES

This section contains course descriptions for students entering the Bachelor of Science in Environment & Natural Resources program.

ENR 1001   Resource Management Issues,   4 ch (3C 2L)
Ethics and Communication I

Environmental and resource management problems and issues are, by definition, interdisciplinary in nature. This course is designed to both expose students to a variety of contemporary resource management and environmental challenges, from local to global scales, and to help them harness the tools and develop requisite skills to describe, characterize, and explain these challenges. Fundamentals of ethics will be presented and related to contemporary topics and issues in resource management. Thus, in addition to learning course material, students will be provided with a forum in which to critique, develop and practice both oral and written presentation skills. Analysis of policy documents, press releases, editorials, science writing, will be integrated with production of these types of communications tools of these types of communication tools by the students themselves.

ENR 1002   Resource Management Issues,   4 ch (3C 3L)
Ethics and Communication II

Following on Resource Management Issues I, this course will increase students ability to detect and describe breadth, depth, and complexity of contemporary resource management and environmental issues. This course, in addition to building on oral and written communication skills, will provide students with opportunities to explore the use and abuse of a variety of communication tools: visual media, the role of art in contemporary environmental discourse, writing and producing video documentaries, doing radio spots, and interacting with journalists. Focus will be on the theoretical and technical aspects of environmental communication. Ethical issues in science, social science, communications and resource management will be presented.
Prerequisite: ENR 1001.

ENR 1973   Fall Field Camp   2 ch

An introduction to fieldwork, technical skills and issues associated with natural resource management -- forests, water, environment and wildlife. Each day will focus on a particular skill needed to assess an aspect of natural resources. Included will be demonstrations, field trips and discussion that will highlight current research or areas of current controversy. The interconnection between natural resource systems will be stressed.

ENR 2004   Social and Cultrual Systems   3 ch (3C)

In this course students will learn how to describe and measure the structure and function of human communities; and determine how different social and ethnic groups perceive and relate to the physical environment. We will discuss major environmental movements and describe social values, how they change, what influences them and how they result in policy reform and behavioral change. We will cover basic sociological theory including topics such as institutions, the nature of capitalism, and the philosophical underpinnings of resource management (e.g. property rights, religious traditions). The course will also cover basic political theory, with a focus on democracy and democratic processes. This course draws on methods and readings from a variety of disciplines, including social ecology, environmental sociology, rural sociology, social network theory, history, and anthropology. **Note:** Students cannot recieve credit for both ENR 1004 and ENR 2004.

ENR 2021   Natural Resource Management   3 ch (3C)
Institutions, Policy and Governance

This course examines how resource and environmental management systems and tools are developed in cultural and institutional contexts and how these contexts shape the definitions of problems and the management systems proposed as solutions. Inlcuded will be analysis of different management regimes and decision-making processes: technocratic, community-based, co-management, network governance, etc. In each case, we will examine the scale of the management issue (local, regional, national, international) and in that context, who has authority, legitimacy, power, accountability, and why; how they obtain, maintain, and enhance them; and implications of each in terms of different management contexts (e.g. common pool resources). Traditional policy-making models will be presented, as well as analytical tools for policy evaluation. Students will develop, defend, and critique a variety of different types of natural resource management plans that involve large-scale environmental changes (including water air and land issues), and develop adaptive management strategies that simultaneously account for human and natural systems

ENR 2112   Environmental Physiology   3 ch (3C)

A comparative examination of the integrated responses of vertebrates to environmental changes. This course focuses on both the acute physiological and long-term adaptations to dealing with environmental challenges. Focus is on physiological responses to extreme environments, and fish will be used as a model vertebrate.
Prerequisites: BIOL 1001, BIOL 1006, BIOL 1012, BIOL 1017.

ENR 2114   Water Sustainability: Practice   3 ch (3C)
and Technology

The theme of this course is how humans impact the environment with our developing technologies. The course examines how aquatic ecosystems are altered by the activities of agriculture, forestry, aquaculture, solid waste disposal, our demands for industry, e.g., pulp and paper, manufacturing, and mining, and our basic needs for clean drinking water, e.g., water and sewage treatment. The course appraises evolving, alternative technologies, with visits to some of these operations to learn how new technologies are reducing impacts and protecting water resources for the future.

ENR 2531   Introduction to Hydrometeorology   3 ch (2C 3L)
Systems

This course provides an introduction to the principles of environmental hydro-meteorology, Topics to be covered include energy transfer, radiation laws, energy balance, wind generation, evaportation and precipitation, climatology, snow cover and snow melt processes, the hydrological cycle and water budget, surface runoff, flow routing, and atmospher-land surface processes associated with land use. These are addressed from small, localized to reginal scales. Prerequisites: ESCI 1063, ESCI 1036.

ENR 3002   Applied Environmental Management 4 ch (3C 3L)

Based largely on a detailed examination of one or more case studies of integrated planning projects that involve social, economic, engineered, biological, and ecological systems (e.g. pipeline routing and construction, highway construction, forest planning, hydroelectric dam construction, woodlot development projects, etc.). Students will work in practical settings and review and critique past or ongoing case studies. Students will be exposed to the operationalization and application of models in different resource management contexts. Focus will be on effective use of models, and barriers to integration among them in the field. This course also introduces the concept of adaptive management, and students will learn to the principles of adaptive management to explore and critique existing management approaches. Emphasis will be placed on examining and critiquing real world problems and issues. The intent is to prepare students for conducting their own integrated planning project by giving them exposure to the people, processes and places involved in existing projects.
Prerequisite: FOR 2006.

ENR 3111   Estuary & Ocean Ecosystems   3 ch (3C)

A course focusing on the structure of the juncture of rivers and oceans, the animals that live there, how they are adapted to the highly variable but not necessarily unpredictable conditions of water depth, direction of movement, salinity, temperature and water chemistry. Estuaries serve also as corridors for the exchange of nutrients, energy and pollutants between inland areas and the ocean. Estuaries and the coastal environment are where most of us live and work and we are the largest single impact on estuarine and coastal ecology. These impacts, how coastal environments are being changed by them, how we measure these changes and what can be done to mitigate these impacts will be examined by students through individual and team projects, debates, and presentations. Prerequisite: BIOL 1001, BIOL 1006, BIOL 1012, BIOL 1017.

ENR 3112   Water Resources Management   3 ch (3C)

An Introduction to Integrated Water Resources Management, this is a broad examination of critical concepts and knowledge needs including essential human and institutional capacities. Topics include: impacts of anthropogenic alterations on the water cycle; changes and impacts that occur as a result of land use change and development; aquatic ecosystem health and impact assessment; water use (quality and quality issues); wastewater issues including impacts, methods of treatment and mitigation, the urban water cycle and methods to evaluate and choose appropriate technologies; governance and capacity building in communities; and building and maintaining water management infrastructure. Prerequisites: BIOL 1001, BIOL 1006, BIOL 1012, BIOL 1017, ENR 1532.

ENR 3201   Urban Hydrology and Water Management   3 ch (2C 3L)
This course focuses on hydrological theories and tools needed for urban watershed management, involving water supply, conservation, and treatment. Topics include storm water retention on and flow through porous and impervious surfaces, and subsequent runoff generation. Students will learn about urban water management systems and best-management engineering approaches dealing with flood control and point to non-point residential, industrial, and traffic-induced pollution issues.

ENR 3532   Ecohydrology   3 ch (3C)
An expansion of the introduction to hydrological principles and processes offered in first year. Students develop their comprehension of the hydrological cycle, and dynamics and prediction of flow of water in rivers, lakes, and as groundwater. Hydrological processes at the landscape level are emphasized to demonstrate the connections among hydrology, biology, and the explotation of water resources by humans. Prerequisites: ESCI 1001 or ESCI 1063, ESCI 1036.

ENR 3888   Individual Project I   3 ch
Credit for an individual project can be granted. The student arranges for each project with a client and a Faculty advisor. Your Programme Director must approve each project prior to beginning. A signed agreement including assessment critieria amongst the student, client. Faculty Advisor and Programme Director is required.

ENR 4020   Management Practicum   8 ch (3C 3L)
This course provides students with an opportunity to pool their resources and demonstrate their expertise. Working in multidisciplinary teams, students will develop integrated solutions to a real world environmental or natural resources management problem. In addition, students will learn how to manage work plans, projects and the planning process. Prerequisite: ENR 3002.

ENR 4111   Fisheries and Aquatic Sciences   3 ch (3C)
**   Techniques**

Students will gain knowledge in techniques used commonly in fisheries and aquatic science, getting practical experience in various sampling and analysis techniques, including: water quality assessment, macroinvertebrate collections, fish collections (e.g., seining, trapping, electrofishing), and laboratory methods for sample preparation and analysis. All field collections will be followed by appropriate data evaluation learning database management techniques, descriptive and analytical statistics, and summary report writing. Prerequisite: BIOL 1001, BIOL 1006, BIOL 1012, BIOL 1017.

ENR 4888   Individual Project II   3-5 ch
Credit for an individual project can be granted. The student arranges each project with a client and a Faculty advisor. Your Programme Director must approve each project prior to beginning. A signed agreement including assessment criteria amongst the student, client, Faculty Advisor and Programme Director is required. Number of credit hours will be determined by the Faculty and based on the nature, duration, and complexity of the project. Credit hours assigned to the course must be determined prior to the student initiating the project.

ENR 4973   Field Camp   2 ch (6Days)
An intensive 6-day series of field exercises, site visits, and on-site discussions before start of Fall-term courses. This courses involves low student/faculty ratios and is designed to improve integrative skills with respect to environmental conditions, including water, wildlife, and forest resources, and the social context in which they are valued and used. Evening sessions provide opportunity for debate and discussion of challenging contemporary environmental issues. Students are charged for food, lodging, and part of travel costs. Pre-requisites: Completion of at least 80 credit hours of core courses.

ENR 4991   Honours Project   6 ch [W]

ENR honours students must complete a thesis project that is approved by the Faculty and supervised by a Faculty member. This course involves submitting a detailed project report and an oral defense in a seminar-style presentation. Students should consult with a faculty advisor prior to the end of third year to discuss project requirements and potential topics. Note: Minimum CGPA for acceptance is 3.0

ENVIRONMENTAL STUDIES

ENVS 2003   Introduction to Environmental Studies 3 ch (3 C/S)

This course broadly covers issues relating to the impact of human activity on air, water and soil environments. It covers the causes and effects of pollution, challenges to remediation, and suggests courses of action for reducing human impact. In addition to formal lectures, the course will include guest lectures, special projects, debates and advocacy efforts to improve the environment.

ENVS 2023   Climate Change 3 ch (3 C)

This course begins with an overview of the science of climate change and its historical/projected impacts on environmental, social, and economic systems. Then, mitigation and adaptation policy options that are available to Canada and other countries will be investigated. Particular issues that may be addressed include the role that humans play in creating climate change, the uncertainty involved in making future climate change projections, and municipal plans to adapt to climate change.

ENVS 4001   Environmental Impact Assessment   3ch (3C)
           and Management

This course focuses attention on the implementation of environmental problem solving techniques. Students will learn many practical methods for assessing problems and justifying solutions. These may include such activities as preparing media pieces and briefing notes to government officials, setting up environmental impact assessments and audits, testing for water/soil/air contamination, and surveying the public/industry on various issues. Throughout these activities, students will be required to critically examine the social, political, philosophical, economic, and ecological outcomes of their activities.

ENVS 4002   Stakeholder Approaches to   3 ch (3 C/S)
           Environmental Problem Solving

Most environmental issues have many sides including scientific, social, political, and economic, and comprise multiple players and stakeholders promoting divergent points of view. This course is designed to explore these elements in detail. Current national, regional and local problems will be brought to the class by a number of guest speakers in order to help students critically analyze the roots of the problems and possible solutions. The problems discussed will include such issues as environmental scope, biodiversity decline, climate changes, air and water quality, population and consumption per capita, biotechnology and genetically altered foods.

ENVS 5003 Environmental Management Tools   3 ch (3C)

Presents students with a wide array of tools used to assess and manage activities that impact the environment. Tools considered may include environmental indicator measurement, environmental risk assessment, life-cycle assessment, environmental management systems, sustainable forest management certification, and others. Presentations will be given by faculty members, students, and working professionals that demonstrate the use of these environmental management tools and identify issues associated with them. Credit cannot be obtained for both ENVS 5003 and ENVS 6003.

FAMILY VIOLENCE ISSUES

FVI 2001   Introduction to Family Violence Issues   3ch

Introduction to current theories, research and practice in family violence issues. Topics will include: themes of violence; dynamics of violence; gender relations; attitudes, myths, and realities surrounding family violence; public versus private nature of family violence. Research from various perspectives will be evaluated. Prerequisite: Admission to the Certificate Program or permission of the instructor.

FVI 2002   Antecedents and Patterns of   3 ch
           Family Violence

Provides a historical and current overview of the societal catalysts/ contributors to, and the patterns of, family violence. Explores why members of marginalized groups (e.g., the poor, women, children, immigrants, First Nations persons, gays, lesbians, disabled and the elderly) are often at especially high risk of being victimized by violence in intimate relationships. Prerequisite: Admission to Certificate Program or permission of the instructor.

FVI 2003   Violence in Society   3 ch

An examination of the social origins of family violence. Topics include: militarism; pornography; sports; media; hierarchical workplaces; schools; patriarchy; racism; heterosexism; contributions of government and the criminal justice system. A critical analysis of the part played by social institutions and policy in accommodating family violence. Prerequisite: Admission to Certificate Program or permission of the instructor.

FVI 2013   Understanding Family Violence 3 ch (3C) [W]
and Child Maltreatment (O)

This is an introduction to the issues of family violence, child maltreatment, experiences of the children and impact of exposure on children. The course also reviews the various roles and responses of agencies from within the community of child maltreatment within the context of family violence. It will explore the problem of family violence across the lifespan, focusing on the child abuse/neglect, intimate partner violence, and the various responses of agencies from within the community. Finally, it will look at the link between child abuse and neglect and the role of prevention. Prerequisite: Admission to Certificate Program or permission of the instructor.

FVI 3002   The Social and Psychological   3 ch
           Contexts of Abuse

An examination of the psychological and social dynamics of abuse, and the consequences of these dynamics for the ways in which survivors present themselves to members of helping professions, e.g., health care workers, employers, educators, lawyers, clergy, social workers, therapists, alcohol and drug workers. Review of the necessity for and characteristics of a 'whole person' approach to survivor assessment. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 3003   Counselling Interventions in Response to   3 ch
                Family Violence

Overview of strategies essential to crisis counselling and other forms of counselling that are relevant to family violence. Topics include: the impact of violence on family members; methods of effective assessment and crisis intervention; homicide/suicide prevention; counselling orientation and models; individual, family and group approaches to counselling; ethical considerations; counselling children and teens; responding to 'hidden victims'; and making appropriate referrals. The crisis counselling section will include a skill development component. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 3004   Inter-disciplinary Responses and   3 ch
                Obligations

Identification of common signs and symptoms of abuse. Methods of assessment. Provision of a safe environment. Reporting, referring, and follow-up care. Topics include: techniques for specific situations (e.g. women, children, the elderly); conflict resolution; safety; requirements for use as evidence in justice system; responsibilities of professional workers; cognitive interviewing; audio and video taping of witnesses and survivors; liability; confidentiality. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 3005   Family and Criminal Legal Systems   3 ch

An overview of: family violence legal issues pertaining to: (a) family law - e.g., custody; access; mediation; supervised visitation; requirements to report abuse; legal aid; peace bonds; police protection; enforcement of family court orders; separation and divorce; (b) the criminal justice system - e.g., implications of criminalization of abuse; role of police; mandatory charging; informing spouse about release of abuser; process through justice system of survivor; witness impact statements; role of probation officer; probation period. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 3006   Intervention Strategies and Programs 3 ch
for People Who Batter
(Cross-Listed: SOCI 3006)

This course will examine the major theories related to violence in intimate relationships and explore the different intervention strategies and programs which have evolved from these theories. Credits cannot be obtained for both FVI-3006 and SOCI-3006.

FVI 3013   International Perspectives on Violence   3 ch (3C) [W]
Against Women (O)

This course examines the global issue of violence against women from international and feminist perspectives. This course will examine some of the many forms of gender violence in our global world, the cultural, economic, social and political contexts in which they occur, and reflect on the causes and consequences of gender violence and women's inequality for women, children, and the whole communities women and girls and advocating for gender equality and social justice as well as other international, community and organized responses to women's suffering. This course will also critically reflect on how including structures of gender, race and sexuality and colonialism and imperialism. Prerequisite: Six credit hours from FVI 2001 , 2002 , 2003 (or SOCI 1563);or permission of the instructor.

FVI 4001   Erosion of the Social Safety Net -   3 ch
Consequences for Family Violence
Service-Providers

Issues related to burnout and stress management for service-providers, their co-workers, and their clients. A critical overview of the human, social, and economic costs of the erosion of the social safety net. Strategies for stress management, coping with burnout, and societal-level reforms. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 4002   Multidisciplinary Approaches to Family Violence   3 ch

Presents strategies which will assist professionals in coordinating their efforts to help survivors through creation of 'whole person' community approaches. Topics include: helping agencies' diverse and overlapping mandates; referral processes; inter-agency communication; support and debriefing; team dynamics; community resources; interface with policy makers. This course is required for the FVI Certificate. Prerequisite: Six credit hours from FVI 2001 , 2002 , 2003 (or SOCI 1563); or permission of the instructor.

FVI 4005   Individual Studies   3 ch

An individualized study of a topic of interest to the student, in consultation with instructor/mentor and approval of the Director of the Muriel McQueen Fergusson Centre for Family Violence Research. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FVI 4006   Individual Studies   3 ch

An individualized study of a topic of interest to the student, in consultation with instructor/mentor and approval of the Director of the Muriel McQueen Fergusson Centre for Family Violence Research. Prerequisite: Six credit hours from FVI 2001, 2002, 2003 (or SOCI 1563); or permission of the instructor.

FILM

FILM 2022   The Art of Film   3 ch (3C) [W]   *(Cross-Listed: MAAC 2022)*

Introduces students to the language of motion pictures and to critical tools for discussing and writing about the 7th art - the art of film. By studying how movies function aesthetically, and how they become meaningful to audiences, students will acquire critical and formal analystical skills that will both enhace their appreciation for cinema and serve them more broadly as consumers and/or producers of visual culture. Topics will include mise-en-scene, framing, image composition, photographic space, colour, editing, spund and narrative structure.

FILM 2909   International Film History   3 ch (3C) [W]
(Cross Listed: ENGL 2909)

This course introduces students to major stages in the development of film as an international art. Topics include: Silent Cinema, German Expressionism, Soviet Montage, Classical Hollywood, Italian Neorealism and Modernism, French New Wave, Japanese New Wave, British New Wave, Australian New Wave, Experimental Cinema, Cinema Novo, New German Cinema, Postcolonial Cinema, Bollywood, the New Hollywood, American Independent Cinema, Dogme 95, and others. **NOTE:** Students who already have credit for ENGL 3194 cannot obtain credit for ENGL 2909 or FILM 2909.

FILM 2998   Digital Film Production I   3 ch (3C)
(Cross-Listed: MAAC 2998)

An introduction to the fundamental concepts and procedures of visual and audio production, including the techniques and aesthetics of shooting, lighting, and editing. Over the course of the term, students will engage in a series of short exercises covering a variety of styles, genres and modes. Taught cooperatively with the New Brunswick Filmmakers' Co-op. NOTE: Student who have received credit for MAAC/FILM/ENGL 3999 may not take this course for credit.

FILM 2999   Digital Film Production II   3 ch (3C)
(Cross-Listed: MAAC 2999)

This second course in the production sequence puts emphasis on application of skills learned in MAAC 2998 by focusing on production of several short projects in various formats. Group work and analysis of student productions constitute the main course activities. Taught cooperatively with the New Brunswick Filmmakers' Co-op. NOTE:
Students who have received credit for MAAC/FILM 3998 may not take this course for credit. Prereq: MAAC 2998, or permission of the instructor.

FILM 3066 Trauma and Seduction: Early German Cinema (A) (Cross-Listed: CCS 3066, and MAAC 3066) 3 ch (3C) [W]

Beginning with the earliest silent movies and concluding with National Socialist propaganda films, this course offers an introduction to a prolific and important era in German film history: the Weimar Republic and pre-WWII period, 1918-1939. Our discussions will situate the films within larger political and cultural discourses. Emphasis will be placed on such topics as the cinematic response to the trauma of WWI; German national identity; expressionism and modernity; the politics of gender and sexuality; the impact of sound on film aesthetics; the relationship between cinema and other media; the ethics of film production. Films to be studied include features by directors such as Lang, Lubitsch, Murnau, Pabst, Riefenstahl, Sagan, von Sternberg and Wiene. In English. Students who have taken WLCS 3066, or GER 3066 may not attain credit for FILM 3066.

FILM 3072   (Re)constructing National Identity: 3ch (3C) [W]
Contemporary German Cinema
(Cross-Listed: CCS 3072, and MAAC 3072)

Studies the major accomplishments of East and West German cinema of the postwar period, as well as cinematic trends since German unification. We will consider questions of narrative, genre, and authorship, examine film's relationship to other media, and focus on the dynamic interaction between film history and social history. Films to be studied include features by prominent directors such as Wolf, Fassbinder, Wenders, von Trotta, Carow, Dörrie, and Tykwer. Students who have taken WLCS 3072, or GER 3072 may not attain credit for FILM 3072.

FILM 3075   Framing Reality: Theory and Practice of   3 ch (3C)
                    Documentary Media(A)   *(Cross-*
Listed: MAAC 3075)   This course surveys the history
and aesthetics of non-fiction filmmaking from the birth of cinema to the digital
age. It will examine epistemological and ethical questions raised by
documentary's encounter with reality and its attempt to present "the truth."
Films screened are drawn from an array of nations and range from the
personal to the political as well as more experimental and avant-garde works.
The course includes a film production component as students will apply what
they have learned in class by producing a short non-fiction film as a final
project. This course is open to students who have completed at least 30 credit
hours at university level.

FILM 3082   History of Canadian Cinema (A)   3 ch (3C)   *(Cross*
Listed: CCS 3082 and MAAC 3082)
Focuses on the first half-century of filmmaking in Canada and the nation's long
struggle to develop and sustain a functioning film industry in the shadow of
Hollywood. Readings and screenings trace the history of the movies in Canada
from the silent era to the 1970s. Issues raised may include Canadian/American
relations, national and regional identities, tensions between art and
entertainment, media and cultural policy, representation of race, class, gender,
and relation of Canadian film to other media (TV, radio, video) and other arts
(painting, music, literature) in Canada. Open to students who have completed
45 credit hours, or with permission of the instructor. Students who have taken
WLCS 3082 may not attain credit for FILM 3082.

FILM 3183 Creative Writing:Screenwriting for 3 ch (LE)

                   Short Formats
                   (Cross Listed: ENGL 3183)
This course guides writers through the basics of short format screenplay
structures and introduces them to basic story, character, and dialogue
principles. Students will be exposed to a wide range of short films in a variety
of genres and forms so that they can explore the limits and possibilities of
briefer forms of cinematic storytelling.

FILM 3186   Creative Writing: Feature Screenplay   3 ch (LE)
                   (Cross-Listed: ENGL 3186)
This intensive course guides writers through the basics of feature screenplay
structure, character principles, archetypal storytelling, writing and rewriting
strategies, and 'the biz.' Classes are a combination of lectures, discussion, and
workshops. Prerequisite: FILM 3183, ENGL 3183, or equivalent writing
experience with permission of the instructor.

FILM 3903   Film Theory   3 ch (3C) [W]
                   (Cross Listed: ENGL 3903)
This course introduces students to the major debates in the field of film theory,
including (but not limited to): Early Silent Film Theory, the Soviet Montage-
Theorists, Russian Formalism and the Bakhtin School, the Historical Avant-
gardes, French Auteur Theory and its Americanization, Third World Film and
Theory, Genre and Authorship, Marxist film theory, Spectatorship, Feminist
Film Theory, Cognitive and Analytic Theory, Postcolonial Film Theory, Race
and Ethnicity in Cinema. NOTE: Students who already have credit for ENGL
3193 cannot obtain credit for ENGL 3903 or FILM 3903.

FILM 3981   Screen Acting   3 ch (1.5C/WS)
                   (Cross-Listed: MAAC 3981)
Explores the relationship between actor, director, script, and camera.
Workshop exercises allow students to explore various modes of working with
actors on a film set and during the rehearsal and audition process in order to
realize the development of character within the setting of story and script.
Limited to 20 students. **NOTE:** Students who already have credit for ENGL
3980 or FILM 3980 cannot obtain credit for FILM 3981.

FILM 3998   Film Production   3 ch (3C/WS) (LE)
                   (Cross-Listed: MAAC 3998)
This course introduces students to the processes and technical aspects
of motion picture film production. Topics include: 16mm film camera,
analog and digital sound recording, lighting for film, film crew roles,
budgets, casting and rehearsals, locations, script breakdowns and film
forms, and advanced editing. Students will participate in both the
production of a short, small-group 16mm film project, and a larger, full-
class Super 16mm film project produced as an industry-model film.
Taught cooperatively with the New Brunswick Filmmakers' Co-Op and
the Film Industry of New Brunswick. Limited to 20 students. **NOTE:**
Students who already have credit for ENGL 3990 "Advanced Film
Production" and/or ENGL 3999 "Film and Video Production" cannot
obtain credit for FILM 3998.

FILM 3999   Video Production   3 ch (3C/WS)(LE)

                   (Cross-Listed: MAAC 3999)
This course introduces students to the processes and technical aspects
of video production. Topics include: videography fundamentals, digital
camera techniques, location sound recording, lighting for video,
scriptwriting for documentary and dramatic productions, post-production
picture editing and finishing. Various scriptwriting, shooting and editing
exercises will be done in a small group environment. Taught
cooperatively with the New Brunswick Filmmakers' Co-op. **NOTE:**
Students who already have credit for ENGL 3999 "Film and Video
Production" cannot obtain credit for FILM 3999.

FILM 4001   Advanced Production   3 ch (3C/WS) (LE)
                   (Cross-Listed: MAAC 4001)
Students produce more complex films, developing a project from
beginning to end, working on each other's projects, and gaining hands-
on experience in a variety of skilled positions on a film's crew. Prereq:
FILM 2999, or permission of the instructor.

FINE ARTS

FNAT 2703   Visual Arts I (Studio)   3 ch [W]

Same ED 3218 . Studio Practicum in one or more visual arts.

FNAT 2704   Visual Arts II (Studio)   3 ch [W]
Same as ED 3219 . Advanced studio practice in one or more visual arts
media.

FNAT 3703   The Power of Images   3ch [W]
(Cross Listed: ED 5154)
Same as ED 5154. The integral relationship between visual images and
other areas of study. Analyses and interpretations of a variety of images
from pop culture, western and non-western art, childrens books, film,
video, family photos, and advertisements, as these influence knowledge
and understanding of oneself and others. Prerequisite: previous course
in visual art, art education, or media.

FNAT 3704   Readings in Contemporary Art Theory   3 ch
A seminar-based approach to the in-depth consideration of
contemporary art theory and practise. Individual research projects to
include written, oral and visual presentations.

FOREST ENGINEERING

Note: See beginning of Section H for abbreviations, course numbers and coding.

CORE COURSES

FE 1611   Engineered Systems in Natural Resources   3 ch (2C 2L)

This course introduces students to the design process when designing structures and developing production processes associated with natural resources and the environment. Structures examined may include forest roads, small water management structures such as culverts and earthen dams, retaining walls, and landfills. Production processes may include forest harvesting, mineral extraction, and factory activities such as wood processing and seedling production. Impacts of engineered structures and production on the natural environment and ways to mitigate these effects are essential elements of these design processes.

FE 2113   Introduction to Forest Wildlife Ecology   3 ch (3C)

Introduces an ecological approach to considering impacts of engineering structures on forest ecosystems and the major groups of wildlife inhabiting forests. Emphasizes interdependence of forest organisms and the terrestrial and aquatic components of their environment, especially in the context of industrial forestry.

FE 2703   Forest Operations Concepts   3 ch (2C 3L)

An introduction to the major tree harvesting concepts relating to wood procurement in eastern Canada. Emphasizes the felling, off-road transfer and processing functions which are carried out prior to delivery of wood in various forms to the forest products industry. Representative machines are discussed as to their application within the concepts being considered. Normally taken by students in their second year.

FE 2803   Wood Technology   3 ch (2C 3L)

Molecular, cell wall and anatomical structure of wood. Relative density, dimensional changes and moisture effects. Measuring industrial wood products (for example pulpwood, sawlogs, chips, pulp and lumber). Wood biodeterioration.

FE 3033   Analysis of Structures   3 ch (2C 2T)

The fundamentals of structural engineering are addressed. Activities build intuitive understanding of relationships between geometric form and how internal forces created by external loads flow through components and systems, and how systems can deform and fail. Exercises are structured to promote learning of structural analysis without dependence on commercial tools. Prerequisite: CE 2023.

FE 3143   Natural Resource Geotechnique I   4 ch (3C 3L)

The fundamentals of low volume resource road layout and design are covered: evaluation of existing road networks, layout of new networks including detailed road alignment, testing and interpretation of construction related soil properties, design of subbase, base, and side slopes, development of road maintenance strategies, impact assessment of resource roads. Prerequisites: GEOL 1001, 1026, CE 2023 and either CE 2703 or CHE 2703.

FE 3233   Introduction to Operations Research   3 ch (2C 3L)

This course introduces engineering students to operational research methods for solving constrained planning problems. Topics include linear programming, integer programming, mixed-integer programming, network models, and goal programming. Students learn to create and solve mathematical programming models of production problems, with emphasis on supply chain management problems in natural resource industries. They learn to critically analyze assumptions that are inherent in modeling technology or in formulation, and to accurately describe and interpret the essential elements of models. Prerequisites: CS1003 or equivalent, and at least 60 ch of program credit hours completed.

FE 3303
Thermal Engineering   4 ch (3C 3*L)

Laws of thermodynamics, basic measurements. Heat transfer with applications to building and pipe insulation and heat exchanger design. Fuels and their combustion. Internal combustion engines. Laboratory work complements the foregoing and requires preparation of comprehensive written reports. Prerequisites: MATH 1013 and either CE 2703 or CHE 2703.

FE 3363   Machine Design I   3 ch (2C 3*L)

Use of electric resistance strain gauges to determine working stresses. Safety, stress concentration and surface design factors. Static and dynamic working stresses. Fatigue design. Application of the foregoing to the design of various components. Design of shafts including critical speed considerations. Design of belt and roller chain power transmission systems. Introduction to design of fluid power transmission systems. Prerequisites: CE 2023 and CHE 2501.

FE 3433   Operations Research for Production   3 ch (2C 3L) Planning

Stochastic simulation, inventory control, optimization and heuristics for production planning and management. Topics include discrete event simulation using spreadsheets and commercial software, optimization and heuristics applied to resource planning and production planning, assembly line balancing, and production system assessment. Prerequisites: STAT 2593. Corequisite: FE 3233 or ME 3352 or equivalent.

FE 3603   Economic Decision-Making for   3 ch (3C) Engineers

Economic and financial decision tools and methods for engineers as managers. Major topics include: time value of money calculations and applications; cost behaviours and relationships; business structures, goals and financing; financial management and its relationship to operations management; financial analysis for planning and control; concepts of accounting; income tax impacts on decisions; equipment costing and replacement analyses; capital budgeting and capital investment analysis.

FE 3773   Forest Operations Planning Project I   4 ch (2C 3L)

Principles of analysis and planning of industrial forest operations, focusing on harvesting, wood transport and road construction. Students apply the knowledge and techniques from previous forestry and engineering courses to the problems of planning and managing forest operations. A case study approach is used. Prerequisites: FE 3233, FE 2703, FOR 3005, FE 3603 or equivalent.

FE 3853   Processing of Wood Products   3 ch (2C 3L)

Wood as an industrial material. Processing of wood to make traditional primary products such as lumber and pulp; secondary products such as laminated products, construction panels; modern structural composites. Emphasis is on manufacturing process, as quality control and applications of these products. Prerequisite: FE 2803, or permission of instructor.

FE 4043   Structural Analysis and Design II   3 ch (2C 2T)

Design of structures used in natural environments and in support of natural resource industries. Relationships between structural form, material choices and performance of structural systems are studied. Awareness of how to interpret and apply structural design codes is built. Attention is given to the importance of three-dimensional behavior of structural systems. Exercises apply what is learned in practical ways. Prerequisite: FE 3033.

FE 4893   Systems Design Project   4 ch (3C 2L)

Students will work in teams to design a forest harvesting or wood production system under specified constraints, including raw material availability, end products, environmental regulations and economics. In the development of a design solution, students will integrate elements of human factors engineering, machine component design and selection, wood products, operation research and economics. Prerequisites: FE2703, FE3233, FE3363, FE3433, FE3603, FE3853.

FE 4995   Structural Design of Forest   6 ch (2C 2T)
Engineering Systems

Students will define, design, and defend the logic of structures used in forest and other natural environments. Students will integrate elements of structural design with environmental and economic risk assessment. Emphasis will be given to the use of project layout tools (design of plans and profiles). Students will work in teams, develop a solution strategy, and present a comprehensive solution orally and in writing. Prerequisites: Only for students in the last two terms of the BScFE program.

ELECTIVE COURSES

FE 2001   Critical Analysis of Great Books for   1 ch (1C)
Natural Resource Professionals I

First in a series of 3 courses. Critical reading ability through level 2 is learned and demonstrated through examination of 'great' contemporary books. These books increase global awareness and provide various perspectives and insight into issues affecting society and natural resources.

FE 3001   Critical Analysis of Great Books for   1 ch (1C)
Natural Resource Professionals II

Second in a series of 3 courses. Critical reading ability at level 3 is learned and demonstrated through examination of 'great' contemporary books. These books increase global awareness and provide various perspectives and insight into issues affecting society and natural resources.

FE 3306   Photo-Interpretation for Engineers   3 ch (3L)

Landform recognition using aerial photographs for building roads, identifying drinkable water sources, searching for waste storage areas and conducting forest operations. Choice of web-based or lab-based instruction. Le cours est aussi disponible en français.

FE 3313   Introduction to Thermal Engineering   3ch (3C)**
Topics covered include: laws of thermodynamics; measurement of temperature and pressure using various methods; heat transfer by conduction, convection and radiation with applications to buildings, piping storage tanks, heat exchangers and other industrial equipment; characterization and combustion fuels; internal combustion engines; air compressors. Prerequisites: MATH 1013 and either CE 2703 or CHE 2703.** service course.

FE 3873   Physical and Mechanical   3 ch (2C 3L)

Properties of Wood (A)

Strength properties, thermal properties, electrical conductivity, the movement of moisture in wood, effects of strength-reducing defects, stress grading, and processing parameters on properties. Prerequisite: FE 3803, or permission of instructor.

FE 4001   Critical Analysis of Great Books Natural 1 ch (1C)
Resource Professionals III
Third in a series of 3 courses. Critical reading ability at level 4 is learned and demonstrated through examination of 'great' contemporary books. These books increase global awareness and provide various perspectives and insight into issues affecting society and natural resources.

FE 4622   Human Factors Engineering   3ch (2C 3L)

(Cross-Listed: ME 4622)
An interdisciplinary study of the interaction of humans and their workspace. Physiological principles of work and energy. Anthropometry. Biomechanics. The ergonomics of workspace and job design. Fatigue. Work/rest schedules and nutrition. The physiological and psychological effects on humans of noise, vibration, lighting, vision, and the workspace environment. Lab periods include seminars and practical design exercises applying human factors and ergonomic theory to workspace problems. Prerequisite: Restricted to students with at least 120 credit hours.

FE 4623   Forest Operations   3ch (2C 2L)
Financial Management (O)
A course designed to familiarize students with the fundamentals of financial management in industrial settings. Deals with the concepts and principles of accounting, the use of accounting information, financial analysis, the management of assets, capital budgeting and the design of financial information systems. Case studies are used to illustrate concepts and techniques and their relevance to engineers and foresters.

FE 4783   Forest Opreations Planning Project II   4ch (2C 3L)

Advanced analysis and integrated long, medium and short-term planning of all major elements of contemporary industrial forest operations: harvesting, wood transport, road construction and maintenance, stand establishment and other support functions. Students must demonstrate the ability to integrate and apply forestry, engineering and forest engineering knowledge and techniques from previous courses to the problems of planning and managing operations constrained by the requirement for sustainable, multi-objective natural resource management. A team-taught, case study approach is used. Prerequisites: FOR 3005, FOR 3006, FE 3773.

FE 5143   Natural Resources Geotechnique II (A)   4ch (3C 3L)

Extension of work in FE 3143 to more complex problems, including: consideration of retaining structures, slope stability, deep foundations, geosynthetics, aggregate test methods and specifications, and structural design of access roads. Prerequisite: FE 3143, or permission of the instructor. (Technical elective offered alternate years, usually alternating with FE 5761. Packages selected geotechnical topics of relevance to construction of resource access roads.)

FE 5252   Forest Operations Research II   3 ch (2C 3L)

During the two-hour lecture period, attention is focused on problem formulation and the application of operations research techniques to Forest Engineering problems. The two-hour tutorial period is devoted to wood inventory problems, selecting and scheduling tree harvesting machines by linear programming, production studies by multiple regression and monogram techniques and some applications in dynamic programming. Prerequisite: FE 3233

FE 5373   Machine Design II (O)   4ch (3C 3*L)

Design and application of open and closed loop fluid power systems, bearings, clutches, brakes, threaded fasteners and other machine elements. Laboratory exercises deal with design and operation of fluid power circuits. Prerequisite: FE 3363.

FE 5612   Industrial Engineering   3ch (2C 3L)

Economic geography. Plant location analysis. Plant layout and facilities planning. Machine management and maintenance engineering. Work measurement: work standards, time study, work sampling, predetermined time/motion systems. Methods engineering. Lab periods include seminar, industrial visits and practical exercises applying IE theory to engineering problems. Prerequisite: Restricted to students with at least 120 credit hours.

FE 5761   Transportation of Forest Products   3ch (2C 2L)

Transportation of forest products from roadside to mill, including, (i) government regulations, (ii) roadway characteristics: route location, forest road classification, and geometric design, and (iii) vehicle characteristics: gradability, power requirements, and scheduling. Emphasizes trucking, but includes a discussion of the rail and water modes of raw forest product transportation. Prerequisites: APSC 1023. Restricted to students with at least 100 credit hours.

FE 5863   Wood Structures (A) 3ch (2C 2T)

Design, construction and maintenance of bridges and low- and medium-rise buildings that employ wood as a primary structural material. Emphasis on meeting performance objectives related to strength, serviceability and durability. Prerequisite: FE 3033 or CE 3033.

FE 5873   Performance of Structural Wood Systems (A)   3 ch (2C 3L)

Creep, connections, wood-framed construction, light frame trusses, fire performance, built-up components, preserved wood foundation, glulam structures, maintenance and inspection techniques. Prerequisite: FE 3873, or permission of instructor.

FE 5910 Directed Studies in Forest Engineering 3-6 ch

In special cases, and with the approval of the Faculty a student may carry on directed studies of specific problems in Forest Engineering.

FE 5911 Directed Studies in Forest Engineering 3-6 ch

In special cases, and with the approval of the Faculty a student may carry on directed studies of specific problems in Forest Engineering.

FE 5912 Directed Studies in Forest Engineering 3-6 ch

In special cases, and with the approval of the Faculty a student may carry on directed studies of specific problems in Forest Engineering.

FE 5990 Project Report 6 ch [W]

In this course, a student identifies a forest engineering subject of interest and submits a project proposal to the Instructor. Once the proposal is approved, the student must research the subject, submit an extensive formal written technical report and make an oral presentation on the project. Prerequisite: Only for senior students in the last two terms of the BScFE program.

FORESTRY

Note: See beginning of Section H for abbreviations, course numbers and coding.

CORE COURSES

FOR 1001 Introduction to Forestry 4 ch (3C 3L)
This course provides students with an overview of field forestry skills through collection and analysis of basic stand-level inventory data. Emphasis is on developing basic mensuration and computation skills through a series of laboratory excersises and solving practical problems. Studennts learn how to quantify stand structure and to use basic quantitative information to make forestry decisions.

FOR 1285 Introduction to GIS 3 ch
An online course, covering basic and advanced GIS functionality using ARCView 3.x across a range of forestry applications. Emphasizes forest inventory data and its use in characterizing timber and non-timber values of forests.

FOR 2006 Management of Natural Systems 4 ch (3C 3L)
(Cross-Listed: ENR 2006)
Introduces management design issues and practices for a variety of natural systems so that students can effectively work across related disciplines. Objectives: (a) quatitativley design and evaluate strategies aimed at producing a desired set of outcomes for natural systems, including forests, wildlife populations, and hydrological networks; and b) communicate technical information clearly and succinctly in written format. Prerequisite: ENR 1001. Co-requisite: ENR 2004 or permission of instructor.

FOR 2113 Introduction to Forest Wildlife Ecology 3 ch (3C) Emphasizes
interdependence of forest organisms and the terrestrial and aquatic components of their environment, especially in the context of industrial forestry. Introduces an ecological approach to impacts of harvesting on forest ecosystems and the major groups of wildlife inhabiting forests, including species at risk. Covers identification and habitat requirements of selected wildlife species, and applicable legislation.

FOR 2205 Quantitative Methods 3 ch (2C 3L)
Applications in collection, organization, and analysis of basic forestry, biological and other environment-related data. Emphasis on the use of statistics as a problem-solving and decision-making tool through basic numerical and visual statistical techniques, iterative computer graphics, and programming.

FOR 2275 Relational Database Management in Forestry 3 ch
This online course introduces DBMS (database management system) concepts, terminology and techniques, using MS Access and forestry data and applications.

FOR 2281 GIS in Forestry I 2 ch (1.5 L)
A web and lab-based course that introduces GIS and its application in forest inventory and mapping. Students will complete the course with a good grasp of the nature of GIS data employed in forestry, and its manipulation and processing using ArcGIS software. Students cannot receive credit for both FOR 2281 and FOR 2285.

FOR 2282 GIS in Forestry II 2 ch (1.5 L)
A web and lab-based course that explores the analytical power of GIS in forestry. Students will complete the course with advanced geoprocessing and problem-solving skills. Students cannot receive credit for both FOR 2282 and FOR 2285. Prerequisite: FOR 2281

FOR 2286 GIS in Forestry III 2 ch
For students who wish to extend their GIS expertise with special analytical possibilities afforded by rasters using the latest ArcGIS software. This web-based course introduces the Spatial Analyst extension, and the ModelBuilder, highlighting applications in forestry involving reclassification, overlay, and distance and connectivity functions. Prerequisites: FOR 2281.

FOR 2345 Meteorology and Hydrology (A) 4 ch (3C 3L)
Introduces basic aspects of meteorology, hydrometeorology, and hydrology at global, regional and local scales. Emphasis is given to soil-vegetation-atmosphere interactions. Topics include energy balances, thermal, wind, and precipitation regimes, and phenomena associated with the hydrological cycle.

FOR 2416 Structure and Development of 3 ch (2C 3L)
Woody Plants
Development of woody-plant structure from embryo to maturity. Topics include morphogenesis and basic anatomy, development of crown architecture, interrelationships between crown and stem development, wood and elements of wood quality, mechanisms of asexual and sexual reproduction. For each topic, differences among major genera will be considered. Prerequisite: FOR 2425 .

FOR 2425 Autecology of Forest Vegetation 5 ch (3C 3L)
Recognition and identification of species, environmental requirements, and persistence mechanisms of various life-forms of forest vegetation; interpretation of silvical characteristics of tree species; analysis of stands of trees in relation to general site conditions and relative stage of development; and evaluation of interrelationships among components of forest vegetation over time, including likely responses to perturbation or to interventions of various kinds. Prerequisite: a basic university course in Biology or Botany; Co-requisite: FOR 2435 .

FOR 2432 Forest Inventory and Growth 4 ch (3C 3L)
This course focuses on the design and analysis of forest-level inventories. Concepts of stratification and multistage sampling are presented. Approaches to modelling and predicting stand growth and inventory updates are explored.

FOR 2435 Physiological Processes in the Forest 3 ch (2C 3L)
A course dealing with energy conversions in relation to growth, development and functioning of forest organisms, with particular emphasis on trees. Specific topics include environmental and genetic control of growth and development in cells, tissues and organs; phenology; energy capture and flow within and between organisms; contrasting aspects of metabolism between different organisms; aging and senescence; interactions between organisms; survival mechanisms under environmental stress; plant-defense mechanisms. In laboratory sessions, the focus is on wood formation and properties.

FOR 2505 Soils for Plant Growth 4 ch (2C 3L)
Students examine relationships between soils and plants, and related roles of water and nutrients. Factors that restrict root growth, and processes that influence soil development are revealed through field exercises and laboratory work. Effects of natural and anthropogenic disturbances on forest soils and subsequent plant responses are emphasized.

FOR 2703 Forest Operations   3 ch (2C 3L)
Students examine relationships between soils and plants, and related roles of water and nutrients. Factors that restrict root growth, and processes that influence soil development are revealed through field exercises and laboratory work. Effects of natural and anthropogenic disturbances on forest soils and subsequent plant responses are emphasized.

FOR 2886 Wood Technology   3ch (2C 3L)
Familiarity with wood (including reaction and juvenile wood), bark, and root anatomy is developed using micrographs and samples. Wood identification is done using gross (hand lens) and minute (microscopic) features with the assistance of texts and keys. Physical properties of wood (specific gravity, moisture content, and dimensional change) are illustrated in laboratory experiments. Practical problems are used to familiarize students with measurement of wood products including the effects of moisture, log scaling by weight and volume, lumber and panel products measurement, pulp yield and comparative units of mass and volume measurement. Presentations with illustrations and product samples are used to familiarize students with the materials and products made from wood.

FOR 2933 Bioethics in Forestry   3 ch (3C)
This course deals with the moral decision-making in the management of the forest, its land, atmosphere, and living organisms. It considers uses and abuses of the forest environment that raise ethical issues of importance and integrity. The course will include an introduction to ethical principles and systems of ethics, dynamics and decision-making individually as well as collectively, concepts and assumptions about the environment, the rights of nature, conflicting values about nature implicit in anthropocentrism and biocentrism, and the need for interdisciplinary dialoguing in the formulation of policy, laws, and regulations.

FOR 2946 Bioethics, Emotional Intelligence, and 3 ch (3C)
                    the Nature of Spirituality
This course is aimed at bringing together the three notions cited in the title with respect to actions taken and decisions made as life interacts among individuals and groups in today's world. Emphasis will be placed primarily on the disciplines of Forestry and Biology. The course will include: a) an introduction to principles and systems of ethics and what light these cast on human behavior; b) emotional intelligence and its usefulness in understanding basic human interactions; and c) spirituality in terms of a common element in human nature. With this background, consideration will then be given to dynamics of decision-making, individually as well as collectively, concepts and assumptions about the environment, the rights of nature, conflicting values about nature implicit in anthropocentrism and biocentrism, and the need for interdisciplinary dialoguing in the formulation of policy, laws, and regulations.

FOR 3000   Business Management and Human   3 ch (3C)
Factors in the Forestry and Environmental Sectors
This course provides students with basic skills and abilities needed to effectively manage the business and human aspects of environmental and forest management. Students will acquire basic abilities to budget and monitor projects, conduct financial analyses to evaluate management alternatives, evaluate financial statements, promote motivation, and facilitate effective communication and teamwork.

FOR 3005 Silviculture And Stand 5 ch (3C 6L)
               Intervention Design
Takes a design-based approach to silviculture. Students develop stand intervention plans for the main stages of stand development integrating the biology of growing trees, engineering of conducting operations, and economics of costing operations.

FOR 3006 Forest Management 4 ch (3C 6L)
Continuation of FOR 3005 . Introduction to linear programming in forest management. Introduction to elements of resource modelling and productivity assessment (e.g. water flow) at the stand level. Analysis of the impact of alternative interventions at the operational level and their integration with strategic and tactical plans, including: financial and socioeconomic evaluation of forest management and resulting value flows; and risk management for insect or pathogenic attacks and wildfire. Post-implementation assessment of activities as a critical part of the management process. Prerequisite: FOR 2006, FOR 3005 , or permission of instructor.

FOR 3101 Forest Economics   3 ch (3C)
This course applies economic tools to help make informed forestry decisions that will most effectively meet private and social goals. Prerequisite: Some experience with regression analysis.

FOR 3303 Photo-interpretation, Photogrammetry and   3 ch (3L)
Remote Sensing in Forestry
Provide interpretation of aerial photographs of forested areas for stand and site characterization. Remote sensing products other than aerial photographs, such as digital optical images, thermal infrared, and radar images will be introduced. Basics in digital image processing will be covered to address the conversion of remote sensing images to GIS layers. It is a self-paced, web-based course without scheduled lectures. UNB campus students do labs during scheduled sessions. Labs are self-paced and web-based for Open Access Learning Program students. Le cours est aussi disponible en français. Note: Students cannot receive credit for both FOR 3303 and FOR 3313 .

FOR 3313 Digital Image Processing in Remote Sensing   3 ch
To initiate students to the processing of digital images as acquired by Earth's Observation Satellites like LANDSAT-TM, SPOT-HRV and NOAA-AVHRR. Course topics include characteristics of digital images, image displaying, pre-classification processing, image correction, image classification, and spatial image processing and analysis. The course is fully web-based. (The course does not deal with photo-interpretation.) Le cours est aussi disponible en français. Este curso también está disponible en español. Note: Students cannot receive credit for both FOR 3313 and FOR 3303 .

FOR 3425 Forest Tree Genetics and Genomics (A) 3 ch (3C)
Principles of variation and inheritance in forest trees will be introduced. Then, various genetics, genomics, biotechnology and breeding concepts and principles and their applications in tree biology, tree improvement, silviculture, conservation of genetic resources and sustainable forest management, will be discussed. The topics will include: basic principles of quantitative, molecular, population and conservation genetics; genetic variation, differentiation and evolution of populations; reproductive biology; ecophysiological genetics of adaptation; tree improvement concepts, methods and programs; silvicultural practices and genetic resource conservation; discovery and functional analysis of genes; organization and mapping of genomes; marker-assisted selection and molecular breeding; and genetic engineering of forest trees. Prerequisite: BIOL 2053 or permission of instructor.

FOR 3445 Ecology of Populations and Communities 4 ch (3C 3L)
To understand and link processes acting on individuals, populations, and communities in space and time. To predict the response of individuals, populations, and communities to disturbance and to understand the implications of such responses for management of populations, communities, and ecosystems. Prerequisite: FOR 2420 , FOR 2505 .

FOR 3456 Forest Watershed and Forest   3 ch (2C 3L)
               Fire Management
Emphasizes the principles of management of watersheds and fire at the stand and landscape level. Influences of climate, topography/terrain, and stand and fuel types are covered. Concepts of watershed conservation are introduced as well as principles and models dealing with water retention and flow, and carbon and nutrient cycling in primary forest watersheds. Fire management concepts deal with the Fire Weather Index system, the Fire Behaviour Prediction system, fire ecology, and fire management strategies, tactics and operations. Prerequisites: FOR3445 or permission of instructor.

FOR 3457 Forest Watershed and Water Quality   3 ch (2C 3L)
                Management
Emphasizes the principles of management of watersheds and fire at the stand and landscape level. Influences of climate, topography/terrain, and stand and fuel types are covered. Concepts of watershed conservation are introduced as well as principles and models dealing with water retention and flow, and carbon and nutrient cycling in primary forest watersheds. The course provides lectures and laboratory exercises dealing with chemical, biochemical, and biological water quality enhancement and pollution issues.

FOR 3853 Problem-Solving and Interpersonal   3 ch (3C)
                Communication
Designed to help develop skills in solving problems and communicating with others. Models will be presented and used. Emphasizes student participation and leadership.

FOR 3885 Non-Timber Forest Products   3ch (3C)
Provides an overview of the diversity of non-timber forest products (NTFPs) in Canada and North America. Introduces major classes of NTFPs including medicinal plants; maple and birch products; mushrooms, fiddleheads and other edible plants; and essential oils. Introduces the science behind the production and commercial use of selected NTFP examples. Discusses issues of stewardship, sustainability and certification of non-timber forest products, emphasizing management of forest lands for multiple products and values.

FOR 4013 Basic Woodlot Management   3 ch (3C)
Introduction to basic woodlot management, covering such topics as planning, harvesting, silviculture, Christmas trees, maple products, wildlife and recreation, economics, owner characteristics and organization, government programs and policies and industry relations as they relate to small woodlots. Prerequisite: Open to 4th- and 5th-year Faculty of Forestry and Environmental Management students, or permission of instructor.

FOR 4020 Management Practicum   8 ch (1C 3L)
Practical exercise in forest landscape management, designed to provide an opportunity to integrate skills and knowledge gained throughout the program. Working with a client and/or the public, students will develop goals and objectives, design and gather inventory data (if required), then develop an integrated landscape management plan at the strategic, tactical and operational levels. Learning modules will be provided specific to the needs of the project. Additional topics include project management, conflict resolution, professional practice and forestry associations. The project requires completion of a group report and presentation. Prerequisites: FOR 2281, FOR 3005, FOR 3006, FOR 3456. Co-requisite: FOR 4096

FOR 4096   Forest Landscape Design   5 ch (3C 3L)
              and Management
Integrates value-flow planning with landscape planning by: 1) introducing students to the concepts and techniques used in dealing with the spatial dimensions in forest management planning; 2) introducing students to the difficulties involved with management for a complex set of demands, where resources demanded have production functions that include complex spatial and temporal relationships of inputs, many of which are unknown; and 3) exposing students to techniques available to forecast landscape patterns resulting from flow driven management planning, and to design landscape patterns based on analysis of natural dynamics. Prerequisite: FOR 3006 , or permission of instructor.

FOR 4205   Quantitative Forest   3 ch (3C)
              Characterization (O)
Students will construct from raw data sets a qualified forest characterization suitable for input to forest level planing models. Model runs will be made using that input and compared to assess sensitivity of outcomes to inputs.

FOR 4206 Forest Biometry II (A)   3 ch (2C 2L)
Additional topics in data collection and analysis, including multiple linear regression, analysis of covariance, basic principles of experimental design, analysis of factorial arrangements of treatments, analysis for some special-purpose designs. Prerequisite: STAT 2253 , or permission of instructor.

FOR 4286 Géomatique avec ArcGIS   3 ch (3C)
Le cours présente les concepts de base liés au système d'information géographique (SIG). En particulier, vous apprendrez comment créer et éditer des données spatiales, travailler avec les tables attributaires, chercher une information dans une base de données SIG, comment présenter des données spatiales sous formes de cartes. Le cours est basé sur le logiciel de SIG, ArcGIS. Le cours n'a pas de cours magistraux ni de laboratoires parce qu'il est donné via Internet. Le cours n'est donné qu'en français.

FOR 4303   Optical, Thermal Infrared 3 ch (3C/L)
              and Radar Remote Sensing
An introduction to remote sensing methodologies for observing the Earth's surface from different vantage points (from the ground, from airplanes, and from space). The course is fully web-based. It allows for a quantitative understanding of optical, thermal infrared, and radar images as acquired by Earth's observation satellites like LANDSAT-TM, SPOT-HRV, NOAA-AVHRR and RADARSAT. Remote sensing applications are taken from the fields of forestry, agriculture, geology, oceanography, hydrology, and environmental studies. It does not deal with photo-interpretation. The course is recommended for students intending to do a forestry senior thesis in remote sensing. Le cours est aussi disponible en français.

FOR 4304   Image Processing Methods and   3 ch
              for Radarsat-2 Polarimetric Images
Introduction to image processing methods for RADARSAT-2 images (with a particular reference to polarimetric images). The course is fully web-based. It allows the quantitative understanding of the nature of radar images and polarimetric images and how they can be processed to extract relevant information. It includes applications in forestry, agriculture, geology, oceanography, hydrology, and environmental studies. Le cours est aussi disponible en français.

FOR 4412 Forest Nursery Practices (A)   3 ch
Students become familiar with the full range of topics related to seedling production for forestry. Students learn greenhouse techniques by growing seedlings from seed.

FOR 4425 Conservation Genetics (A)   3 ch (3C)
This class will examine the application of genetic principles, concepts and biotechnologies in conservation, sustainable management and restoration of natural and managed resources. The topics will include: concepts of genetic resources, genetic biodiversity and other population genetic parameters, demography, conservation, sustainable management, ecological restoration, and minimum viable population size; indicators for population viability; exploration, evaluation, utilization, and conservation of genetic resources; genetic consequences of habitat fragmentation, resource management practices, domestication, climate change, and natural disturbance; and challenges, opportunities and strategies for conservation and sustainable management of genetic resources. Prerequisite: BIOL 2053 or BIOL 2143 or permission of instructor.

FOR 4437 Methods in Tree Physiology   3 ch (6L)
            Research (A)
Introduction to experimental physiology. Hands-on training in use of equipment including uv/vis spectrophotometry, tissue culture and general procedures. Prerequisite for students intending to do FOR 4992/5991 in physiology Prerequisites: BIOL 1012 , BIOL 1017 , FOR 2420 , 2435 , or permission of instructor.

FOR 4438 Biochemistry of Trees (A)   3 ch (2C 3L)
Introduction to metabolic pathways of economic or ecological significance, including biosynthesis of pectin, hemicelluloses, starch, callose, cellulose, lipids, terpenoids, flavanoids, pigments, and lignin. Prerequisites: BIOL 1012, BIOL 1017 , FOR 2420 , 2435 , or permission of instructor.

FOR 4452 Ecological Modelling (A)   4 ch (2C 3L)
A workshop course in the modelling of ecological systems. Each student builds a model. Prerequisite: Concepts of forest ecology or equivalent; some knowledge of computer programming, or permission of instructor.

FOR 4456 Forested Ecosystems (A)   3 ch (2C 3L)
An analysis of the forest as an ecosystem, focusing on the interactions among ecosystem components (vegetation, soil, water, atmosphere, wildlife) and the effects of perturbations on the ecosystem. Analysis of the major forest ecosystem types of Canada and the adjacent U.S.A. Prerequisite: FOR 3445 , or an introductory ecology course, or permission of instructor.

FOR 4466   Advanced Studies in Forest   4 ch (3C 3L)
          Plants and Their Environment
The course addresses ecophysiological relationships within forest stands (energy capture, respiration, photosynthate allocation, transportation, etc.) integrated to the stand level. Specialized topics include tree nutrition (nutrient deficiencies, diagnosis, mediative action), ecotoxicology (role of heavy metals) and reactions of trees to air pollutants (SO_2, oxone) and climate change.

FOR 4506 Advanced Studies in Forest Soils and   4 ch (3C 3L)
Advanced studies addressing impacts of forest management of forest soils and streams. Topics include sustainability of soil quality, site preparation effects on soil moisture, nutrient supply, soil temperature, water balance, snowmelt, water quality, role of riparian buffer zones.

FOR 4545   Biodiversity and   4 ch (3C 3L)
          Ecosystem Management
To learn concepts and measurements about biophysical landscape dynamics, strategies for the maintenance of biodiversity, and ecosystem based forest management. To use contemporary examples of management of ecosystems. Prerequisite: Prior ecology course.

FOR 4576 Forest Hydrology and Aquatic Habitat   3 ch (3C)
This course helps students to develop analytical skills for solving hydrological problems under varying hydro-thermal conditions pertaining to best forest management practices and operations. Topics include hydrometric data generation, hydrograph analyses, and the modeling of peak flow of extreme events. The course also introduces tools to assess land-use impacts on slopes, soils, streams and lakes, to protect water quality and aquatic habitats.

FOR 4586 Fire Management (A)   3 ch (2C 2L)
Topics covered include fuels and fire behavior, fire danger rating, prevention, prediction, detection, suppression, and overall planning and fire management systems.

FOR 4602 Ecology of Forest Insects (A)   3 ch (2C 3L)
Evaluates factors influencing insects in forest communities with emphasis on predator-prey, parasitoid-host and insect-plant interactions as well as natural selection, physiological constraints, behaviour and population dynamics.

FOR 4615 Insect Management   3 ch (2C 3L)
Taxonomy, importance and ecology of major insect families; damage assessments, insect population dynamics and control strategies and tactics.

FOR 4625 Integrated Management of   4 ch (3C 3L)
          Insects and Fungi
Presents a common approach to management of insects and fungi and their interactions at the stand/population and landscape levels. Major components to be discussed are: monitoring and prediction of hazard and risk; damage prediction based on organism population dynamics; management strategies and tactics including acquisition and deployment of resources, control methods and cost benefit analyses. Taxonomy of major families of insects and diseases will be covered in laboratory sessions. Prerequisites: FOR 3445 , FOR 3455 , and FOR 3006 , or permission of instructor.

FOR 4655 Wildlife Investigational Techniques (A) 3 ch (3C/L)
Designed to introduce techniques available for conducting investigations in support of management objectives. Labs will provide hands-on experience from radio telemetry to necropsy techniques. Prerequisites: Substantial completion of Year 3, BScF, or permission of instructor.

FOR 4676   Disease Control   3 ch (2C 2L)
Survey of important tree diseases, impacts on tree and forest growth, control methods.

FOR 4713 Advanced Stand Intervention Planning (O)   3 ch
Silviculture and the dynamics of complex stand structures managed on an uneven-aged basis is the focus. Stand intervention plans are developed, defended and implemented.

FOR 4721 Urban Land Use Policy, Planning   3ch (3C 0L)
          and Processes
This course provides existing BScF/ENR students and those in a proposed Urban Forestry Major with practical knowledge of the governance of urban areas, and how the political and administrative processes affect the development and protection (or not) of trees and forested landscapes within the urban environment. It is intended as a core course in the BScF (Urban Forestry Major) program and can be taken as an elective by any students in the BScF or ENR programs

FOR 4785 Urban Forest Conservation   4ch (3C 3L)
          and Management
Examines the planning and management of trees and forests associated with urban areas with a focus on protection and enhancement. Includes tree/forest resource inventories, techniques to determine the values of urban residents concerning trees and forests, assessment of the benefits and procedures for urban watershed protection, and techniques to maintain or increase the health of trees and forests in urban green spaces.

FOR 4881   Kiln Drying and Preserving Wood 3 ch (3C/L)
Kiln drying theory and practice. Experience operating a dry kiln. Preservative treatment and sap stain control processes and chemicals. Properties of treated wood.

FOR 4910 Directed Studies in Forestry   6 ch
With approval of the Faculty, a student may carry on directed studies of specific problems or areas in forestry.

FOR 4911 Directed Studies in Forestry   4 ch
With approval of the Faculty, a student may carry on directed studies of specific problems or areas in forestry.

FOR 4912 Directed Studies in Forestry   3-5 ch
With approval of the Faculty, a student may carry on directed studies of specific problems or areas in forestry. Number of credit hours will be determined by the Faculty and based on the nature, duration, and complexity of the undertaking. Credit hours assigned to the course must be determined prior to the student initiating the project.

FOR 4973 Forestry Field Camp II 2 ch (6D)
An intensive 6-day series of field exercises, starting before the Fall Term, involving low student/faculty ratios, and designed to improve integrative and quantitative-forecasting skills. Evening sessions provide overviews of the scope of forest-ecosystem management generally, and in relation to the specific field-camp situation. Students are charged for food and lodging and part of travel costs. Prerequisite: Substantial completion of Years 1-3 core.

FOR 4991 Honours Research Project   6 ch [W]
Forestry honours students must complete a research project that is approved by the Faculty and supervised by a Faculty member. This course involves submitting a detailed project report and an oral defense in a seminar-style presentation. Students should consult with a faculty advisor prior to the end of third year to discuss project requirements and potential topics. Note: Minimum CGPA for acceptance is 3.0

FOR 4994 SENIOR TECHNICAL REPORT   3 ch
A technical description and analysis of a study, employment project, or literature review developed under the guidance of a faculty member. Available only to students in their fourth year or by permission of the instructor.

FOR 5983 International Forest Studies   3 ch
This course focuses on the biophysical, historical, social and economic factors influencing forest management in a region outside of Canada. The purpose of the course is to better understand forest management practices within the Canadian context by gaining an understanding of how these factors influence forest management in a region outside of Canada. A 10 to 14-day field trip to the region is required. Prominent forestry professionals from across Canada will join with the students. Each year a new region is selected. Students will be charged for travel costs associated with this course. Limited enrolment.

FRENCH

Note: See beginning of Section H for abbreviations, course numbers and coding.

Students taking a French course at UNB for the first time should read the section entitled "French Placement Test" under "General Information" in Section G - FRENCH, of this Calendar. Students continuing in French should read the other paragraphs of the section entitled "Courses".

INTRODUCTORY LEVEL COURSES

FR 1014   Français Fundamental I   3 cr (3C)
Développement des habiletés langagières axé sur lemploi du vocabulaire et la construction des phrases. Exercices oraux et écrits. Destiné aux étudiant.e.s nayant pas suivi un cours de français cadre après la dixième année.

FR 1014   Basic French I   3 ch (3C)

Development of language skills, use of vocabulary and sentence structure. Speaking and writing practice. For students who have not taken French beyond grade 10 Core. Not open to students schooled in French, students who have participated in immersion programs or students who have completed grade 12 core French.

FR 1015   Français fondamental II   3 cr (3C)

Suite du FR 1014. Destiné aux étudiant.e.s nayant pas suivi un cours de français cadre après la dixième année. Préalable : FR 1014.

FR 1015   Basic French II   3 ch (3C)

Continuation of FR 1014. Not open to students schooled in French, students who have participated in immersion programs or students who have completed grade 12 core French. Prerequisite: FR 1014.

FR 1024   Francais fundamental III   3 cr (3C)

Perfectionnement des habiletés de communication mettant laccent sur la prononciation et la grammaire de base. Fermé aux diplômé.e.s de programmes dimmersion ou de programmes-cadre.

FR 1024   Basic French II 3 ch (3C)

Improvement of communication skills with an emphasis on pronunciation and core grammar. Not open to graduates of French Immersion or Core French programs.

FR 1034   Communication orale et écrite I   3 cr (3C)

Développement des habiletés d'écoute, d'expression orale ainsi que des stratégies de lecture et d'écriture. L'accent est placé sur la communication orale. Révision de la grammaire. Cours pour finissant.e.s du programme cadre. Fermé aux francophones et aux étudiant.e.s ayant participé à un programme d'immersion en milieu scolaire.

FR 1034   Oral and Written Communication I   3 ch (3C)

Develops language proficiency in all four skills: listening, speaking, reading and writing. Emphasis is on oral communication. Review of selected grammatical points. Designed for students who have completed high school French. Not open to Francophones or to students who have participated in immersion programs in school.

FR 1044   Communication orale et écrite II 3 cr (3C)

Approfondissement des notions grammaticales de base. Préalable: FR 1034 ou l'équivalent.

FR 1044   Oral and Written Communication II   3 ch (3C)

Emphasis on the reinforcement of basic grammatical concepts. Prerequisite: FR 1034 or equivalent.

FR 1124   Cours pour francophones I   3 cr (3C)

Affinement de la perception des valeurs d'usage des mots, repérage des faux amis et enrichissement du vocabulaire. Travaux pratiques écrits. Réservé aux étudiant.e.s scolarisé.e.s en français.

FR 1124   Course for French Speakers I   3 ch (3C)

Aims at refining the student's perception of the different values of word usage, at identifying false cognates and at enriching vocabulary. Written exercises. Reserved for students whose schooling was in French.

FR 1144   Cours pour francophones II   3 cr (3C)

Amélioration de l'expression écrite, apprentissage de règles et sensibilisation aux principales difficultés de la langue. Étude de textes choisis, exercices d'application et de rédaction. Réservé aux étudiant.e.s scolarisé.e.s en français.

FR 1144   Course for French Speakers II   3 ch (3C)

Aims at improving the student's command of written French, and at imparting a systematic knowledge of the rules and main difficulties of the language. Study of selected texts; written exercises and composition. Reserved for students whose schooling was in French.

FR 1184   Langue et littérature I   3 cr (3C)

Révision de grammaire et examen de divers styles d'écriture visant l'apprentissage de méthodes efficaces de rédaction. Initiation à la littérature d'expression française et aux genres littéraires. Normalement réservé aux diplômé.e.s de programmes d'immersion.

FR 1184   Language and Literature I   3 ch (3C)

Review of grammar and study of various writing styles for the learning of efficient writing techniques. Introduction to Literature in French and literary genres. Normally for graduates of French Immersion.

FR 1194   Langue et littérature II   3 cr (3C)

Suite du FR 1184. Préalable: FR 1184.

FR 1194   Language and Literature II   3 ch (3C)

Continuation of FR 1184. Prerequisite: FR 1184.

FR 2034   Communication orale et écrite III   3 cr (3C)
Développement des habiletés d'écoute et d'expression verbale spécifiques à la vie quotidienne et au monde du travail. Perfectionnement des stratégies de lecture et d'écriture. Révision de la grammaire. Enrichissement du vocabulaire. Fermé aux étudiant.e.s scolarisé.e.s en français et aux étudiant.e.s ayant participé à un programme d'immersion en milieu scolaire.

FR 2034   Oral and Written Communication   3 ch (3C0)

Emphasizes the development of listening and speaking skills needed for social and work situations. Reinforcement of reading and writing strategies. Review of grammatical points. Vocabulary development and enrichment. Not open to Francophones and to students who have participated in immersion programs in school.

FR 2054   Communication orale et écrite IV   3 cr (3C)

Approfondissement des notions grammaticales et des stratégies d'écriture. Préalable: FR 2034 ou l'équivalent.

FR 2054   Oral and Written Communication IV   3 ch (3C)

Emphasis on the reinforcement of grammatical concepts and the development of writing strategies. Prerequisite: FR 2034 or equivalent.

FR 2154   Grammaire et expression écrite   3 cr (3C)

Analyse approfondie daspects grammaticaux et stylistiques; enrichissement du vocabulaire et sensibilisation aux registres; exercices de rédaction. Préalable: FR 1194 ou FR 1124.

FR 2154   Grammer and Written Expression   3 ch (3C)
Extensive analysis of grammatical and stylistic aspects of French; vocabulary enrichment and critical study of various language registers; writing practice. Prerequisite: FR 1194 or FR 1124.

FR 2164   Initiation à la littérature française   3 cr (3C)

Survol dauteurs importants de la littérature française. Examen plus approfondi de textes choisis. Apprentissage de lexplication de texte et de la dissertation.

FR 2164   Introduction to French Literature   3 ch (3C)

Survey of major authors in French literature. In-depth study of selected texts. Introduction to textual analysis and essay writing.

FR 2174   Le français au XXIe siècle   3 cr (3C)

Description du français contemporain. Français standard et variantes régionales, mots et tournures à la mode, expressions idiomatiques. On abordera les principales difficultés du français.

FR 2174   French in the 21st Century   3 ch (3C)

A description of contemporary French. Standard French and regional variants, trendy expressions, idiomatic expressions. Discussion of common difficulties of the French language.

FR 2184   Civilisations du Canada français   3 cr (3C)

Étude multidisciplinaire des cultures dexpression française du Canada: histoire, politique, littérature, cinéma et actualité. Survol historique de la présence française en Amérique du nord. Considération du caractère distinct du Québec et des grandes régions minoritaires du Canada francophone (Acadie, Ontario, Ouest canadien). Réflexion sur les enjeux des droits linguistiques, du multiculturalisme et de la mondialisation. Destiné principalement aux diplômé.e.s des programmes dimmersion et aux étudiant.e.s scolarisé.e.s en français.

FR 2184   Civilizations of French Canada   3 ch (3C)

Multidisciplinary study of the French-speaking cultures of Canada: history, politics, literature, cinema and recent events. Historical survey of French presence in North America. Consideration of the distinct character of Quebec and the important minority regions of francophone Canada (Acadie, Ontario, Western Canada). Reflection on the stakes of language rights, multiculturalism and globalization. Intended primarily for graduates of French immersion programs and for students schooled in French.

ADVANCED LEVEL COURSES

FR 3034   Perfectionnement de l'expression orale I 3 cr (3C)

Développement de l'expression orale et de la compréhension de la langue parlée. Écoute d'enregistrements, notamment de bulletins radiophoniques d'information, et débats sur des sujets d'actualité. Fermé aux étudiant.e.s scolarisé.e.s en français et aux étudiant.e.s ayant participé à un programme d'immersion en milieu scolaire.

FR 3034   Advanced Oral French I 3 ch (3C)

Develops oral expression by discussion of topical subjects and aural comprehension through recordings, including broadcasts. Not open to Francophones and, normally, not open to students who have participated in immersion programs in school.

FR 3044   Grammaire et stylistique-niveau avance   3cr (3C)

Étude de structures grammaticales et de leurs applications stylistiques.

FR 3044   Advanced Grammar and Stylistics   3 ch (3C)

Study of advanced grammatical structures and their stylistic applications.

FR 3054   Rédaction I   3 cr (3C)

Fournit aux étudiant.e.s les outils permettant de s'exprimer par écrit dans un français correspondant à leur niveau.

FR 3054   French Composition I   3 ch (3C)

Aims at giving students the tools to express themselves in written French at a level appropriate to their standing.

FR 3064   Français langue des affaires   3 cr (3C)

Principes de la communication et de la rédaction en milieu de travail. L'accent portera sur l'acquisition des termes et tournures de la langue du commerce, de la banque et des affaires. Préalable: FR 2054 ou FR 2154.

FR 3064   Business French   3 ch (3C)

Principles of communication and writing in the workplace. Emphasis is on the acquisition of terminology and language structures specific to commercial, banking and business contexts. Prerequisite: FR 2054 or FR 2154.

FR 3074   Lecture avancee du francais (A)   3cr (3C)

Ce cours aide les etudiants a accroitre leurs aptitudes a la lecture en francais a travers l'etude de courts textes litteraires et savants.

FR 3074   Advanced French Reading (A)   3ch (3C)

This course helps students improve their reading skills in French through the study of literary and scholarly short texts.

FR 3204   Stylistique comparée (français/   3 cr (3C)
                    anglais)

Mise en opposition et analyse de divers aspects de chaque langue. Dégager les problèmes précis que pose la transposition du français en anglais et vice versa. Éléments de théorie de la traduction.

FR 3204   Comparative Structure   3 ch (3C)

Contrastive study of the principal grammatical structures of English and French emphasizing the differences in structure which exist even though the same concepts are being expressed.

FR 3524   Roman et cinéma   3 cr (3C)

Étude d'oeuvres françaises et québécoises, de leurs adaptations cinématographiques et des problèmes posés par le passage du langage littéraire à celui du cinéma.

FR 3524   The Novel and Film   3 ch (3C)

Comparative study of selected French and French-Canadian novels, and their adaptation in film. Study of problems arising from the passage from literary language to that of the screen.

FR 3534   Écrits de femmes   3 cr (3C)

Survol de la littérature féminine contemporaine acadienne, québécoise, africaine et française. Approche : critique féministe. (Cf. cet annuaire sous Women's Studies.)

FR 3534   Women's Writings   3 ch (3C)

Selected texts by Acadian, Québécois, African and French women authors, studied in the context of feminist issues in literary scholarship. (See Calendar entry under Women's Studies.)

FR 3544   Litterature belge et Suisse (A)   3cr (3C)
Cours qui examine la diversite de la production litteraire francophone moderne et comtemporaine en Belgique et en Suisse. Auteurs belges: Georges Rodenbach, Maurice Maeterlinck, Michel de Ghelderode, Georges Simenon et Amelie Nothomb. Auteurs suisses: Jean-Jacques Rousseau, Isabelle de Charriere, Blaise Cendrars, Phillipe Jacottet, Albert Cohen and Agota Kristof.

FR 3544   Swiss and Belgian Literature in French (A)   3ch (3C)
Examines the diverse production of modern and contemporary Belgian and Swiss literature written in French. Belgian authors may include Georges Roden bach, Maurice Maeterlinck, Michel de Ghelderode, Georeges Simenon and Amelie Nothomb. Swiss authors may include Jean-Jacques Rosseau, Isabelle de Charriere, Blaise Cendrars, Phillipe Jacotett, Albert Cohen and Agota Kristof.

FR 3554   Survol de la littérature noire   3 cr (3C)
                    d'expression française

Vue d'ensemble d'oeuvres africaines et antillaises. Principaux axes de réflexion: le mouvement de la négritude, le colonialisme et la tentation du "masque blanc."

**FR 3554   Introduction to Black Literature   3 ch (3C)
Written in French**

Introduces students to the study of African and Caribbean works. Emphasis falls on the "négritude" movement, colonialism and the temptation of the "white mask."

FR 3564   Folie et literature   3cr (3C)

Étude des rapports entre les auteurs, leurs oeuvres et la folie en littérature.

FR 3564   Madness and Literature   3ch (3C)
Study of the representation of madness in selected literary texts.

FR 3574   Literature pour la jeunesse 3 cr (3C)

Étude d'une variété d'oeuvres pour la jeunesse, des plus actuelles aux plus classiques. Le repérage des stéréotypes racistes, sexistes et sociaux sera au coeur de l'analyse.

**FR 3574   Literature for Children and Young   3 ch (3C)
Adults**

Literary texts for children and young adults. Study of racial, social and sexist stereotypes found in works ranging from the classical to the contemporary.

**FR 3584   Auteurs non francophones écrivant   3 cr (3C)
en français**

L'émergence de l'Europe comme entité politique coïncide avec la parution remarquée d'ouvrages écrits en français par des non francophones. Nous tenterons une description sociologique, littéraire et formelle de ce phénomène dont Agota Kristof (Hongrie), Milan Kundera (Tchéquie), André Makine (Russie) et Nancy Huston (Canada) constitueront les exemples à l'étude. Les étudiant.e.s qui ne font ni une concentration, ni une spécialisation en études françaises, peuvent remettre leurs travaux en anglais.

**FR 3584   Non Francophone Writers Writing in 3 ch (3C)
French**

The unification of Europe coincides with an increased number of works written in French by non Francophones. We will describe this recent phenomenon using sociological, literary and formalist approaches of works by Agota Kristof (Hungary), Milan Kundera (Czech Republic), André Makine (Russia), Nancy Huston (Canada). Classes to be held in French; students not registered in French Majors or Honours Program may submit their assignments in English.

**FR 3594   Paris en fête (O)   3 cr (3C)
(inscrit ailleurs sous WLCS 3594)**

Sujet dinspiration des poètes et romanciers ou simple cadre de leurs uvres, la ville de Paris occupe une place essentielle en littérature française. Les étudiants liront et étudieront des uvres qui mettent en évidence Paris et la capitale régionale de Poitiers. Le cours comprendra des visites aux musées, aux résidence, aux cafés et aux sites culturels décrits dans le uvres au programme. Le cours est normalement enseigné en France. Note : Le cours se donne en français. Les étudiants qui sinscrivent à WLSC 3594 peuvent choisir de lire les uvres en traduction et remettre leurs travaux en anglais.

**FR 3594   Paris in Literature (O)   3 ch (3C)
(Cross-listed: WLCS 3594)**

Paris has played a key role in French literature. The city has inspired numerous poets and novelists and it has been described by countless others. Students will read and study a number of works that highlight Paris and the regional capital of Poitiers. There will be visits to museums, residences, cafés and cultural sites where the authors lived and wrote, and where their novels take place. Normally taught on location in France. Note: Classes will be conducted in French. Students who choose to read the novels in translation and submit their assignments in English must register for WLCS 3594.

**FR 3624   Littérature française de la   3 cr (3C)
Renaissance à l'Âge classique**

Survol des mouvements littéraires ayant marqué le XVIe et le XVIIe siècle français; étude d'auteurs représentatifs de diverses pratiques littéraires telles que le roman (La Fayette), l'essai (Montaigne), le théâtre (Racine), la poésie (Ronsard).

**FR 3624   French Literature from Renaissance 3 ch (3C)
to Classicism**

Survey of major literary movements in the 16th and 17th centuries in France; study of writers representing various literary genres: novel(La Fayette), essay (Montaigne), drama (Racine), poetry (Ronsard).

FR 3634   Literature francaise des Lumieres   3cr (3C)

Survol de l'évolution des idées et de la philosophie au XVIIIe siècle en France; étude de textes représentatifs de diverses pratiques littéraires telles que l'autobiographie (Rousseau), le roman (Graffigny, Diderot), l'essai (Voltaire).

**FR 3634   French Literature in the   3 ch (3C)
Enlightenment**

Survey of the evolution of thought and philosophy in 18th Century France; study of texts representing various literary genres such as autobiography (Rousseau), novel (Graffigny, Diderot), essay (Voltaire).

FR 3654   Literature francaise 1800-1850   3cr (3C)

Aspects du Romantisme français, marqué par une conscience nouvelle du rôle de l'artiste, et par le triomphe du roman (Constant, Balzac, Gauthier, Stendhal) et de la poésie lyrique (Hugo, Nerval, Lamartine).

FR 3654   French Literature 1800-1850   3 ch (3C)

Aspects of French Romanticism, marked by a new awareness of the role of the artist and the triumph of the novel (Constant, Balzac, Gautier, Stendhal) and of lyrical poetry (Hugo, Nerval, Lamartine).

FR 3664   Littérature française 1850-1900   3 cr (3C)

Le réalisme, le naturalisme, l'Art pour l'Art, le décadentisme, découlant tous du Romantisme, tentent de situer l'individu face au progrès. Étude des textes de Flaubert et Zola, Sand et Maupassant, Baudelaire, Verlaine et Mallarmé.

FR 3664   French Literature 1850-1900   3 ch (3C)
Aspects of French Romanticism, marked by a new awareness of the role of the artist and the triumph of the novel (Constant, Balzac, Gautier, Stendhal) and of lyrical poetry (Hugo, Nerval, Lamartine).

FR 3665   Littérature française 1900-1950   3 cr (3C)

Dada, surréalisme, existentialisme, théâtre de labsurde Étude dun demi-siècle marqué par deux guerres mondiales et une conjoncture de crise permanente. Panorama critique de la vie littéraire qui se concentre aussi sur les principaux enjeux du contexte social et idéologique du temps (essor de tendances radicales, rupture avec lordre traditionnel, appel à lengagement de lintellectuel). Vise à habiliter les étudiant.e.s à la lecture et à lanalyse des oeuvres dauteur.e.s importants tels Artaud, Breton, Camus, Cocteau, Gide, Giraudoux, Sartre et Yourcenar.

FR 3665   French Literature 1900-1950   3 ch (3C)

Dada, Surrealism, Existentialism, Theatre of the Absurd Study of the first half of a century shaped by two World Wars and a climate of ongoing crisis. Literary survey that also focuses on the social and ideological context (growth in radical tendencies, break from traditional structures, public involvement of the intellectual). Aims to provide students with analytical tools for the study of works by major authors such as Artaud, Breton, Camus, Cocteau, Gide, Giraudoux, Sartre and Yourcenar.

FR 3674   Le roman français contemporain   3 cr (3C)

Nous ferons une lecture attentive de quelques romans représentatifs de la seconde moitié du XXe siècle. Les courants intellectuels, les préoccupations esthétiques, politiques, sociales et morales qui se dégagent de ces oeuvres seront abordées

FR 3674   Contemporary French Novel   3 ch (3C)

Examines selected works from the second half of the Twentieth Century. Explores intellectual contexts of the works, as well as the aesthetic, political, social and moral concerns outlined in them.

FR 3684   Théâtre français   3 cr (3C)

Du marivaudage à l'absurde, de la satire au burlesque, le théâtre se révèle un art de l'interpellation. Étude des formes dramatiques dans des pièces de Molière, Marivaux, Beaumarchais, Rostand, Ionesco.

FR 3684   French Theatre   3 ch (3C)

From "marivaudage" to the absurd world of Ionesco, from satire to burlesque, French drama showcases an art of interpellation. Technical aspects of dramaturgy will be analyzed in plays by Molière, Marivaux, Beaumarchais, Rostand and Ionesco.

FR 3814   Poésie du Canada français   3 cr (3C)

Étude des courants poétiques les plus marquants du Canada français: symbolisme, régionalisme, surréalisme, nationalisme, contre-culture, formalisme et féminisme. Analyse du langage poétique, de la versification et des figures de style.

FR 3814   Poetry of French Canada   3 ch (3C)

Important poetic movements of French Canada; symbolism, regionalism, surrealism, nationalism, counter-culture, formalism, and feminism. Study of language of poetry, versification, and figures of speech.

FR 3834   Écrivaines québécoises   3 cr (3C)
**   contemporaines**

Lanalyse de lévolution de la pensée féministe dans le roman féminin québécois. (Cf. Cet annuaire sous Womens Studies).

FR 3834   Contemporary Québécois Women   3 ch (3C)
**   Writers**

Studies the evolution of feminist thought in novels written by Québécois women. (See Calendar entry under Womens Studies).

FR 3844   Écriture migrante au Québec   3 cr (3C)

Depuis les années 1980, un flux migratoire dans les centres urbains du Québec donne lieu à une littérature dite transculturelle ou migrante. Axes de réflexion : exil, rêve du retour, identité et acculturation. Étude des enjeux de lécriture et de ses modes dexpression romanesque, poétique et dramatique en milieu minoritaire.

FR 3844   Immigrant Writing in Quebec   3 ch (3C)

Since the 1980s, a rise in immigration in the urban centres of Quebec has led to the development of transcultural or immigrant literature. Main focus on exile, fantasy of return, identity and acculturation. Study of issues of writing and its various forms, including fiction, poetry and drama, in a minority setting.

FR 3854   Littérature acadienne   3 cr (3C)

Introduction à la littérature acadienne dans ses diverses manifestations. Une attention particulière sera portée aux textes contemporains. Principaux axes de réflexion: quête d'identité, débuts de modernité.

FR 3854   Acadian Literature   3 ch (3C)

Introduction to Acadian literature in its diverse aspects. Special attention will be paid to contemporary works. Concentration on search for identity, beginnings of modernism.

FR 3864   La littérature canadienne-française   3 cr (3C)
**   du XIXe siècle**

À partir de quelques oeuvres représentatives, la formation d'une écriture romanesque et poétique, spécifique au Canada français; son évolution de la rébellion de 1837 jusqu'à la fin du XIXe siècle, ses qualités et ses défauts. Étude de l'influence prédominante du contexte socio-culturel: lutte entre rouges et ultramontains, thèse du messianisme compensateur, censure et autocensure.

FR 3864   French Canadian Literature of the XIX Century   3 ch (3C)

Based on certain representative works, study of the birth of a specific and distinct style of writing in the poetry and novel of French Canada, its evolution from the rebellion of 1837 to the end of the XIX century, its qualities and shortcomings. Study of the predominant influence of the socio-cultural context: the struggle between the Tories and the "ultramontains," the thesis of compensating messianism, censorship and self-censorship.

FR 3874   Le roman canadien-français de 1900 3 cr (3C)
à 1960

Pendant la première moitié du XXe siècle se propage au Canada français une idéologie qu'appuie l'élite au pouvoir et qui lie à la survie du peuple canadien-français, à la religion et à l'agriculture. En littérature, plusieurs écrivains épousent cette idéologie. Ils célèbrent la patrie de même que les séductions de la campagne québécoise : terre, clocher, etc. Étude de l'évolution de cette littérature qui se voulait représentative du mode de vie et des idéaux canadiens-français.

FR 3874   The French-Canadian Novel from   3 ch (3C)
1900 - 1960

The first half of the twentieth century bears witness to an ever popular ideology favoured by those in power, linking the survival of the French Canadian people with religion and agriculture. In literature, many writers promote this ideology. They celebrate the qualities of the Québec countryside, the soil, the Church, the homeland. Looks at the evolution of this literature which saw itself as representing the lifestyle and ideals of French Canadians.

FR 3884   Théâtre du Canada français   3 cr (3C)

Lecture de grandes oeuvres dramatiques du Canada français. Étude de la dramaturgie, de la mise en scène et de la théâtralité.

FR 3884   The Theatre of French Canada   3 ch (3C)

Reading of major works by French Canadian playwrights. Study of dramaturgy, production, and theatricality.

FR 3894   Le roman canadien-français   3 cr (3C)
contemporain

Le roman canadien-français depuis 1960 est marqué par l'urbanisation, la contestation et l'éclatement des valeurs traditionnelles. Étude des oeuvres représentatives de ce refus global du passé et de cette quête d'un prochain épisode libérateur tant du point de vue politique que de celui de l'illustration d'une nouvelle forme laïcisée du mythe national ancré dans la modernité et l'espace américain.

FR 3894   The Contemporary French-Canadian 3 ch (3C)
**   Novel**

Since 1960, the French Canadian novel has been marked by a thrust towards urbanization, by the rejection and disintegration of traditional values, and by the search for a new freedom. Representative works of this era will be studied both from a political point of view and as illustrating a new type of national, secular myth anchored in modernism and the North American continent.

FR 4034   Perfectionnement de l'expression   3 cr (3C)
**   orale II**

Amélioration de l'expression orale. Présentations, discussions et débats sur des sujets d'actualité.Fermé aux étudiant.e.s scolarisé.e.s en français.

FR 4034   Advanced Oral French II   3 ch (3C)

Aims at perfecting competence in oral French through presentations, discussions, debates on current topics. Not open to students who attended French-language school.

FR 4054   Rédaction II   3 cr (3C)

Amélioration de l'expression écrite. Rédaction de textes suivis.

FR 4054   French Composition II   3 ch (3C)

Aims at developing competence in writing structured full-length texts.

FR 4504   Étude d'un auteur important   3 cr (3C)

Exploration de l'univers littéraire d'un auteur important de la francophonie.

FR 4504   Study of a Major Author   3 ch (3C)

Study of the works of a major literary author of the French speaking world.

FR 4524   Cinéma québécois (O)   3 cr (3C)

Survol historique et esthétique du cinéma québécois. Exploration des traits majeurs de limaginaire filmique québécois. Analyse de la présence, depuis la Révolution tranquille, de deux trames narratives principales liées à la question identitaire : la tragédie et lémancipation.

FR 4524   Québécois Film (O)   3 ch (3C)

Historical and aesthetic survey of Québécois film. Exploration of the major characteristics of the Québécois cinematic imagination. Analysis of the presence, since the Quiet Revolution, of two major narrative frameworks linked to the question of identity: tragedy and emancipation.

FR 4534   Cinema francais (A)   3 ch

Cours qui explore l'histoire et l'evolution du cinema en France, du cinema muet ou surrealiste jusqu'aux plus jeunes generations de cineastes francais.

FR 4534   French Cinema (A)   3 ch

Explores the history and the development of the French cinema,from the early silent or the Surrealist film to the youngest generations in French filmmakers.

FR 4574 Lecture dirigée en littérature française   3 ch

Étude attentive d'un sujet particulier en littérature française. Sous la supervision d'un membre régulier ou associé du département, l'étudiant devra réaliser des travaux de lecture dirigée et de production écrite.
Préalable: l'autorisation du professeur et du département.

FR 4574 Directed Reading in French Literature   3 ch

A detailed study of a specific topic in French studies. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings and written assignments. Prerequisites: permission of the instructor and the Department.

FR 4824 Littérature acadienne au 21e siècle 3ch
Étude de la littérature acadienne du nouveau millénaire (depuis 2000), un intérêt particulier étant porté à la langue d'expression et aux thèmes traités des auteurs tels que France Daigle, Rose Després, Herménégilde Chiasson, Jean Babineau et Georgette LeBlanc.

FR 4824 Acadian Literature in the 21st Century
Study of Acadian literature in the new millennium (since 2000), with particular focus on the language of expression and main themes in the works of authors such as France Daigle, Rose Després, Herménégilde Chiasson, Jean Babineau, and Georgette LeBlanc.

FR 4902   Mémoire de spécialisation   6 cr (R)

Travail sous la direction d'un-e professeur-e du Département. Réservé aux étudiant-e-s faisant une 'Spécialisation simple.'

FR 4902   Honours Report   6 ch (R)

Individual study, under the supervision of a member of the Department, leading to a report. Reserved for Single Honours students.

FR 4824   Littérature acadienne au 21e siècle   3 ch (3C) [W]
Étude de la littérature acadienne du nouveau millénaire (depuis 2000), un intérêt particulier étant porté à la langue d'expression et aux thèmes traités des auteurs tels que France Daigle, Rose Després, Herménégilde Chiasson, Jean Babineau et Georgette LeBlanc.

FR 4824 Acadian Literature in the 21st Century   3 ch (3C)
Study of Acadian literature in the new millennium (since 2000), with particular focus on the language of expression and main themes in the works of authors such as France Daigle, Rose Despres, Hermenegilde Chiasson, Jean Babineau, and Georgette LeBlanc

FR 4574 Lecture dirigée en littérature française

Étude attentive d'un sujet particulier en littérature française. Sous la supervision d'un membre régulier ou associé du département, l'étudiant devra réaliser des travaux de lecture dirigée et de production écrite. Préalable: l'autorisation du professeur et du département.

FR 4574 Directed Reading in French Literature
A detailed study of a specific topic in French studies. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings and written assignments.Prerequisites: permission of the instructor and the Department.

FRENCH LINGUISTICS COURSES

FR/LING 3404 Introduction à la linguistique   3 cr (3C)

Étude d'aspects phonologiques, morphologiques et syntaxiques, à partir d'exemples tirés du français.

FR/LING 3404 Introduction to Linguistics   3 ch (3C)

Introduction to various sub-disciplines of linguistics (phonology, morphology, and syntax) exemplified through French.

FR/LING 3414 Sociolinguistique   3 cr (3C)

Initiation à l'étude empirique des interactions entre la langue française et son contexte social. Thèmes : variation sociale et stylistique, dialectes et norme, attitudes linguistiques, féminisation du discours, bilinguisme. Préalable: FR/LING 3404 ou léquivalent; FR/LING 3414 et FR/LING 3404 peuvent être suivis simultanément.

FR/LING 3414 Sociolinguistics of French   3 ch (3C)

An introduction to the empirical study of language as it is used in its social context. Topics include: social and stylistic variation, dialects and the "standard," linguistic attitudes, language and gender, bilingualism. Prerequisite: FR/LING 3404 or equivalent; FR/LING 3414 may be taken concurrently with FR/LING 3404.

FR/LING 3424 Phonétique et phonologie   3 cr (3C)

Étude des concepts fondamentaux de la phonétique et de la phonologie. Description des propriétés phonologiques du français contemporain et de leurs diverses réalisations phonétiques. Étude des variantes régionales et sociales. Préalable : FR 3404.

FR/LING 3424 Phonetics and Phonology of French   3 ch (3C)

The concepts and methods of phonetics and phonology. The basic French sound system and its various phonetic realizations depending on dialects and sociolects. Prerequisite: FR 3404.

FR/LING 3444 La créativité lexicale   3 cr (3C)

Le vocabulaire est un système dynamique, capable de se modifier pour répondre aux besoins de la société. Ce cours consiste en l'étude et l'analyse de la structure du lexique, des mécanismes créateurs de la langue et des divers moyens de formation des mots, y compris la dérivation, la néologie, l'emprunt et la métaphore. Préalable: FR/LING 3404

FR/LING 3444 Lexical Creativity   3 ch (3C)

The vocabulary of a language is a dynamic system constantly evolving to meet the changing needs of society. This course consists of the study and analysis of the structure of the lexicon, the creative mechanisms of language, and the various types of word formations, including derivation, neology, loanwords and metaphors. Prerequisite: FR/LING 3404

FR/LING 3454   Historie de la langue franciase   3cr (3C)
Étude de l'évolution du français depuis ses origines latines jusqu'à nos jours. Esquisse diachronique: phonologie, morphologie, syntaxe et vocabulaire de l'ancien français, du français classique et du français moderne. Préalable: FR 3404.

FR/LING 3454   History of French   3 ch (3C)

A study of the evolution of French from its roots in Latin to the present. Old, Middle and Modern French will be sketched: the phonology, morphology, syntax and vocabulary of each period will be studied. Prerequisite: FR 3404.

FR/LING 3464   Syntaxe   3cr (3C)

Étude de la structure phrastique dans le cadre de la grammaire générative. Présentation de phénomènes typiques du français, illustrant quelques règles syntagmatiques et transformationnelles. Préalable: FR 3404.

FR/LING 3464 Syntax   3 ch (3C)

A study of sentence structure in the framework of generative grammar. Phrase structure and transformational rules will be studied and some classical problems of French syntax will be presented. Prerequisite: FR 3404.

FR/LING 3484 Questions de psycholinguistique   3 cr (3C)

Approche pluridisciplinaire du comportement verbal. Étude de l'acquisition et de la pathologie du langage par rapport aux théories linguistiques et neurolinguistiques.

**FR/LING 3484 Issues and Trends in   3 ch (3C)
                Psycholinguistics**

Pluridisciplinary approach to language as behaviour. Developmental and pathological issues are discussed in relation to linguistic and neurolinguistic theories.

FR/LING 3494 Mythes et réalités sur le langage   3 cr (3C)

Discussion de mythes répandus sur le langage visant l'étude de questions d'intérêt général. Thèmes abordés : acquisition du langage et apprentissage de langues, langage et pensée, origine des langues, enfants sauvages, communication animale, dégradation qualitative des langues, réformes orthographiques, codes signés, langues primitives, complexité grammaticale, sabirs et créoles, argots et jargons, langage artificiel. Préalable : FR/LING 3404 ou l'équivalent; FR/LING 3494 et FR/LING 3404 peuvent être suivis simultanément.

FR/LING 3494   Myths and Realities about Language   3ch (3C)

Discussion of widespread myths about language, aiming to shed light on questions of general interest. Topics include: language acquisition and language learning, language and thought, origin of languages, feral children, communication among animals, deterioration of language quality, orthographic reforms, sign languages, primitive languages, grammatical complexity, pidgins and creoles, slang and jargons, artificial language. Co-rerequisites: FR/LING 3404 or equivalent; FR/LING 3494 may be taken concurrently with FR/LING 3404. The language of instruction is in French. Students enrolled in the Linguistics Program may write their papers in English.

FR/LING 4414 Français canadien   3 ch (3C)

Examen de traits caractéristiques du français parlé au Canada, notamment du franco-acadien et du franco-québécois. Préalables: deux cours FR/LING

FR/LING 4414   Canadian French   3ch (3C)

Examines the major linguistic features of French spoken in Canada, in particular Acadian and Québécois French. Prerequisites: Two courses in FR/LING.

FR/LING 4444 Sémantique   3 cr (3C)

Initiation à l'étude de la signification et de la référence. Survol historique du domaine, sa place au sein de la linguistique générale et parmi d'autres sciences humaines; notions essentielles à l'examen desrelations de sens; analyse componentielle. Préalable: FR/LING 3404

FR/LING 4444   Semantics   3ch (3C)

An introduction to the study of meaning and reference. Historical survey of the field, and its place within general linguistics and amongst other fields of human sciences; fundamental notions for examination of meaning relations; componential analysis. Prerequisite: FR/LING 3404

FR/LING 4464   Theories Linguistique   3cr (3C)

Mise en place de concepts fondamentaux en linguistique moderne. Étude de la relation entre forme et sens, de la nature des représentations grammaticales et de leur pertinence. Préalable : FR 3404.

FR/LING 4464   Linguistic Theory   3ch (3C)

Presents fundamental concepts in modern linguistics. Examines the relation between form and meaning, the nature of grammatical representations, and their relevance. Prerequisite: FR 3404.

FR/LING 4465 Morphologie générative   3 cr (3C)

Initiation aux principes et aux règles de base régissant la formation des mots. Présentation et étude de tendances récentes en théorie morphologique. Préalable: FR 3404.

FR/LING 4465 Generative Morphology   3 ch (3C)

Introduction to basic principles and rules governing word formation. Presents and examines recent trends in contemporary morphological theory. Prerequisite: FR 3404.

GEODOSY AND GEOMATICS

The course presently offered in Geomatics Engineering Program by the Department of Geodosy and Geomatics Engineering are described below.

The first digit of the identification number indicates the level of course. A "%" indicates an elective course, normally done in the final year.

The second digit normally indicates the subject area as follows:

0	measurement, positioning, and navigation
1	applied analysis
2	geodosy
3	imaging and mapping
4	information management, modelling and visualization
5	land administration
6	synthesis and design
7	technical communication, complementary studies
8	service course for other disciplines
9	general (geodosy or geomatics or both)

The third digit carries the course sequence identification integer where "0" refers to the first course, "1" to the second course, and so on.

As stated below, a course may have prerequisite courses or co-requisite courses or both. It is expected that students will have completed at least the prerequisite courses prior to doing a course in order to be adequately prepared to deal with the material of that course. Those who have not completed those courses can expect to spend additional time acquiring this background knowledge on their own and should budget more time for that course. Nonetheless, a course instructor has the right to insist that students may take her/his course only if they have met the prerequisite or co-requisite stipulations or both.

The credit hour weighting of a course is also an indication of the amount of time that may have to be spent on a course. Generally, the number of hours per week (including all scheduled class time) could be from 2 to 3 times the number of credit hours. As an example, a course is shown as being "(2C, 3L) 4 ch". This means that a student might spend up to 8 to 12 hours per week, including the scheduled 5 hours of lectures (C) and lab (L). Students who have not completed the prerequisites can expect to spend more time than this.

For list of core courses and technical electives, course numbers and coding, see Section G. **Note:** See beginning of Section H for abbreviations, course numbers and coding.

GGE 1001   Introduction to Geodosy and Geomatics   5 ch (3C 3L)

Introductory geodesy and geomatics. Measuring geometry (surveying, hydrography, satellite positioning, navigation, photogrammetry and remote sensing, ocean mapping). Understanding measurements (introductory uncertainty & estimation theory). Managing geographic information. Applications of geomatics techniques, including creation of topographic plans from electronic total stations.

GGE 1803   Practicum for Civil Engineers   2 ch

Two weeks of practical exercises following spring examinations. Involves optical distance measurement; trigonometric heighting; taping; balancing angles, height differences, traverses; horizontal circular curves; vertical curves; area & volume computations; stream gauging; elementary photogrammetry. Prerequisite: GGE 1001 or equivalent.

GGE 1803   Practicum for Civil Engineers   2 ch

Two weeks of practical exercises following spring examinations. Involves optical distance measurement; trigonometric heighting; taping; balancing angles, height differences, traverses; horizontal circular curves; vertical curves; area & volume computations; stream gauging; elementary photogrammetry. Prerequisite: GGE 1001 or equivalent.

GGE 2012   Advanced Surveying   4 ch (2C 3L)

Barometric and trigonometric heighting. Precise levelling. Mechanical distance measurements. Electronic angle and distance measurement, total stations, and reflectorless EDM. Coordinate transformations and positioning by trigonometric sections. Route and construction surveys. Geodetic control surveys: from triangulation to GPS. Digital terrain models. Contouring. Practical use of GPS. Introduction to the design of surveys and specifications. Related issues of occupational health and safety. Prerequisites: GGE 1001, STAT 2593.

GGE 2013   Advanced Surveying Practicum   4 ch

Two weeks of practical excersises following spring examinations. Management of occupational health safety issues.Prerequisites: GGE 2012, STAT 2593.

GGE 2413   Mapping Concepts and Technology   5 ch (3C 3L)

Introduction to computer-based systems and processes for creating, managing, analyzing and visualizing spatial information. Introduction to geographic information systems (GIS), spatial data structures and 2-dimensional spatial transformations. Comparative overview of alternative spatial data collection technologies. Systems-based approaches to desktop mapping, cartographic production and map analysis. Basic properties and applications of common map projections. Prerequisites: CS 1003 or 1073, MATH 1503 or equivalent introduction to matrices and systems of linear equations.

GGE 3423   Introduction to Geographic   4 ch (2C 3L)
**   Information Systems**
Introduction to GIS technology; Applications of GIS; understanding the nature of geographic data, from geographic data to geographic information (GI), Information Systems (IS) and GIS; earth size and shape; tracing and mapping entities on the earth; geographic data sources and collection methodologies; evaluating the quality of the data sources; representing geographic data in the GIS; loading and managing geographic data in the GIS; analyzing geographic data, solving geographic related problems using GIS, mapping the results of that analysis using GIS, and publishing the results of the analysis on the web. Program credit cannot be given for both GGE 3423 and GGE 2423. Prerequisites: CS 1003 or 1073, MATH 1503 or equivalent introduction to matrices and systems of linear equations; or permission of instructor.

GGE 2501   Land Administration I   4 ch (3C 1L)

Introduction to the principles of cadastral systems and survey law with a focus on Canadian jurisdictions. An extensive reading list supplements the lecture material. Students will be required to conduct a title search, write property descriptions, review legal cases, and complete other laboratory assignments demonstrating the practical aspects of managing cadastral survey systems.

GGE 3022   Survey Design and Analysis   4 ch (2C 3L)

Specifications for surveys. Systematic and random errors, design, processing and analysis of angle, distance, and height difference measurements. Issues of occupational health and safety. Prerequisites: GGE 2012, GGE 3111, GGE 3202. Co-requisite: GGE 3122.

GGE 3023   Surveying Design Practicum   4 ch
Two weeks of practical exercises following spring examinations. Management of occupational healthy and safety.Prerequisite: GGE 3022.

GGE 3042   Introduction to Global Navigation   5ch (3C 3L)
**   Satellite Systems**

Principles of space geodesy. The celestial sphere, its coordinate systems, and variations in coordinate systems. Star observations. Time keeping. Satellite based positioning systems, especially the Navstar Global Positioning System (GPS) including observations, development of mathematical models, static and dynamic positioning, error analysis, software structure, and processing considerations. Real Time Kinematic (RTK) GNSS positioning. Prerequisites: MATH 1503, MATH 2513. Corequisite: GGE 3202.

GGE 3111   Introduction to Adjustment Calculus   5 ch (3C 3L)

Calculus of variations; quadratic forms; least-squares principles; least-squares method, weight matrix, variance factor; parametric, condition and combined adjustment. Prerequisites: MATH 1503, MATH 2513, STAT 2593.

GGE 3122   Advanced Adjustment Calculus   4 ch (3C 2L)
Quality control, uni- and multivariate statistical testing; approximation, prediction, filtering in observation and frequency domains; constraint functions; weighted parameters; nuisance parameters, sequential adjustment; Kalman filtering. Prerequisites:GGE 3111, MATH 2513;
Co-requisite: CS 3113.

GGE 3202   Geodesy I   4 ch (2C 3L)

Introduction to the subject of geodesy; kinematics, gravity field, and size and shape of the Earth; temporal deformations of the Earth. Geodetic control in Canada. History of geodesy. Geodetic heighting. Prerequisites: ENGG 1081, PHYS 1082, MATH 1503, MATH 2513. Co-requisite: MATH 3543.

GGE 3342   Remote Sensing   5 ch (3C 3L)

Overview and physical basis of remote sensing. Space- and air-borne sensor systems, active and passive sensors. Fundamental geometry of photogrammetry. Image statistics. Rectification of digital imagery. Image enhancement, spectral and spatial filtering. Multi-spectral transformations. Thematic information extraction, classification and accuracy assessment, change detection. Credit will be given for only one of GGE 3342 or GGE 5342. Prerequisite: GGE 2413 or GGE 3423 or permission of instructor.

GGE 3353   Ocean Mapping   5 ch (3C 3L)

Introduction to hydrography: geomatics aspects, trends and prospects, role in offshore management. Depth determination: seabed and seawater properties, non-acoustic methods, underwater acoustics, vertical and oblique incidence methods, bathymetric and imaging methods. Prerequisites: MATH 3543, GGE 3342.

GGE 3423 Introduction to Geographic   4 ch (2C 3L)
**   Information Systems**
Introduction to GIS technology; Application of GIS; understanding the nature of geographic data, from geographic data to geographic information (GI), Information Systems (IS), and GIS; earth size and shape; tracing and mapping entitles on the earth; geographic data sources and collection methodologies; evaluating the quality of the data sources; representing geographic data in the GIS; loading and managing geographic data in the GIS; analyzing geographic data, solving geographic related problems using GIS, mapping the results of that analysis using GIS, and publishing the results of the analysis on the web. Program credit cannot be given for both GGE 3423 and GGE 2423. Prerequisites: MATH 1053 or equivalent introduction to matrices and systems of linear equations; or permission of the instructor.

GGE 4022   Precision Surveying   4ch (2C 3L)

Measurements, processing, and analysis in densification surveys. Control surveys for photogrammetry and construction. Introduction to mining and tunnelling surveys, deformation measurements and analysis, and industrial metrology. Related issues of occupational health and safety and their management. Prerequisite(s): GGE 3022, GGE 3023, GGE 3122.

GGE 4211 Geodesy II 4 ch (3C 2L)

Terrestrial, celestial and orbital coordinate systems; coordinate transformations; positioning in 3 dimensions, on the ellipsoid and on a conformal mapping plane. Height systems. Temporality of geodetic parameters. Earth observation system. Prerequisites: GGE 3202, MATH 3543.

GGE 4313 Airborne Mapping Systems 5 ch (3C 3L)

Photogrammetric principles, systems and products. Fundamental photo and model space coordinate systems. Photogrammetric measurement and refinement. Geometry of vertical, tilted and stereoscopic aerial photographs. Direct and inverse coordinate transformations. Photo mosaicking techniques. Collinearity and coplanarity conditions. Interior, exterior, relative and absolute orientations. Principles of analytical and digital rectification, DEM generation and orthorectification. Concepts of aero-triangulation. Flight project planning. Prerequisites: GGE 3342.

GGE 4423 Advanced Geographic 5 ch (3C 3L)
    Information Systems

Mapping concepts and Geographic Data Management and Analysis: (a) Mapping concepts: colour and visual perception, map symbols, cartographic generalization and multiple representation, map projections and spatial reference systems, representation of the terrain (DEM/DTM), map design and interactive visualization; (b) Geographic Data Management and Analysis: database design theory, conceptual models (entity relationship model, UML), logical models (relational, object and object relational model), physical models, spatial index structures, algorithms for analysis of geographic data, introduction to XML and XML-based languages for GIS, geographic data integration and sharing (GI standards). Prerequisites: GGE 2423 or GGE 3423 or permission of instructor.

GGE 4512 Land Administration II 3ch (2C 1L)

Introduction to modern issues in land tenure and administration from Canadian and international perspectives. Includes the role of property systems in land management, aboriginal rights to land and natural resources, parcel-based land information systems, comparative analysis of land administration systems, coastal zone management, law of the sea, and delimitation of maritime boundaries. Prerequisite: GGE 2501 or permission of instructor.

GGE 4700 Design Project and Report 6 ch (2C 2L)

A full year course (fall term then winter term) involving the design and implementation of a geomatics activity or project and a reporting on the results or outcome, all under the direct supervision of a faculty member or equivalent in industry. Lecture topics include: engineering economics and business management issues specific to geomatics; financial decision making in geomatics. Must be done in the students final year of the programme.

GGE 5011 Oceanography, Tides and Water Levels 4 ch (3C 1L)

Descriptive and theoretical introduction to physical oceanography, focusing on the coastal zone and the continental shelf. Components of physical oceanography that affect the accuracy and operational conduct of hydrographic surveying. Detailed studies of the controls on sound speed structure (seawater properties, propagation and refraction). Detailed studies of the controls on surface water level (tides, waves and swell, vertical reference surfaces). Constituent extraction from tidal observations and prediction of tides. Discrete and continuous tidal zoning, including an introduction to coastal hydrodynamic models.

GGE 5012 Marine Geology and Geophysics 4 ch (3C 1L)

Descriptive marine geology including all ocean depths, but focusing on the coastal zone and continental shelf. Components of surficial sedimentology that affect the accuracy and operational conduct of hydrographic surveying. Detailed studies of the controls on seafloor processes (deposition and erosion) and bottom backscatter strength (sonar performance, geomorphology, sediment classification). Descriptive and introductory-theoretical marine geophysics including single-channel, 2D multi-channel and 3D multi channel reflection seismic surveying. Marine refraction seismology.

GGE 5041 Engineering Surveying 4 ch (2C 3L)

Design and analysis of deformation surveys. Geotechnical measurements of tilt, strain, stress, etc. Special surveying methods and instrumentation of high precision. Application of lasers. Prerequisites: GGE 4022, GGE 3122.

GGE 5042 Kinematic Positioning 5ch (3C 3L)

Performance requirements, mathematical models, observation methods, processing strategies, uncertainties and other characteristics associated with moving marine, land airborne, and space vehicle positioning, orientation and attitude applications, using autonomous, terrestrial, satellite, and acoustic methods. Prerequisites: GGE 3042, GGE 3122, GGE 3353, GGE 4211.

GGE 5061 Mining Surveying 4 ch (2C 3L)

Introduction to mining engineering. Mapping of open pits and underground mines. Shaft plumbing; use of lasers; use of gyrotheodolites. Tunnelling surveys. Rock deformation measurements. Monitoring and analysis of ground subsidence. Prerequisites: GGE 4022, GGE 3122.

GGE 5093 Industrial Metrology 4 ch (2C 3L)

Spatial measurements of high precision for experiment lay-out and industrial setting-out and quality assurance. Prerequisite: GGE 4022

GGE 5131 Special Studies in Adjustments 4 ch (3C 3*L)

Hilbert space techniques; sequential techniques; digital filtering; interpolation and approximation; large system techniques. Prerequisite: GGE 3122.

GGE 5222 Gravity Field in Geomatics 4 ch (2C 3L)

Review of Potential Theory. Theory of Earth's gravity field. Space, airborne and terrestrial observational methods. Gravity field parameter transformations. Temporal variations. Applications (e.g., gravimetry, geoid determination, heights, mass transfer) Mathematical models, observational methods, and uncertainties associated with absolute, relative and moving-base gravimetry, and gravity networks. Prerequisites: 3122 , 4211 .

GGE 5242 Global Navigation Satellite Systems 4 ch (3C 3*L)
    for Geodesy

Review of coordinate systems. Orbital dynamics. GPS for high precision positioning and navigation. Major practical lab in GPS positioning. Prerequisites: GGE 3202, GGE 4211.

GGE 5322 Digital Image Processing 4 ch (3C 3*L)

Image data formats; software code for input and output images; writing, compiling and running software code; advanced image processing and computer vision algorithms and software programming; includes advanced edge detection, mathematical morphology, image segmentation, texture, skeletonization, image restoration, wavelets, image matching, fuzzy logic. Prerequisites: GGE 3342 and experience in programming, preferably in C/C++.

GGE 5341 Advanced Technologies in Remote Sensing 4 ch (3C 2L)

An introduction to the concept and basic theory of Artificial Neural Network (ANN), Wavelet Transformation (WT), and Fuzzy Logic (FL); literature review of remote sensing applications or other applications which used one the three modern technologies; and seminar presentations on the applications and techniques learned from literature.Prerequisite: GGE 3342 or permission of the instructor.

GGE 5403 Geospatial Web 3 ch (2C 2L)

This course focuses on both the theoretical and practical issues related to the dissemination of mapping/geographic content on the web. Students will learn how to design and implement advanced semantic-based web mapping applications and geospatial web services using commercial and open source s/w tools. Special attention will be given to recent technological developments and research directions. Prerequisite: GGE 4423 or permission of the instructor.

GGE 5402 Geographic Databases 3 ch (2C 2L)

This course focuses on both the theoretical and practical issues related to the development of geographic databases and the extraction of knowledge from geographic data collections. Special attention will be given to recent technological developments and research directions. A series of Lab Sessions will run in parallel, using commercial and open source s/w tools, such as PostgreSQL/PostGIS DBMS, Oracle Spatial DBMS, MongoDB, Protégé, Quantum GIS s/w, WEKA Data Mining s/w, and other prototype s/w packages.Prerequisite: GGE 4423 or permission of the instructor.

GGE 5405 Introduction to Big Data & Data Science   3 ch (2C 2L)

Offers an overview of key techniques and technologies in big data analytics, and how data science is different from related fields. Through a combination of lectures and hands on exercises using R, MongoDB, and D3 visualization tools, students will learn to explore, clean, refine, analyze and visualize geospatial, streaming, unstructured and structured types of big data.

GGE 5415   Real-Time Mobility Data Analystics   3 ch (2C 2L)

Focuses on teaching the principles, methods and tools of descriptive analytics (mapping what is moving), diagnostic analytics (mapping why something is moving), predictive analytics (mapping what will move), and prescriptive analytics (mapping how we can make it move). Explores real-world case studies through lectures and hands on exercises to allow students to replicate the analytics when facing similar data. Pre-requisite: GGE 5405.

GGE 5521   Survey Law   4 ch (3C 3*L)

Review of common and statute law affecting property, boundaries, and surveys. Role of a land surveyor in resolving boundary disputes and as an expert witness. Various types of legal surveys. Professional responsibilities, ethics. Case studies. Prerequisites: GGE 2501, GGE 3022, GGE 3023, GGE 3122, GGE 4211, GGE 4512.

GGE 5532   Land Economy and Administration   3 ch (3C)

Introduces land management and administration from economic and institutional perspectives. Evolving concepts of property and land tenure systems. Role of property institutions in land management. Economic principles in the valuation, allocation, development, and conservation of land resources. Land administration and land information systems. Special issues such as coastal zone management, environmental management, aboriginal tenure, and land reform. Prerequisite: GGE 4512.

GGE 5543   Marine Policy, Law, and   3 ch (3S)
**   Administration**

Coastal and marine [offshore] legal issues and how they relate to the framework of policy and administration. Focuses primarily on Canadian legal and policy regime, drawing on international law and practice where appropriate. Law of the sea and delimitation of zones and boundaries; Canadian coastal and offshore jurisdictional and administrative issues; coastline delimitation for various purposes; legal issues related to hydrographic surveys, hydrographic data, and marine accidents. Legal principles involved when designing and planning various marine surveys.

GGE 5703   Exploration and Surveying in   3 ch (1C 3S)
**   Literature and the Arts   [W]**

A complementary studies elective examining the place and portrayal of exploration and explorers and surveying and surveyors in contemporary and historical literature and, also, in the arts, especially in print media, painting, photography, and the cinema. Open to geomatics engineering students in their final year of their programme.

GGE 5813   Urban Planning for Geomatics   3 ch (3C) [W]
Introduction to city and regional planning. The evolution of cities, discussion of planning in municipal administration, principles of land use, urban transportation, municipal services, subdivision design, comprehensive planning, master plans, programs, planning studies, and the administration and enforcement of planning regulations.Restricted to students with at least 90 ch completed.

GGE 5842   Site Planning for Geomatics   3 ch (2C 3L)

To better appreciate the comprehensive nature of site analysis and the physical, social and environmental impacts of engineering works on a site and its surroundings. To incorporate site characteristics to enhance a project in terms of costs, appearance, and energy efficiency. This course will be limited to a maximum of 18 students. Restricted to students with at least 90 ch completed. Prerequisite: GGE 5813 or CE 5313 .

GGE 5901   Special Studies in Geomatics I   1 ch (1T 1L)
Directed study in an approved topic in geomatics. Supervision by a faculty member. Normally done in a student's final term. Credit will be given for only one of GGE 5901, 5902 , or 5 5903

GGE 5902   Special Studies in Geomatics II   2 ch (1T 3L)
Directed study in an approved topic in geomatics. Supervision by a faculty member. Normally done in a student's final term. Credit will be given for only one of GGE 5901, 5902, or 5903.

GGE 5903 Special Studies in Geomatics III   3 ch (1T 5L)
Directed study in an approved topics in geomatics. Supervision by a faculty member. Normally done in a student's final term. Credit will be given for only one of GGE 5901, 5902 or 5903.

GEOLOGICAL ENGINEERING

GE 1026   Geology Laboratory for Geological Engineerins   2 ch (3L)
An introductory study covering topographic and geological maps (bedrock and sufericial) and their interpretation; construction of cross sections; identification of common minerals and ingenious, sedimentary and metamorphic rocks; geological structures (map analysis as a predictive tool); dating and geological time scale; coastal processes; mass wasting (especially recognition and amelioriation of hazards related to debris flows, avalanche and landslides); and glaciations deposits(especially glacial deposits in eastern Canada and their significance to engineers.

GE 2022   Engineering Geology   5 ch (3C 3L)
A study of geological materials and hazards for site investigation and assesment of risk and remediation; engineering classification of geological materials, properties and relationships; engineering in the existing and changing environment and exacerbation of natural processes; geological constraints for construction, foundations, tunnelling, waste disposal and mining, with case histories of geological problems in engineering projects. Prerequisite: ESCI 1001 , ESCI/GE 1026 or

equivalent or permission of the instructor. Equivalent to ESCI 2022 .

GE 4401   Applied Glacial Geology   5 ch (3C 3L)
Study of the mass balance of glaciers and characteristics of flow, erosion and deposition by active and stagnant ice masses, facies relationships in processes and products of glaciated terrain, and assessment of terrain from air photos, maps, geophysical and core data. Practical applications include: relevance of sample collection and analyses for geotechnical evaluation and mineral prospecting, and identification of industrial resources and terrain hazards.Prerequisites: ESCI 2211 , ESCI 2321 or permission of the instructor. Equivalent to ESCI 4401 .

GE 4412   Applied Rock Mechanics   5 ch (3C 2L)
Acquisition and use of geological data in the construction of engineering structures sited in rocks. Design of slopes in rock considering both the two and the three dimensional cases of sliding failure. Analysis of failed slopes to determine cohesion along the sliding surface. Improvement of rock slopes including the design of rock anchors. Prerequisites: ESCI 2321, ESCI 3411, or equivalent. Equivalent to ESCI 4412 .

GGE 4973   Team Design Project   4 ch (1C 6L) [W]
Working in teams, students will complete an engineering design project that draws on their knowledge and skills obtained in previous courses. Student teams will design a structure, system, process or resource development plan to meet a broad range of specified constraints. Students will manage their projects professionally, prepare a comprehensive written report, and present their design work orally.Prerequisite: Restricted to students in their final year of the program, or with permission of the instructor.

GE 5153   Environmental Geotechnics   4 ch (3C 3L*)
Design of sanitary landfills, with emphasis on clay liners and composite liners. Properties of geosynthetics. Geotechnical properties of municipal solid waste. Landfilling procedures. Hydrological evaluation of sanitary landfills. Site selection. Prerequisites: CE 2113, GE 2022.

GE 5753   Engineering Hydrology   4ch (3C 3L)
Covers important topics in quantitative hydrogeology, including: principles of saturated and unsaturated groundwater flow, solutions to groundwater flow problems, well hydraulics and pumping tests, and contaminant migration and attenuation processes in groundwater. Prerequisites: ESCI 1001 , ESCI1062 , and CE 2703 or CHE 2703 .

GE 5943   Research Project   4 ch (1C 6L) [W]

Each student will work on an approved research project. The student will: present a proposal which will serve as the basis for the project; carry out work on the project with the guidance of an approved supervisor; submit written progress reports at specified times; write a final report at the completion of the project; present the subject of the report orally; and attend similar presentations by colleagues. Prerequisite: CE 3973.

GERMAN

GER 1001   Introductory to German I
Closed to students with any knowledge of German. Enables students to understand, speak, read and write simple, idiomatic German by introducing them to the sounds, word forms, sentence structures and basic vocabulary of German. Sections of German 1001 may use different texts and approaches. No prerequisite.

GER 1002   Introductory German II   3 ch (3C)
Continuation of GER 1001 . Prerequisite: GER 1001, or equivalent.

GER 1011 German for Business, Co-op,   3 ch (3C)
and Exchange I
This course is intended for business students and students across all faculties who seek a functional proficiency in German for career planning, work/internship or exchange programs in a German-speaking country. The course is designed to develop oral and written communication skills necessary in travel, university and professional contexts and provides knowledge of the cultures of German business, higher education and the working world. Special emphasis is placed on interactive situations and activities with German speakers in professional and everyday environments. No previous knowledge of German is expected or required. NOTE: Not open to students who have taken GER 1001 or equivalent.

GER 1022 German for Business, Co-op,   3 ch (3C)
and Exchange II
Continuation of GER 1011. Prerequisite: GER 1011 or equivalent. NOTE: Not open to students who have taken 1002 or equivalent.

GER 1033   Reading German for Beginners I   3 ch (3C)
Closed to students with any knowledge of German. Designed to enable students to read German texts in their respective fields of interest. Based on contrastive grammar, it requires no previous knowledge of German. Students soon learn to understand German texts in their disciplines. No prerequisite. Students who are taking or have previously taken GER 2001 and 2002 or equivalent (e.g., GER 2013 and GER 2023) cannot take this course.

GER 1043   Reading German for Beginners II   3 ch (3C)
Continuation of GER 1033 (Reading German for Beginners I). Designed to enable students to read more sophisticated German texts than the ones they dealt with in GER 1033. Prerequisite: Only students who have passed GER 1033 with grades of B- and above should consider taking GER 1043. Students who have passed GER 1043 with a grade of B or above may take second year language courses.

GER 2001   Intermediate German I   3 ch (3C)
Starting with a review of the fundamentals of GER 1001 and GER 1002, this course develops a larger vocabulary and deals with more complex sentence structures. It enables the student to read and write German with greater ease and to understand and speak the language more competently. Prerequisite: 6 ch of first year German or departmental approval.

GER 2002   Intermediate German I   3 ch (3C)
Continuation of GER 2001. Prerequisite: GER 2001, or equivalent.

GER 2003   Applied German Studies I   1.5 ch (LE)
This course provides students with the opportunity to explore German culture and language in the community through learning activities outside of the classroom. The objective is to apply knowledge and to develop skills in projects such as organizing cultural events (e.g. Oktoberfest, German Day) and in authentic situations (e.g., meeting native speakers, interacting with the German Society, reviewing films, etc.). Students will complete a variety of writing assignments for a portfolio and/or publication in suitable venues as well as opportunities for public presentations. Students register following a meeting with the director of the German program or the first-year German co-ordinator. All the coursework will be approved by the program director or the first-year German co-ordinator. Limited enrolment. Open to students of all years. Prerequisite: GER 1001 and 1002, or equivalent.

GER 2004   Applied German Studies II   1.5 ch (LE)
This course is the continuation of GER 2003 . It deepens the experience of independent study and learning activities outside the classroom. The organization of and participation in a German immersion weekend and a Language Awareness Day are two core activities which provide opportunity for employing professional skills: designing, marketing, running and documenting an event. Students will complete a variety of writing assignments for a portfolio and/or publication in suitable venues as well as opportunities for public presentations. Students register following a meeting with the director of the German program or the first-year German co-ordinator. All the coursework will be approved by the program director or first-year German co-ordinator. Limited enrolment. Open to students of all years. Prerequisite: GER 1001 and 1002, or equivalent.

GER 3011   Modern German Usage I   3 ch (3C)
By discussing contemporary topics, both in the classroom and assignments, the students' competence in German is improved and their skills in idiomatic and written usage are developed. Prerequisite: GER 2001 and 1002 or equivalent.

GER 3022   Modern German Usage II   3 ch (3C)
Continuation of GER 3011. Prerequisite: GER 3011 or equivalent.

WLCS 4033 may not take this course for credit.

GER 3024   Brecht and Theatre (O)   3 ch (3C) [W]
(Cross-Listed: WLCS 3024)
This course offers an in-depth study of the life and the dramatic works of 20th-Century German playwright Bertoit Brecht as well as an exploration of the mechanics of theatre itself. Students will be introduced to the concept of epic theatre, and to aspects of performance and audience studies. They will also discuss the dramatic texts. Readings may include The Threepenny Opera, Life of Galileo, The Good Person of Szechuan, Mother Courage and Her Children, and The Caucasian Chalk Circle. Texts are read in English translation. There will be opportunities to read out and, if desired, act out selected scenes. No previous experience with drama required. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students with credit for GER/WLCS 4033may not take this course for credit.

GER 3043   Prayers, Damsels, and Monks   3 ch (3C) [W]
on the Prowl:
(The Early Years of German Literature)
(Cross-Listed: WLCS 3043)
Examines a representative selection of German literary masterpieces from various periods and literary genres. Prerequisite: GER 2001 and 1002 or equivalent.

GER 3045   Decadence, Nazi's and the War: 3 ch (3C)

Twentieth-Century
German Literature before WWII
(Cross Listed: WLCS 3045)

Introduces students to some of the major figures and trends in twentieth-century German literature to the end of World War II. Examines different types of prose narratives, drama, and poetry in the context of the main intellectual, social, and political forces and concerns of the period. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor.

GER 3053   Introduction to German Literature II   3 ch (3C) [W]
(From the Reformation to the Present)
(Cross Listed: WLCS 3053)

Examines a representative selection of German literary masterpieces from various periods and literary genres. Prerequisite: GER 2001 and 1002 or equivalent.

GER 3054   Crimes and Misdemeanours: 3 ch
              Modern German Literature
              (Cross Listed: WLCS 3054)

An investigation of the themes of crime, murder, and justice in selected literary texts ranging from the late 18th to the 20th century. Prior and parallel to the emergence of the genre of crime fiction, authors have concerned themselves with the portrayal of crime, guilt, redemption, and forgiveness as expression of the ambivalence between man, woman and our world, the frailty of fortune and security, as well as the power of obsession and evil. We will closely read texts, discuss the ensuing moral, ethical, and philosophical questions, and explore how authors use crime fiction to either assert or question moral value systems. Emphasis will be placed on textual analysis and situating the texts in their literary historical context. Includes texts from various genres including film, and literary periods. Authors studied may include: Goethe, E. T. A. Hoffmann, Droste Hülshoff, Büchner, Kaiser, Brecht, Süskind, Arjouni, and Dürrenmatt. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor.

GER 3055   Rubble, Revolt, Reunification: 3 ch (3C) [W]
              Twentieth-Century
              German Literature after WWII
Introduces students to some of the major figures and trends in twentieth-century German literature, covering the period from the end of World War II to Germany's reunification. Different types of prose narratives, drama, and poetry are examined and discussed in the context of the main intellectual, social, and political forces and concerns of the period. Conducted in English. Texts are read in English translation. Open to students who have completed at least 30 ch of university courses or by permission of the instructor.

GER 306   From Peoples to A Nation: German   3 ch (3C) [W]
              Culture Before 1900
              (Cross Listed: WLCS 3061)
A survey of German civilization from the time of early European tribal migrations to the rise of nationalism in the nineteenth century. Taking asociohistorical erspective, students will be acquainted with a selection of key developments within the German-speaking cultures, including aspects of history, literature, music, architecture, and painting. Assigned readings, lectures, and slide shows aim at raising an awareness of the interrelationship between cultural heritage, historical and political developments, and artistic expression. Conducted in English. Open to students of all years. No prerequisites. Restriction: Credit may not be obtained for both GER 1061 and GER 3061.

GER 3063   Literature of the Holocaust   3 ch
              (Cross Listed: WLCS 3063)

Addresses questions on a selection of literary and film responses to the Holocaust in various cultures and genres. Includes the perspectives of Jewish and non-Jewish survivors, children of survivors and others more removed. Particular attention is paid to the ethical and aesthetic challenges the Holocaust poses. Topics include: victims and oppressors, and the role of stereotypes in their depictions; the possibilities and limitations of language to express unimaginable horrors; and the role and appropriateness of literature as medium to respond to the historical, cultural, and psychological complexities of the Holocaust. Texts are read in English translation. No prerequisites.

GER 3066   Trauma and Secuction: Early   3 ch [W]

              German Cinema (A)
              (Cross Listed: WLCS 3066, FILM 3066, MAAC 3066)

Beginning with the earliest silent movies and concluding with National Socialist propaganda films, this course offers an introduction to a prolific and important era in German film history: the Weimar Republic and pre-WWII period, 1918-1939. Our discussions will situate the films within larger political and cultural discourses. Emphasis will be placed on such topics as the cinematic response to the trauma of WWI; German national identity; expressionism and modernity; the politics of gender and sexuality; the impact of sound on film aesthetics; the relationship between cinema and other media; the ethics of film production. Films to be studied include features by directors such as Lang, Lubitsch, Murnau, Pabst, Riefenstahl, Sagan, von Sternberg and Wiene. In English.

GER 3071   Germany Today: German Culture   3 ch (3C) [W]
              From 1900 to Present
              (Cross Listed: WLCS 1071)
Significant aspects of German culture from the beginning of the industrial revolution to the end of the 20th century. Topics will vary, but may include: German Impressionism and Expressionism, Early German Film, the Women's Movement, Early German Homosexual Rights Movement, Weimar Culture, Nazi Art, Literature after 1945, Divided and Re-unified Germany, New German Film, and others. Conducted in English. Open to students of all years. No prerequisites. Restriction: Credit may not be obtained for both WLCS 1071 and WLCS 3071.

GER 3072   (Re)contructing National Identity: 3 ch
              Contemporary German Cinema (A)
              (Cross Listed: WLCS 3072, FILM 3072, MAAC 3072)

Studies the major accomplishments of East and West German cinema of the postwar period, as well as cinematic trends since German unification. We will consider questions of narrative, genre, and authorship, examine film's relationship to other media, and focus on the dynamic interaction between film history and social history. Films to be studied include features by prominent directors such as Wolf, Fassbinder, Wenders, von Trotta, Carow, Dörrie, and Tykwer.

GER 3083   Seminar I: Genre   3 ch (3C) [W]
              (Cross Listed: WLCS 3083)

The development of a particular genre in German literature and an examination of various works in that area. Prerequisite: Departmental approval.

GER 4013   Advanced German Usage I   3 ch (3C)
Development of advanced skills in oral and written expression. Prerequisite: Departmental approval.

GER 4023   Advanced German Usage II   3 ch (3C)

Prerequisite: GER 4013 or departmental approval.

GER 4073   Literary Texts   3 ch (3C) [W]
Reading and discussion of a selection of German Literary texts. Prerequisite: GER 3011 may be taken in conjunction with GER 3022.

GREEK

GRK 1203 Introductory Ancient Greek I   3 ch (3C)
An introduction to the ancient Greek language spoken and written by the citizens of classical Athens. This introduction presupposes no previous knowledge of the language. This course is conducted in English.

GRK 1213 Introductory Greek II   3 ch (3C)

A continuation of the introduction to ancient Greek. Prerequisite: GRK 1203 or

equivalent.

GRK 2205   Intermediate Ancient Greek   4.5 ch (3C 1T)

An intensive intermediatesecond-level course in ancient Greek language designed to prepare the successful student for the reading of ancient Greek texts from classical literature. Prerequisite: GRK 1213 or equivalentPrerequisite: GRK 1213 or equivalent. Note: Students who do not complete both 2205 and 3205 will receive only 3 ch for this course.

GRK 3205   Beginning Ancient Greek Reading   4.5 ch (3C 1T) An
intensive course designed to complete the study of basic grammar and to begin the development of skills in the reading of ancient Greek texts. Prerequisite: GRK 2205 or equivalent.

GRK 3213   Reading Ancient Greek Authors I   3 ch (3C)
A reading course designed to strengthen skills in the reading of ancient Greek texts. Prerequisite: GRK 3205 or equivalent .

GRK 3223   Reading Ancient Greek Authors II 3 ch (3C)
N/A

GRK 3233 Advanced Greek I 3 ch (3C)
N/A

GRK 3243 Advanced Greek II 3 ch (3C)
N/A

GRK 3253 Advanced Greek III 3 ch (3C)
N/A

GRK 3263 Directed Reading in Ancient Greek 3 ch

By arrangement with the department, students who have completed GRK 3203 and an additional 12ch of advanced courses in Ancient Greek may register for this course after consulting with the directing Faculty Member on the selections to be read.

MODERN GREEK

GRKM 1003   Modern Greek I   3 ch (3C)

Introduces language skills which will enable students to speak, read and write the language of modern Greece.

GRKM 1013   Modern Greek II 3ch (3C)
Further develops Modern Greek language skills as introduced in GRKM 1003. Prerequisite: GRKM 1003.

GRKM 2003   Intermediate Modern Greek I 3ch (3C)
A course designed to build and develop reading, wrting and listening and oral skills acquired at the introductory level. Prerequisites: GRKM 1013 Modern Greek I or equivalent.

GRKM 2013   Intermediate Modern Greek II 3ch (3C)
A course designed to further develop comprehension and oral skills and improve speaking and writring ability. Prerequisites: GRKM 2003 Intermediate Modern GreekI equivalent.

HISTORY

Note: See Page H.1 for abbreviations, course numbers and coding.

INTRODUCTORY LEVEL COURSES

HIST 1001   Past Into Present (O)   3ch (3C) [W]
History starts here, with the news and public debates of today. This general interest course examines how our understanding of the world we live in is shaped by our knowledge of history. The course is divided into two or three modules (depending on available instructors), which will vary from year to year, and will range in focus from world crises to popular culture.

HIST 1002   The World since 1945 (A)   3ch (3C) [W]
This general interest course examines major themes in global history since the end of the Second World War. Topics to be examined include the origins, evolution, and end of the Cold War; the emergence of new nations in Africa and Asia; comparative social change; cultural revolutions and the status of women; and recent responses to globalization and armed conflict.

HIST 1004   War in the Modern World   3ch (3C) [W]
This general interest course analyzes the history of a current conflict by exploring the domestic and international contexts and options for ending the conflict. Combines lectures, discussion and simulations, to examine the role of allies, armies, paramilitaries, agents provocateurs, multinational corporations, non-government organizations and the United Nations.

HIST 1007   History of the Body (O)   3ch (3C) [W]

This general interest course examines how the body has been imagined, experienced, controlled, and understood, both historically and today, by art, medicine, technology, religion, science and popular culture. Considers the sexualized and pregnant body, the sinful and diseased body, the aesthetic and the medicalized body, and the body as machine from Galen and Descartes to the age of the computer, the cyborg and the gene.

HIST 1008   Religion, Music and Witchcraft   3ch (3C) [W]

   In the Medieval World
This general interest course introduces students to the complex and fascinating realm of religious and scientific beliefs and magical practices maintained by people living during the high and late Middle Ages in Europe and the Middle East, from about 1200 AD to 1600 AD. Considerable attention is paid to the development of the Inquisition against heresy, the growing fear over supposed diabolical conspiracies and the development of the diabolical witch stereotype in the fifteenth and sixteenth centuries.

HIST 1009   Epidemic Disease from the Middle Ages   3ch (3C) [W]
   To the Present (O)
This general interest course explores the changing perceptions of epidemic disease from the fourteenth century through to the present day. By focusing on infectious illnesses such as plague, smallpox, cholera, and influenza, this course considers the various socio-cultural, medical, and governmental responses to epidemics throughout this lengthy period of history. Particular attention is given to both change and continuity over time, posing (and seeking answers to) questions such as: how have responses to epidemic disease changed over time? how have they remained the same?

HIST 1133   Rome: The Eternal City (O)   3 ch (3C) [W]
This general interest course provides an introduction to the history of Rome from the Baroque period to modern age. Normally taught on location. May not be taken by students who have take HIST 2133 of HIST 3133.

HIST 1305   Prohibition and Rum-running in Canada,   3ch (3C) [W]
   1827-1948
This general interest course introduces the historical method while exploring the controversial theme of prohibition. Examines both protagonists in the struggle: prohibitionists, whose ideology was rooted in evangelical religion and an early strain of feminism, and the "Rummies" who fought to preserve a recreational drinking culture and the economic opportunities that it made possible.

HIST 1315   Canadian History on Film   3ch (3C) [W]
This general interest course introduces the challenges of studying history on film by examining selected themes in Canadian history and their representation in documentary and dramatic films.

HIST 1325   Canada since 1945 (O)   3ch (3C) [W]
This general interest course addresses the major issues of contemporary Canadian history, including post war reconstruction, the emergence of the welfare state, the Quiet Revolution in Quebec, Canadian external relations, immigration policy, regional disparity, political disparity, political leadership, and national identity. Restriction: Not available for credit to students who have taken HIST 2325.

HIST 1715   Looking at the Past   3ch (3C) [W]
This general interest course is designed to acquaint students with the use of visual sources as historical evidence. Studies a broad range of visual culture, from paintings to advertisements to television, according to their historical meanings. Considers how historical images accrue meaning for the contemporary viewer. Restriction: Not available for credit to students who have taken HIST 2715.

HIST 1815   Military History from Plato to NATO   3ch (3C) [W]
This general interest course provides an introduction to the study of tactics, technology, battle control, logistics and management. Developments will be examined by studying selected campaigns and battles. Restriction: Not available for credit to students who have taken HIST 2815.

FOUNDATION LEVEL COURSES

HIST 2013   Medieval History Part I: 3ch (2C 1T) [W]

   Europe to 1200
This entry-level course, which is recommended for both first- and second-year students, provides a survey of Western Europe from the end of the Roman Empire and the appearance of the German peoples until the end of the twelfth century. Focuses especially on the major political and social developments of medieval Europe, such as feudalism, the revival of towns, the conflict between Popes and Emperors, the crusades, the flourishing of medieval thought and the role of both women and men in medieval society. Restriction: Not available for credit to students who have completed HIST 1010 or HIST 1005.

HIST 2014   Medieval History Part II: 3ch (2C 1T) [W]

   Europe 1200-1500
This entry-level course, which is recommended for both first- and second-year students, continues the survey of the history of Medieval Europe, beginning c. I200 and ending with the Renaissance. Focuses especially on the several crises facing Europeans during the later Middle Ages: popular uprisings, famine, the Black Death, the I00 Years War, Papal schism and the new heretical and intellectual challenges to orthodoxy. Restriction: Not avaible for credit to students who have completed HIST 1010 or HIST 1006.

HIST 2023   Early Modern Europe Part I,   3ch (2C IT) [W]

   1300-1600 (O)
This entry-level course, which is recommended for both first- and second-year students, surveys Western European history by examining aspects of the Italian and Northern Renaissances, early contact with Non-Western peoples, the Protestant and Catholic Reformations and the growth of nation states. Emphasizes developments in the economy and society, education, religion, culture and government. Restriction: Not available for credit to students who have completed HIST 1020.

HIST 2024   Early Modern Europe Part II,   3ch (2C 1T) [W]

   1600-1800 (O)
This entry-level course, which is recommended for both first- and second-year students, continues the survey of Western European history by examining aspects of the rise of absolutist states, the Scientific Revolution, the Enlightenment, overseas expansion and the French Revolution. Stresses developments in the economy and society, government, secular thought, culture, international relations and war. Restriction: Not available for credit to students who have completed HIST 1020.

HIST 2103   Modern Europe Part I: 1789-1914 (A)   3ch (2C 1T) [W]
This entry-level course, which is recommended for both first- and second-year students, surveys European history from the era of the French and Industrial Revolutions to the eve of the First World War. Topics to be covered include: the French Revolution and Napoleon; the Industrial Revolution and the rise of the working class; evolving political ideologies and movements; the forging of new nation states; changing class and gender relations; cultural upheaval; the motives for imperialism; the origins of the First World War. Not available for credit to students who have taken HIST 1100 or HIST 2100.

HIST 2104   Modern Europe Part II: 1914   3ch (2C 1T) [W]
                to Present (A)
This entry-level course, which is recommended for both first- and second-year students, surveys European history from the First World War to the present. Topics to be covered include: the First World War; the Russian Revolution; interwar cultural and social change; the Great Depression and political upheaval; the origins and course of the Second World War; Europe and the Cold War; social change after 1945; the impact of decolonization; the rise of the European Union; European debates over national identity. Not available for credit to students who have taken HIST 1100 or HIST 2100.

HIST 2300   An Introduction to Canadian History 6ch (2C 1T) [W]
This entry-level course, which is recommended for both first- and second-year students, is a general study of Canadian political, economic, and social development from early beginnings to the present. Topics include Native societies, New France, British North America, Confederation, the National Policy, modern Canada and its regions. Restriction: Not available for credit to students who have taken HIST 1300.

HIST 2403   U.S History Part I: Colonial Period   3 ch (2C 1T) [W]
                to Civil War
This entry-level course, which is recommended for both first- and second-year students, surveys American history from the earliest European settlement through the Civil War. Topics include exploration and expansion, the European-Aboriginal encounter, colonization and Christianity, revolutionary ideas and independence, the early Republic, the frontier experience, slavery and resistance, antebellum culture, and sectional discord and conflict.

HIST 2404   U.S. History Part II: Civil War   3 ch (2C 1T) [W]
                to the Present
This entry-level course which is recommended for both first- and second-year students, surveys the modern history of the United States. The course considers national reconstruction following the Civil War, late nineteenth century industrial and geographic expansion, social unrest and progressive reform in the early twentieth century, the "roaring twenties", the "dirty thirties", the New Deal, the "Good War" of the 1940s, the Cold War, the Civil Rights Movement, liberalism and conservatism, the "Bad War" in Vietnam, the rebellions of the sixties, the Reagan era and beyond. Completion of HIST 2403 recommended but not required.

ADVANCED LEVEL COURSES

American History

HIST 3402   The American Revolution (A)   3 ch (3C) [W]
Examines the causes, results and nature of the American Revolution. Themes include imperial relations, the internal development of the colonies and states, the development of revolutionary ideas, and the formation of the federal government.

HIST 3403   The Loyalists (A)   3 ch (3C) [W]
Studies the American Loyalists before, during and after the American Revolution. The first half deals with their emergence, 1763-1776, their role in the War of Independence, their treatment by the rebels, and the Peace Treaty of 1783. The second half deals with their exile in Britain, Sierra Leone, the West Indies, the Bahamas, Bermuda and what became Canada, to about 1814. An epilogue traces their myths, revivals and long-term effects down to the present.

HIST 3407   The United States: Civil War and   3 ch (3C) [W]
                Reconstruction (A)
Deals with the political, economic, diplomatic, and military dimensions of the civil War. Discusses the development of reconstruction policies both during and after the war and their implementation in the South.

HIST 3408   American Radicalism and Reform (A)   3 ch (3C) [W]
A survey of American social and political movements for change from the founding of the United States to the present. Considers the radical legacy of the revolutionary era, the women's suffrage and abolitionist movements, utopianism, populism, progressivism, radical unionism, anarchism, socialism, communism, African American struggles for civil rights, the new social movements of the sixties, identity politics, and recent resistance to capitalist globalization.

HIST 3413   African America (O)   3 ch (3C) [W]
A survey of African American history from slave times to the present, the course focuses on culture and politics. Among the themes we explore are ideologies of racism, systems of domination, the nature of resistance, movement building, liberation strategies, African American identity, and the intersection of racial, class, and gender politics.

HIST 3414   Imperical America (O)   3 ch (3C) [W]
Surveys the history of the foreign relations of the United States from its emergence as a world power late in the nineteenth century to its current global pre-eminence. Topics include the "New Imperialism", Wilsonian idealism, inter-war isolationism, the "Good War", the Cold War, Vietnam, "realpolitik", the "New World Order", globalization, and the "War on Terror".

HIST 3415   America at the Movies (O)   3 ch (3C) [W]
An exploration of films as reflections of American history and of American history as it is projected in films. Students learn to "read" films as historical documents and consider the role of films in shaping understandings of history. The course concentrates on a small number of themes, genres, and problems, and endeavour to illuminate these through the critical analysis of select films in historical context.

HIST 3416   Urban North America   3 ch (3S) [W]
Addresses developments within and among North American cities and explores changes in the conceptions of cities in North American thought and culture. Using New York City as a case study, examines some historical literature of cities and enters the debates among historians over the significance of class, ethnicity/race, gender and region in urban history. Also studies the lives of urban dwellers, and chart shifts in the way people organized their lives in cities. Major themes for this course include the changing physical structure and form of cities over time; processes of urbanization and sub-urbanization; city planning; the economies of cities; urban institutions; urban populations; and city politics. Normally taught on location.

HIST 3418   North American Slavery (O)   3 ch (3C) [W]
Examines the cultures and economies of Black slavery in North America and the Caribbean, and the role of the American Revolution in creating a slavery diaspora in such disparate locations as Nova Scotia, London, Sierra Leone, and Australia. Particular attention is given to slavery in Canada, including Canada's role in the Underground Railroad movement, and the larger legacy of slavery and anti-Black racism in Canada and in North America more generally. A central theme is slave resistance, embodied in such actions as talking back, running away, committing arson, and participating in slave revolts and insurrections.

HIST 3419   New York City: From Colony   3 ch (3S) [W]
                to World Capital (O)
Examines the development of New York City from its establishment by the Dutch as New Amsterdam in the 1600s, through its development as one of a handful of "world" cities whose influences extend around the globe today. We consider such historical themes as urban form and architecture, city people and populations, culture and recreation, city politics and social movements, the environment, and economics of cities. Will explore the history of New York City in comparative perspective, using this city as our main case study. Normally taught on location.

HIST 355   The Harlem Renaissance (O)   3 ch (3C) [W]
Begins by considering some of the major themes, controversies and personalities in African American history, 1865-1920, in an attempt to contextualize the surge of Black cultural production known as the Harlem Renaissance. The course then focuses on the Renaissance itself, and particularly on the racial, class and gender politics that informed the creation of literature, music and art by African Americans in New York City in the 1920s and 1930s. Normally taught on location in New York City. Restriction: Students cannot obtain credit for both HIST 3455 and HIST 4455.

HIST 4495   The United States during the   3 ch (3C) [W]
                Vietnam Era (O)

This investigation of American culture, politics, and foreign relations during the third quarter of the twentieth century focuses, in particular, on the origins, nature, and consequences of the conflict that came to dominate the epoch. Topics include Cold War doctrine and ideology, the military-industrial complex, the freedom movement and black power, the new left and the counterculture, women's liberation, nation building and counterinsurgency, the anti-war movement, the conservative backlash, Watergate, and the "Vietnam syndrome".

Ancient History

The History Department will accept for History credit courses in Greek and Roman History to a maximum of 12 ch. See Classics section of Calendar for course descriptions.

Canadian History

HIST 3316   Immigration and Identity in   3 ch (2C 1T) [W]
                Canadian History

Examines the changing pattern of immigration to Canada from the early seventeenth century to the present, and the contribution of the various immigrant groups to the creation of a sense of Canadian identity.

HIST 3321   Canadian Colonial Society (A)   3 ch (3C) [W]

Examines the formation and nature of community in pre-industrial English Canada. Particular attention is given to demography, immigrant and religious traditions, economic and environmental factors, poverty, social structure and the growth of towns.

HIST 3325   A History of Sexualities   3 ch (3C) [W]

A survey of the history of changing ideas, identities and practices associated with sexuality in the modern era, c. 1750 - present. Rather than an unchanging biological force, sexuality is a historical and social construction that involves conflict and contestation. Sexuality is also mediated by gender, class, race and ethnicity and has been subject to considerable regulation over time. Topics include religious attitudes and beliefs in pre-industrial and modern times; science, medicine and sexuality, courtship and marriage, contraception and abortion, sexual exploitation; violence and abuse, sexuality and leisure, the regulation of sexuality, the "sexual revolution" of the 1960s and the construction of alternative sexual identities.

HIST 3326   Gender, Health and Medicine (A)   3 ch (3C) [W]

Explores the social history of health, disease, caregiving, and medical practice from a gender perspective. Will focus on nineteenth- and twentieth-century Canada and the United States. Classes will be arranged to allow for the thematic discussions on the topics such as changing beauty ideals and their link to "wellness", notions of physical "fitness" and health promotion, the medicalization of life cycle events such as puberty and child bearing/rearing, as well as the gendered experiences of a wide variety of health care-providers and patients involved in clinical encounters over the last two centuries. Intended for a multi-disciplinary cohort of students.

HIST 3327   Science, Medicine, and Health Care   3 ch (3C) [W]
                in Canada (A)

This course explores the history of health and health care in Canada, from the era of the First Nations' initial contact with Europeans, to the present day. Topics include: Aboriginal and European conceptions of health and illness; the impact of western infectious diseases on First Nations' society; the health implications of rapid industrialization in the nineteenth century; the role of the state in sanitary reform and public health; the emergence of the medical and nursing professions; Canadian scientific research in medicine; the Canadian eugenics movement; and the origins and development of universal health care in the twentieth century. Race, class, gender, alternative medicine, and regional inequality will feature in small group discussions.

HIST 3331   The Canadian Worker to 1914   3 ch (3C) [W]

The working-class experience in the age of Canada's industrial revolution, focusing on the transformation of the workplace and the rise of the labour question.

HIST 3332   The Canadian Worker since 1914   3 ch (3C) [W]

The working-class experience in Canada since the time of the Great War, focusing on the changing relationships between labour, capital and the state.

HIST 3351   Growing up in Canada, 1800-1914 (A)   3 ch (3C) [W]

Explores various aspects of childhood and adolescence in Canada during the pre-First World War period. Discusses changes over time and compares the Canadian experience to that of the United States and Britain.

HIST 3352   Reform Movements: Seeking   3 ch (3C) [W]
                Change in Canada before the First World War

Focuses on selected social and political movements. Considers the roles played by women as well as men in such movements.

HIST 3355   Nature, Culture and the Canadian   3 ch (3C) [W]
                Environment (O)

Examines the relationship of humans in their environment from the end of the last glacial period to the late 20th century. Topics include the impact of climate on the development of Canadian society, the evolution of human-animal relationships, changing ideas about nature, and political discourse on and regulatory solutions to pollution and other forms of environmental degradation.

HIST 3364   History of Canadian-American   3 ch (3C) [W]
                Relations (O)

Surveys the evolving relationship between Canada and the United States from the American Revolution to the Free Trade Agreement. Stresses the twentieth century when Canada gained autonomy over external affairs. Beside the major political and economic components of the relationship, the course also examines cultural, social and environmental issues. Restriction: Credit may not be obtained for both HIST 3364 and POLS 3242 (Canadian-American Relations).

HIST 3374   Native People and the State: From   3 ch (3C) [W]
                the Indian Act to the Royal Commission
                on Aboriginal People (O)

Examines the complex relationship between Aboriginal peoples and the Canadian state from the mid-1800s to the present. Emphasizes Canadian attempts to assimilate Aboriginal peoples and the means by which Aboriginal peoples have resisted these measures and sought to preserve their collective identities. Topics include: the Indian Act, residential schools, the rise of native political organizations, and the quest for Aboriginal rights and self-government. A companion course to HIST 3475.

HIST 3475   Removal, Allotment, Termination, 3 ch (3C) [W]
                Self-Determination:
                United States Indian Policy, 1824-2004 (O)

Examines the nature and evolution of United States policies toward the Native peoples within its borders. Topics include the forcible seizure of Indian lands through war, the treaties and the creation of reserves, the drastic reduction of the reservations by the mid-20th century through "allotment," subsequent federal government attempts to end its trusteeship of Indian lands and relocate Native people to the cities, and how - beginning in the 1960s - Native people began to assert significant control over their lives and lands. A companion course to HIST 3374. Restriction: Not available for credit to students who have taken HIST 3375.

HIST 3378   First Nations and Canadian Settler   3 ch (3C) [W]
                Society I: Pre-Contact to the 1876 Indian Act (O)

Examines the complex relationship between First Nations and Canadian settler society, including in New France, in British North America, and during the first years after Confederation. Emphasizes the efforts of First Nations people to preserve their cultures and independence in the face of an increasingly powerful colonial state. Topics include pre-contact First Nation and European societies, early contact, the fur trade, treaties of peace and friendship, the Royal Proclamation of 1763, land surrender treaties, and the policy of the assimilation of First Nations people into Canadian settler society. Restriction: Not available for credit to students who have taken HIST 3374.

HIST 3379   First Nations and Canadian   3 ch (3C) [W]
                Settler Society II:
                The 1876 Indian Act to the 2008 Apology
                for Residential Schools (O)

Examines the complex relationship between First Nations and Canadian settler society, and emphasizes the federal government's attempts to assimilate First Nations people into Canadian settler society and the resistance by First Nations people to these efforts through such means as court cases, protests, and cultural revitalization movements. Topics include the Indian Act and subsequent amendments, Indian residential schools, government agricultural policies, First Nations political organizations, the 1969 White Paper, the push for First Nations rights and self-government, land claims, and the federal government's apology for residential schools. Restriction: Not available for credit to students who have taken HIST 3374.

HIST 4313 A History of Women in Canadian 3 ch (2C 1T) [W] Society

A course in social history focusing on the changing roles of women in the public and private spheres in the nineteenth and twentieth centuries, with special emphasis on the role of women in the work force.

HIST 4321 The World We Have Lost (A) 3 ch (2C 1T) [W]

Studies the settlement, growth, economy, family and community life, and decline of the rural community in eastern Canada and the Northeastern United States between 1750 and 1950.

HIST 4322 Canadian Business History (A) 3 ch (2C 1T) [W]

Explores the development of a Canadian business community in the nineteenth and twentieth centuries through examination of the pre-Confederation business system, the industrial revolution, the role of business in Canadian development strategies, and the growth of big business.

HIST 4323 The Family in North America (O) 3 ch (3C) [W]

Explores selected themes in the history of the North American family in the nineteenth and twentieth centuries. Topics include demographic trends, courtship and marriage, household and family structures, inheritance and the family economy, the gendered division of labour in the home and the relationship between families and the state.

HIST 4341 History of the Atlantic Provinces 3 ch (2C 1T) [W] to Confederation

Surveys the region from before the advent of written records to its entry into Confederation. It treats the impact of immigrant cultures, struggles for empire, the development of a cultural mosaic, the emergence of distinctive provincial societies and the forces that led to union.

HIST 4342 History of the Atlantic Provinces 3 ch (2C 1T) [W] after Confederation

Surveys the history of the region from Confederation to the present day, with focus on the vicissitudes of the Maritimes within Confederation and movements for social, economic and political reform.

HIST 4351 New Brunswick, 1784-1860 3 ch (2C 1T) [W]

Emphasizes social and administrative history. Topics include the establishment of government (especially administrative and legal systems); Loyalist, British, Acadian and Native interaction; church-state relations; education and schooling; management of Crown lands and the economy; family, household and society. (This course is recommended for students in the Law in Society Program.)

HIST 4352 New Brunswick, 1860 to the Present 3 ch (2C 1T) [W]

Emphasizes the changing role of government in provincial life. Topics include the background of Confederation; religion, language and education; transformations in local government; the politics of railways, energy and highways; transfer payments and social welfare; the growth of the provincial bureaucracy; and the emergence of Acadian and Native issues. (This course is recommended for students in the Law in Society Program.)

European History

HIST 3001 West Meets East in the Middle Ages, 3 ch (3C) [W] 1050-1450 (O)

Examines contact and conflict among the Latin Kingdoms of Europe, the Byzantine Empire and the Islamic Empire. Considers the crusades, crusader states, the position of the Jews, and the role of trade and intellectual development in the period.

HIST 3006 The Protestant Reformation (A) 3 ch (3C) [W]

Considers the religious, social and political transformations of northern Europe, especially Germany, in the sixteenth century. Emphasizes the various "Protestant" religious reform movements and their relation to political developments, social unrest and popular revolt in the sixteenth century.

HIST 3007 The Catholic Reformation (A) 3 ch (3C) [W]

Examines the reform tradition within the Roman Catholic Church from the fourteenth century to the French Revolution. Particular attention is paid to the Council of Trent, the new papal bureaucracy, charities and foreign missions. French examples are most frequently studied; the course should interest students of New France as well as students of European history.

HIST 3011 European Imperialism, 1815-1940 (O) 3 ch (3C) [W]

Examines the evolution of European imperialism in Africa and Asia from the end of the Napoleonic Wars to the outbreak of the First World War. Topics to be covered include: causes of the revival of imperialism; the French conquest of Algeria; British expansion in South Africa; the evolution of British rule in India, French rule in Indochina, and Dutch rule in Indonesia; the European powers and informal imperialism in China; the expansion of European control in Africa; theories and practices of colonial rule; the role of explorers and missionaries; race, gender, and class in colonial societies; the promotion of imperialism in popular culture; and resistance to imperialism. Restriction: Not available for credit to students who have taken HIST 3008.

HIST 3012 European Imperialism, 1914-1975 (O) 3 ch (3C) [W]

Examines the evolution of European imperialism after the outbreak of the First World War, and ends with a detailed examination of post-1945 decolonization. Topics to be covered include: the impact of the First World War on European empires; gender, race, and class relations in colonial societies; cultures of imperialism in the 1920s and 1930s; the evolution of imperial systems of control; the rise of anti-colonial nationalist movements; the impact of the Second World War; counter-insurgency and colonial wars after 1945; the causes and dynamics of decolonization; and the legacies of empire. Prerequisite: prior completion of HIST 3011 an asset but not required. Restriction: Not available for credit to students who have taken HIST 3008.

HIST 3015 Racism in the West from Antiquity to the 3 ch (3C) [W] Enlightenment (O)

Explores how many populations, including the ancient Greeks, Romans, medieval and early-modern Europeans, molded their particular identities by constructing negative images of the "foreigner" or "other" based on perceived religious or ethnic differences. It examines in particular the formation and dissemination of religious and racial stereotypes and the inflaming of prejudicial passions that have led to violence. Particular emphasis is placed on the long history of anti-semitism, and comparisons made with Byzantine and Muslim cultures. While the course focuses on the subject primarily as an historical problem, the approach is interdisciplinary in approach, involving specialists from a range of disciplines.

HIST 3016 Racism in the West from the 3 ch (3C) [W] Enlightenment to Today (O)

Building upon HIST 3015 , this course explores how, in the era of the Scientific Revolution, the Enlightenment, the growth of religious tolerance, the rise of nationalism, and the increasing secularization of western society, racism and anti-semitism continued not only to spread, but to be given a pseudo-scientific foundation, resulting in a variety of conspiracy theories and ultimately leading to the horrific Holocaust and racial and ethnic cleansing of the twentieth century. While it will focus on the subject primarily as a historical problem, the course will be interdisciplinary in approach, involving specialists from a range of disciplines.

HIST 3025 History and Sexuality: Europe and 3ch (3c) [W] the World (O)

Examines transnational themes in the history of sexualities, c. 1789 to the present. Topics include the construction of homosexual, heterosexual, and inter-sexual identities; sexual violence in war and genocide; the moral and legal regulation of prostitution, birth control, and the medicalization of reproductive practice; and the construction of racialized sexual difference. Considers the effects of such competing ideologies as capitalism, communism, fascism, and imperialism on sexual life and examines the ways historians are writing local, national, and global histories of the most intimate of practices.

HIST 3033   France in the Twentieth Century (A)   3 ch (3C) [W]
Examines the political, social, and cultural history of France during a century of upheaval. Topics to be covered include the Dreyfus Affair; the First World War; culture and society between the wars; the Great Depression and the era of the Popular Front; the rise of French fascism; the Second World War and the Vichy regime; collaboration and resistance; postwar social and cultural change; intellectuals and politics; the government of General de Gaulle; and recent debates over immigration and identity. France's role as a colonial and postcolonial power is also a central theme in the course.

HIST 3055   The Generation of the Great War (A)   3 ch (2C 1T) [W]
Offers a comprehensive introduction to the First World War, examining its causes, course, and aftermath within a military, political and social context. It focuses on how the war was experienced on both the war and home fronts, by soldiers and civilians alike.

HIST 3063 History of Modern Greece   (O) 3ch (3C) [W]
(Cross-Listed: CLAS 3463)
An introductory survey course of the history of Modern Greece from the Greek War of Independence in 1821 to the Second World War. Special attention is paid to events and themes such as the Asia Minor Catastrophe in 1922 and the Greek Diaspora by utilizing literature and other historical sources and documentaries in order to present the society, culture and politics of Greece and gain a better understanding of the modern Greek identity. There are no prerequisites.

HIST 3065   The Generation of the Second   3 ch (2C 1T) [W]
World War (A)
Examines the Second World War from a social and political perspective and in an international context. Topics to be covered include: the origins of the war in Europe and Asia, home fronts, the experience of occupation, collaboration and resistance, wartime atrocities and genocide, the diplomacy of the war, and the impact of the war on social relationships and political systems in Europe and Asia.

HIST 3085   Modern Germany 1871-1945 (O)   3 ch (3C) [W]
Beginning with the 1871 unification of Germany, and ending with the Third Reich's defeat in the Second World War, this course explores numerous themes, including: political and cultural innovation, diplomacy, violence, gender relations, everyday life under democracy and dictatorship, memory and commemoration, war and genocide, and the changing place of Germany within Europe. We discuss the fractures and divisions within Imperial German society, the home and fighting fronts of the First World War, the short-lived but influential Weimar Republic, the rise of Adolf Hitler and the Volksgemeinschaft of the Third Reich, and the Nazi "Final Solution to the Jewish Problem" in Occupied Europe.

HIST 3095   Modern Germany, 1945 to the   3 ch (3C) [W]
Present (O)
This course examines German history from the end of the Second World War to the present. Beginning with the Allied occupation of Germany in 1945, the course investigates the formation of two separate states: the German Democratic Republic and the Federal Republic of Germany. Using the tools of social, cultural, political, and gender history, the course considers themes such as: everyday life under communism and capitalism, Cold War politics, protest and terrorism, the memory of Holocaust crimes, the fall of the Berlin Wall in 1989, and the many challenges facing Germany in the post-unification era.

HIST 3125   The Cold War: An International   3 ch (3C) [W]
History (O)
Examines the evolution of the Cold War from 1945 to 1991. Topics to be examined include: the debate over the origins of the Cold War; the creation of opposing alliance systems in Europe; the Asian dimensions of the Cold War; the significance of the Cold War for Africa and Latin America; the rise and fall of détente; the end of the Cold War and the collapse of the Soviet bloc. Attention is paid to the social and cultural impact of the Cold War.

HIST 3133   Rome: from the Baroque to the   3 ch (3S) [W]
Modern Era (1527 to the Present) (O)
Studies the impact of the Catholic Reformation on Baroque Rome, the end of Papal Rome with the unification of the Italian nation, the urban expansion of the late nineteenth century, and Rome's emergence as the capital of Mussolini's New Empire. The creation of the Vatican City State is studied, and contemporary Roman life and politics will be experienced. Normally taught on location.

HIST 3134   Romanticism and Revolution in   3 ch (3S) [W]
Rome (O)
As the decades of faith in Enlightenment reason gave way to the emotional backlash of the Romantics, Rome provided a context for many of the aims of the new generation: the balance between Classicism and Romanticism, between the ruins of civilization and the struggle for a new political order, between nature and the imagination, between the past and the future. Designed as an interdisciplinary exploration of these subjects as they manifested themselves in late eighteenth- and nineteenth-century Rome, this course considers literature, music, art and philosophy as forces of innovation that helped shape the experience of social and cultural transformation. By visiting, seeing, reading and listening to the new styles of expression embodied by Romanticism, we explore the political issues central to the new aesthetic that inspired poets and patriots in Rome's Revolution of 1848. Normally taught on location.

HIST 3135   Contemporary Italy (O)   3 ch (3S) [W]
Examines the politics, society and culture of Italy from 1945 to the present. Normally taught on location.

HIST 3136   Rome and the Papacy in the Age of   3 ch (3S) [W]
Reformation (O)
Beginning with an examination of the late medieval and Renaissance papacy, this course focuses on the role of the papacy in and its response to the Protestant and Catholic Reformations. The course gives special attention to Rome as the catalyst, locus and expression of reform. Normally taught on location.

HIST 3203   Early Modern London (O)   3 ch (3S) [W]
Early modern London was an exceptional city in many ways and it played a unique and pivotal part in the history of England, Europe and increasingly during this period, in a global context. This is an advanced level course designed to explore the nature of London and Londoners from 1485-1714. Normally taught on location.

HIST 3215   Early Modern British History   3 ch (3C) [W]
Part 1: 1485-1688
Surveys major governance, social and cultural themes of British history for the period 1485-1688. Explores religious, political, dynastic, economic, intellectual, and social transformations in England (and, to a lesser extent, Wales, Scotland and Ireland) during the Tudor and Stuart eras. Topics include: the rise of the Tudor state; the nature of English society; the English Reformation; overseas exploration, trade, and settlement; the coming of the Stuart monarchy; the Scientific Revolution; the Civil Wars and Interregnum; the Glorious Revolution. Not available for credit to students who have taken HIST 3170 , 3202 , 3204 , or 3242 .

HIST 3216   Early Modern British History   3 ch (3C) [W]
Part 2: 1688-1830
Surveys major governance, social and cultural themes of British history for the period 1688-1830. Explores religious, political, dynastic, economic, intellectual, and social transformations in England, Scotland, and Ireland during the reign of Stuart and Hanoverian monarchs. Topics include: the Glorious Revolution; the unions of England, Scotland, and Ireland; the Enlightenment; industrialization; eighteenth-century politics; the quest for empire; the American and French Revolutions; the Napoleonic Wars. Not available for credit to students who have taken HIST 3170 or HIST 3242.

HIST 3226:   Medicine and Society in the Early   3ch (3c) [W]
Modern British World (O)
Examines the social history of health and medicine in the early modern British world, c. 1500 -1800. Focuses on the relationship between medicine and society to explore how social, cultural, intellectual, and political factors helped to shape experiences of health, illness, and healing in early modern Britain and its Empire. The perspectives of patients are considered alongside those of practitioners in the investigation of topics such as: early modern notions of the body, health, and environment; the role of religion, medical knowledge, authority, and the marketplace; the nature of the patient-practitioner exchange; public health responses; military and imperial medicine; the rise and function of medical institutions; medical ethics and professionalization. Evaluates such topics in relation to both continuity and change over the course of three centuries.

HIST 4001   Heretics and Witches in Europe,   3 ch (2C 1T) [W]
1350-1650 (A)
Examines popular religion and magic in Late Medieval and Early Modern Europe and official efforts to transform "popular culture". Emphasizes the medieval inquisitions against heresy (twelfth to fifteenth centuries) and especially the phenomenon of European witch-hunting (fifteenth to seventeenth centuries). Explanations of the causes of the witch-hunt, its victims and eventual decline are highlighted.

HIST 4002   Renaissance Society (O)   3 ch (3C) [W]
Studies society and culture in the fifteenth- and sixteenth-century Europe. Focuses on developments in art, ideas and education (humanism, the occult sciences and medicine), commerce, familial and social relations, religious practice and cultural contacts with the "New World".

HIST 4003   Women in Early Modern   3 ch (3C) [W]
**   Atlantic World (O)**
Examines the ways in which the lives of women from Europe, Africa, and the Americas were shaped by "Atlantic World" experiences from the sixteenth through early nineteenth centuries. Considers how race and socio-economic/legal status influenced female experiences of patriarchy, sexuality, work, and agency by placing them into the broader social, cultural, political, and religious contexts of the early modern Atlantic World.

HIST 4006   The Mental World of Europeans,   3 ch (2C 1T) [W]
**   1600-1800 (O)**
This course explores the fresh emphasis that early modern Europeans placed on learning, the exploration of nature, and new critiques of the societies in which they lived. The Scientific Revolution, social activism (such as the antislavery movement and early feminism), and the rise of republicanism are examined in the light of contemporary thought and social currents.

HIST 4007   The French Revolution (O)   3 ch (2C 1T) [W]
Analyses the nature of the French Revolution. Studies the successive political regimes but pays particular attention to the social aspects of the Revolution, including the role of the crowd and the sans-culottes movement, dechristianization, the redistribution of property, the Terror and the White Terror.

HIST 4012   Home Fronts at War (A)   3 ch (3C) [W]
Foucses on the European home fronts of the First World War, a conflict George Kennan termed the seminal catastrophe of the twentieth century. Historians increasingly refer to the First World War as the first "total war", as entire societies were scaled toward supporting the massive armies on the fighting fronts. The course takes students deep into the everyday experiences of European men and women on the home fronts.

HIST 4013   The Holocaust: Victims,   3 ch (3C) [W]
**   Perpetrators, Bystanders (O)**
Provides a thematic survey of the Nazi destruction of the European Jews. Examines the ideological underpinnings of the genocide, the policies leading up to and including the so-called "Final Solution" of the "Jewish problem", perpetrator motivations, Jewish responses to persecution and survival strategies in the camps. Also explores how the Holocaust unfolded in various European countries and the responses of nations, institutions and individuals to the mass murder of the Jews. Concludes with an examination of the post-war trials of war criminals and considers the definition of genocide after the Holocaust. Primary documents are discussed in the lectures, and several ongoing historiographical debates are examined during class discussions.

HIST 4014   European Dictatorships (A)   3 ch (3C) [W]
A comparative analysis of dictatorships in Europe, concentrating on the period 1914-1945. Topics to be covered include: the roots of dictatorship; the Russian Revolution and the creation of the Bolshevik regime; the rise of Italian Fascism; the Nazi seizure of power; Stalinism in the Soviet Union; authoritarian regimes in Eastern and Mediterranean Europe; dictatorships during the Second World War. Particular attention is paid to the mechanisms of authoritarian rule, persecution under the dictatorships, and the experiences of ordinary people.

HIST 4015   The Origins of the Second World War (O)   3 ch (3C) [W]
Examines the international history of the period between 1919 and 1941. Topics to be covered include the Paris Peace Settlement of 1919; the attempt to rebuild the international system in the 1920s; the impact of the Great Depression; the evolution of alliances in the 1930s; the role of ideology in international relations; military and strategic influences on foreign policy; and the significance of both intelligence-gathering and public opinion. The course focuses on the foreign policies of Great Britain, France, Fascist Italy, Nazi Germany, the Soviet Union, Japan, and the United States.

HIST 4105   Italy in Twentieth Century (O)   3 ch (2C 1T) [W]
From the crisis of Liberal Italy in the First World War, this course studies the rise and decline of Mussolini's Fascism and the establishment of the Christian Democratic hegemony after 1945. The challenge of Italian Communism is examined as are the policies of the Vatican in the twentieth century.

HIST 4247   Eighteenth-Century British Society   3 ch (3C) [W]
**   and Culture (A)**
Examines the changing meanings and representations of social status in Britain during the 'long eighteenth century,' circa 1688-1832. Considers whether (and to what degree) Georgian Britons may be regarded as "a polite and commercial people". Topics include: rank and status; gender roles; manners, politeness, and emulation; consumerism and consumption; mercantilism, trade, and the pursuit of wealth; the 'middling sort' and the rise of the middle class; urbanization and non-landed elites; early industrialization.

Far Eastern, African and Latin American History

HIST 3615   History of Slavery   3 ch (3C) [W]
Studies ways in which Western slavery and emancipation were experienced, perceived, explained, symbolized and related to European attitudes. Focuses on the lives of African slaves.

HIST 3635   The Cultural History of China (A)   3 ch (3C) [W]
Concentrates on the historical evolution of the Chinese culture. Discussion areas include: the emergence of an early Chinese civilization; traditional China's social structure, economic organization, political system, religion and philosophy, art and literature, science and medicine, and material culture. Attention is also paid to China's encounter with the Indian civilization as well as with the modern Western civilization.

History of Art and Music

HIST 3701   The Cultural Turn: Cultural Studies in 3 ch (3C) [W]
**   Historical Context (O) (Cross-Listed: CCS 3701)**
Traces the history of cultural studies from its debated foundation through the Birmingham school in post-war Britain to its reshaping by post-Marxist, postmodernist, feminist, postcolonial, and diasporic perspectives. Analyzes the key debates in cultural studies at the onset of the twenty-first century, which include the field's reorientation towards the study of popular culture, activism through cultural politics, the politicization of knowledge and of the academy, and "the cultural turn" of the humanities and social sciences.

HIST 3725   Baroque Art and Culture in Rome (O)   3 ch (3C) [W]
Explores the art and culture of the seventeenth century, the Baroque, in Rome. Through visits to churches, palaces, galleries, museums, and public spaces such as fountains, monuments and piazzas, participants consider a range of key issues including artistic styles and techniques, the display of religious belief, the assertion of social and political authority, the status of female artists, and the representation of the body. Normally taught on location.

HIST 3729   Art Now (O)   3 ch (3C) [W]
Surveys contemporary visual culture produced in Europe and North America from 1950 until the present day. Includes discussions of painting, printmaking, sculpture, architecture, and photography, as well as conceptual, performance, installation, and body art.

HIST 3735   The History of Modern Art (O)   3 ch (3C) [W]
Examines the development of painting, sculpture and architecture from 1863 until approximately 1950 in Europe and the United States.

HIST 3736   Art for a Nation: Visualizing 3 ch (3C) [W]
Twentieth-Century Canada
Examines the production, diffusion, and consumption of visual and material culture in Canada from the end of the nineteenth century to the present day. Topics include the state's use of art for nation-building; modernity and antimodernism; indigenous self-representation and sovereignty; the intersections of public history with cultural "difference" and racialization; video art and cultural performance as a site of resistance; and the framing of the local through artistic practice. From year to year, this course draws on such visual resources as the permanent collection and temporary exhibitions of the Beaverbrook Art Gallery and documentary film and video art.

HIST 3765   History of Music in Medieval and 3 ch (3C) [W]
Renaissance Periods (A)   (Cross-Listed: MUS 3765)
Introduction to music between 800 and 1600, studying representative styles and putting this music in a historical perspective.

HIST 3775   History of Music in the Late Baroque 3 ch (3C) [W]
and Classical Period (A)   (Cross-Listed: MUS 3775)
Begins with an examination of the stylistic background of music of the Baroque Period, and follows the development of musical form and style through the late Baroque and Classical eras, i.e., from c. 1700 - c. 1830. Some attention will be given to the role of the musician in the context of the social history of the time.

HIST 3785   History of Music in the Romantic Era (A) 3 ch (3C) [W]
(Cross-Listed: MUS 3785)
Traces musical development in nineteenth century Europe in its cultural-historical milieu, mainly in France and Germany. Examines the development of the orchestra, and the French and Austro-German contribution to that development, the role of nationalism in music and the role of the opera.

HIST 3795   A History of Music in the   3 ch (3C) [W]
Twentieth Century (O)
(Cross-Listed: MUS 3785)
Begins with an examination of the Post-Romantic composers, particularly Mahler and Strauss. Studies Debussy and the Impressionists, the Second Viennese School (Berg, Schoenberg, Webern) and its impact on twentieth-century music and the tonalist composers of the first half of the century. Examines music as an art form in North America.

HIST 3796   History of the Music Dramas of   3 ch (3C) [W]
Richard Wagner (O)
(Cross-Listed: MUS 3796)
An examination of the theoretical constructs behind Wagner's music dramas, the compositional histories of some of the dramas of the 1840s, and then of the Ring Cycle itself. Some attention will be given to the performance history of the dramas as well.

HIST 4705   Art, Tourism and Modernity   3 ch (3C) [W]
Considers the relationship between artistic practice, tourism, and modernity. Examines objects of art and culture as they intersect with the structuring of social relations, such as those between centre and periphery, First and Third Worlds, "developed" and "developing" areas, metropolis and countryside. Makes significant use of historical film and contemporary video art as visual resources. Note: a field trip may be required. Cost varies to a maximum of $30.

History of Science

HIST 3915   Darwinism: Origins and Impact (O)   3 ch (3C) [W]
Examines emergence of evolutionary theory in western science with emphasis on Charles Darwin and his predecessors Lamarck, Cuvier, and Lyell. Special attention is paid to the religious, social and philosophical controversy surrounding the reception of the theory, and to the theory's vindication in the twentieth century.

HIST 3925   Technology and Society (A)   3 ch (3C) [W]
Examines contemporary ideas about how technology shapes and is shaped by society and culture, historically and today. Considers theories of technological determinism, technology and religious thought, the role of innovation in industrialization and economic growth; the problems of regulating risky technologies; the impact of Information Technology, and the shaping of Canadian science and technology policy. Restriction: Not open to students who have taken HIST 2925.

HIST 3965   Healing in Early Modern Europe (O)   3 ch (3C) [W]
Examines concepts and experience of disease and healing in Early Modern Europe; emphasizes the social, political, philosophical and religious dimensions of the subject. Topics include plagues and pandemics; astrology and alchemy as healing arts; the role of guilds, pharmacies and hospitals; art and anatomy; dissection; early theories of infection; the professionalization of surgery; chemical and herbal remedies; and faith-healing.

HIST 3975   History of the Life Sciences (A)   3 ch (3C) [W]
Explores the struggle between vitalistic and mechanistic conceptions of life in the development of biology, the emergence of evolutionary theory and its social and religious consequences, and the technological influence of the life sciences on the rise of modern medicine and genetic engineering. No scientific background expected. Restriction: Not available for credit to students who have taken HIST 2915.

Military History

HIST 3803   War Through Film (A)   3 ch (3C) [W]
Examines how selected themes in the history of war have been represented in both documentary and dramatic films, how film has shaped our understanding of the nature of war, and how it is used as an historical document by military historians.

HIST 3805   Master and Commander - Royal Navy 3 ch (3S) [W]
History Through its Ships, Museums and Archives (O)
This course introduces students to Royal Navy history through touring the surviving ships and dockyards, study of naval artifacts in museums, and archival research. Tours will be supported by a limited amount of classroom instruction in London. Normally taught on location.

HIST 3806   The Mediterranean in the Second 3 ch (3C) [W]
World War: Strategic Crossroad of a Global War (O)
Introduces the military and diplomatic history of the Second World War through an in-depth look at the Mediterranean campaigns, intrigues and deception conducted by the Western Allies against Italy and Germany. These campaigns in North Africa, Sicily, Italy and the Balkans generated a mixture of tension and compromise between American, British and Russian decision makers as well as the 27 separate contributing nations from Commonwealth Canada and India to free Poland, France and lesser known Brazil and Palestine. Focuses on the formulation of grand strategy, the links between civil and military war objectives, the problems of multi-national coalition warfare, and the planning and execution of combat operations in some of the most difficult and rugged terrain of the war.

HIST 3810   The Second World War in Italy (O)   6 ch (6S) [W]
This team-taught course explores the rise of Fascist Italy, its alliance with Nazi Germany and the bitter struggle waged against them by the Allies and anti-fascist Italians from 1943-45. Will be taught on location throughout Italy, and centres on visiting historic sites, monuments and battlefields. Italy's unique geography made the campaign especially difficult for its participants and provides students with the subject for much of their study. Although the course addresses the campaign as a whole, special attention is paid to the highly successful, yet little-known, Canadian contribution to the battles at Ortona, the Liri Valley and the Gothic Line.

HIST 3811   Unconventional War in the   3 ch (3C) [W]
Modern World (O)
This course explores the rise to prominence of unconventional warfare since 1945. It discusses the reasons for dominance of these forms of warfare and the implications of it for governments, military forces and civilian populations. The course introduces students to the concepts of revolutionary war, guerrilla warfare, terrorism, covert action, and counter-insurgency, the theories and their theorists. These themes will be illustrated through a series of case studies, from the insurgencies of the post-1945 anti-colonial period to the ethnic conflicts and genocides of the post-Cold War era.

**HIST 3812   War and Diplomacy in the   3 ch (3C) [W]
Middle East, 1914-84 (A)**
Examines the sources and conduct of warfare in the modern Middle East from the First World War to the Persian Gulf Conflict, against the background of emerging nationalism and new states, and great power intervention and diplomacy.

HIST 3814   Conventional War since 1945 (O)   3 ch (3C) [W]
This course examines the causes, conduct, and consequences of the major conventional wars fought since 1945. It will explain reasons for the shift of war from Europe to the non-European world; changes in the way war has been conducted, with particular emphasis on technological change and the impact on the battlefield and on non-combatants; and changes in the way military forces are created, commanded and used. These themes will be illustrated through a series of case studies from the Korean War to the war in Iraq.

**HIST 3825   The Nature and Limits of   3 ch (3C) [W]
Military Power, 1500-2000**
Explores the uses, abuses and development of military power within Western society since 1500. Focuses on how military power is shaped and limited by the technological, social, political, ideological and economic factors of the day. Restriction: Credit will not be given for both HIST 1004 and HIST 3825; and this course is not available for credit to students who have taken HIST 2825.

**HIST 3835   Canada and the Experience of   3 ch (3C) [W]
War, 1600-2000**
Examines how Canadian history has been shaped by military action or the threat of it. Studies Canada as a battleground for European empires in the colonial period, later as an element of British imperial defence policy against the United States, and finally Canada's emergence as an independent player in the major conflicts of the twentieth century. Restriction: Not available for credit to students who have taken HIST 2835.

**HIST 3845 The Navy as an Instrument   3ch (3C) [W]
of Canadian (O) Foreign Policy since 1910**
Describes the manner in which the Royal Canadian Navy, and its manifestation as the Maritime Command of the Canadian Armed Forces, has supported Canadian foreign policy - its successes and its shortcomings - in the century since it was formed.

**HIST 4801   War and Society in the Age of Black   3 ch (2C 1T) [W]
Powder, 1550-1865 (O)**
 Examines the nature of warfare in Europe and North America in the Early Modern period.

**HIST 4802   Sea Power and the Rise and Fall of the   3 ch (3C) [W]
British Empire (O)**
Surveys the dynamic of commerce, democracy, geography and naval power in the history of the British Empire from the discovery of Newfoundland to the withdrawal from Hong Kong.

HIST 4803   The First World War (O)   3 ch (2C 1T) [W]
A military history of the First World War, relating events on the various fronts to their social, political and strategic contexts and looking at tactical, technological and doctrinal developments in the use of arms.

**HIST 4804   The Second World War: The Sea,   3 ch (2C 1T) [W]
Land, and Air Campaigns (O)**
Examines the campaigns, their technical and tactical developments, and principal personalities.

**HIST 4807   History of the Canadian Forces,   3 ch (2C 1T) [W]
1867-1953 (A)**
After sketching the period of British military responsibility, this course traces the development of Canadian defence policy and the emergence of Canada's military forces from Confederation to the Korean War. The primary focus of the course is on the way in which hastily mobilized citizen armies fought the two world wars of the twentieth century and developed a high degree of professionalism in the process.

**HIST 4808   History of the Canadian Forces,   3 ch (2C 1T) [W]
1953-Present (A)**
This course traces the evolution of Canadian defence policy and the Canadian Forces through the Cold War and its aftermath. Special attention is paid to Canada's role in conflict zones around the world as part of the United Nations, NATO and other international coalitions, and to the often vexed relationship between Canada and its professional Armed Forces

HIST 4815   Seapower and Empires, 1400-1850   3 ch (2C 1T) [W]
The use of seapower as an instrument of state policy during the period 1500 to ca. 1850. Examines institutional, theoretical, economic, political, social, and technological factors that shaped seapower over the period, with particular attention to Britain's experience.

HIST 4825   Seapower and World Wars   3 ch (2C 1T) [W]
Focuses on the use of seapower and navies as instruments of state policy in the modern world since 1850. Emphasis will be placed on technological, political and strategic use of the sea in peace and war, with particular concentration on the use of seapower in the two world wars of the twentieth century.

HIST 4835   Soldiering Through the Ages (A)   3 ch (3C) [W]
Examines the military experience of the soldier from the Greek hoplite to the modern warrior. Focuses on such subjects as recruitment, training and preparation for battle and wartime experience, through the vast primary literature that chronicles the life of the soldier.

**HIST 4841   The Spy in History: Intelligence in War 3 ch (2C 1T) [W]
and Diplomacy (A)**
Examines the growth and function of national intelligence communities in Britain, the United States, and the Soviet Union in the twentieth century. Explores the tradecrafts of intelligence and its impact on decision-makers, on military operations, and on diplomacy.

HIST 4851   Law and War (O)   3 ch (3S) [W]
Examines legal restraints on armed combat since circa 1500. Explores, among other topics, the recent influence of international legal regimens on military strategy, on land, sea and air action, and on peace-keeping.

**HIST 4852   International Governance: The League of 3 ch (3C) [W]
Nations and the United Nations (O)**
The darkest days of the twentieth century concentrated attention on the need for a better way of managing international conflict. This course will study the origins and history of the League and the UN from the 1920s to the 2008 Iraq crisis, with attention given to sanctions, peacekeeping and peacemaking.

HIST 4861   Terrorism in History (O)   3 ch (3C) [W]
This course examines the use of terrorism as an agent of political change and repression in history. It introduces students to the debates over the definition and nature of terrorism and over the causes of the phenomenon. It explores the use of terrorism by institutional and state apparatus and by non-state groups, and the theories and theorists which underpinned its use. The course also discusses the impact on victims and societies, and efforts by nation-states and the international community to deal with the issue. Cases used to illustrate the course themes will cover the span of history, but will concentrate primarily on the 20th century.

Directed Readings and Practicums

HIST 3550 Directed Reading Course/Practicum 6 ch (3C) [W]
A detailed study of a specific historical topic. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements. Prerequisites: permission of the instructor and the Department.

HIST 3554 Directed Reading Courses/Practicum 3 ch (3C) [W]
A detailed study of a specific historical topic. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements.Prerequisites: permission of the instructor and the Department.

HIST 4550 Directed Reading Courses/Practicum 6 ch (3C) [W]
A detailed study of a specific historical topic. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements.Prerequisites: permission of the instructor and the Department.

HIST 4554 Directed Reading Course/Practicum 3 ch (3C) [W]
A detailed study of a specific historical topic. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements. Prerequisites: permission of the instructor and the Department.

HIST 5550 Directed Reading Course/Practicum 6 ch (3C) [W]
A detailed study of a specific historical topic. Working under direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements. Prerequisites: permission of the instructor and the Department.

HIST 5554 Directed Reading Course/Practicum 3 ch (3C) [W]
A detailed study of a specific historical topic. Working under the direction of a member of the Department or an associate of the Department, the student will complete directed readings, written assignments and/or practicum requirements. Prerequisites: permission of the instructor and the Department.

Honours Seminars

HIST 5005 Diplomatic History, 1929-1914 (O) 3 ch (3S) [W]
Examines the history of international relations in the decade preceding the Second World War. Particular attention is paid to the social, economic and cultural impact of the Great Depression on the shaping of national foreign policies.

HIST 5007 Gender and Sexuality in Twentieth-Century 3ch (3S) [W] Europe (O)
Discusses themes and theories in the history of gender and sexuality in twentieth-century Europe. Examines such topics as "deviant" sexualities at the fin-de-siècle; gender upheaval in the First World War; the "New Woman" of the 1920s; gender and race in Nazi Germany and Fascist Italy; sexual violence in war and genocide; the evolution of the homosexual rights movement; prostitution and the international sex trade; and debates over birth control and maternalism in modern society.

HIST 5011 Reform and Revolt in Europe, 3 ch (3S) [W] 1500-1555 (A)
Examines the motives behind and relationships between the various movements of reform and popular revolt which convulsed Northern Europe in the sixteenth century. Topics include the learned reform proposals of Erasmus of Rotterdam, Martin Luther and Jean Calvin; the transmission of ideas in the sixteenth century; the rise of popular movements of reform; the role of women in early reform agitation; the Peasants' Revolt of 1524-26; the beliefs of the radical reformers (Anabaptists and Spiritualists) and their suppression; the rise of Catholic Counter-Reformation movements; and the political developments leading to the Peace of Augsburg in 1555. Not available for credit to students who have taken HIST 5010.

HIST 5012 The Late Reformation and the Rise 3 ch (3S) [W] of Witch-hunting in Europe, 1550-1648 (A)
Focuses on the broader effects of the European Reformation(s) upon religion, society and the beliefs and practices of people in the second half of the sixteenth century. Examines in particular the relationship between the religious changes and conflict of the Reformation and developments in the governance and regulation of religion, views about women, new ideas about science and magic, the increase in the fear of the devil, and the rise of witch-hunting. Not available for credit to students who have taken HIST 5010.

HIST 5028 Fascism (A) 3 ch (3S) [W]
Examines the rise of fascist movements and the development of fascist regimes in twentieth-century Europe. Topics to be covered include: the social and cultural roots of fascism, the impact of the First World War, the structures of dictatorship, society and culture under the fascist regimes, racial policy, foreign policy and war, and neo-fascism after 1945. While the course pays particular attention to Italian Fascism and German Nazism, other movements and regimes will be considered. Students who have taken HIST 5026 and HIST 5027 may not take this seminar for credit.

HIST 5029 Issues in Contemporary Italy (O) 3 ch (3S) [W]
Students explore topics and issues in the politics, society and culture of contemporary Italy through study in Rome and meeting representative Italians from various walks of life. Normally restricted to History Honours students and students from other Honours programs. Normally taught on location.

HIST 5032 France, 1870-1970 (O) 3 ch (3S) [W]
Examines selected topics in modern French history. Possible topics include: the Third Republic and its enemies; the nature of the French colonial empire; political polarization; the status of women and the feminist movement; the impact of the First World War; immigration, xenophobia, and racialist thought; social and cultural transformations; the Second World War; the Vichy Regime; the Resistance; post-Second World War reconstruction; France and the Cold War; Sartre, de Beauvoir, and intellectual engagement; decolonization and the wars in Indochina and Algeria; the Gaullist regime; the upheavals of 1968.

HIST 5035 The Holocaust (A) 3 ch (3S) [W]
A study of "the Final Solution to the Jewish Problem", the program of genocide developed by German National Socialists against the Jews of Europe from 1933 to 1945.

HIST 5102 The Mental World of Europeans, 3 ch (3S) [W] 1300-1600 (O)
Examines the "mental world" of late medieval/early modern Europeans using the most recent research in the field. Introduces students to the latest studies of popular culture, mentalité, and the "new social history", as applied to Europe. Topics of interest include: the debate over popular vs. elite culture; the universe as conceived by both learned and unlearned; the differences between "popular" Christianity and official religion; the relationship between magic, religion and science; beliefs about illness, health and medicine; views of death and the afterlife; and others.

HIST 5103 Gender, Race, and Disease in the Early 3 ch (3S) [W] Modern Atlantic Hiistory (O)
Investigates early modern gender, race and disease through the movements, interactions, and exchanges between peoples of the Atlantic World (specifically, Europe, Africa, and the Americas) during the seventeenth and eighteenth centuries. Themes include: disease and "the body"; climates and geographies of ill health; trade, empire, and disease environments; constitution, complexion and "race"; gender and sexuality.

HIST 5200 Themes in Tudor and Stuart History 6 ch (3S) [W]
Concentrates on aspects of the reigns of Henry VIII, Elizabeth and/or Charles I.

HIST 5104 Atlantic Revolutions, 1763-1848 (O) 3ch (3S) [W]

Between 1763 and 1848 social and political upheavals - including the American Revolution, the French Revolution, the Haitian Revolution, and revolutions in the Spanish and Portuguese Empires - shook the Atlantic World. Slave revolts in the Caribbean and North America fed debates on slavery, and reformers in British North America debated local democracy and responsible government. This course focuses on the revolutions and reform movements that transformed the Americas, the imperial circumstances that engendered them, and the diverse communities and constituencies that shaped them and were in turn shaped by them: rebels and loyalists, reformers and conservatives, indigenous nations, and enslaved Africans and their descendants.

HIST 5275   Health and Medicine in   3 ch (3S) [W]
Early Modern England (O)
Investigates the social, intellectual, and economic dimensions of early modern
English health and medicine, circa 1500-1800. Themes include: knowledge and
practice; medical expertise (lay and commercial); the medical marketplace;
patient-doctor relationships; the role of the hospital. Considers how factors such
as age, gender, and socio-economic status, as well as family and community,
shaped various aspects of health and healthcare in England from the sixteenth
through eighteenth centuries.

HIST 5312   Native Peoples and Canadian   3 ch (3S) [W]
and American State Policy, 1824-1982 (O)
Examines the different ways in which the Canadian and American governments
have attempted to deal with Native peoples living inside their borders. Particular
attention is paid to the ideological underpinnings of government policy, the
various legislative acts defining the relationship between the immigrant societies
and Native peoples, and the responses of Native peoples to government
initiatives.

HIST 5330   Class, Gender, and Region in   6 ch (3S) [W]
Atlantic Canada (A)
Examines the forces that have shaped the history of the region since
Confederation and explores how the people of Atlantic Canada have responded
to the problem of regional underdevelopment.

HIST 5331   Film and History in Canada (O)   3 ch (3S) [W]
Examines the uses of visual history in the representation and popularization of
the Canadian past. Case studies involve both documentary and feature
productions from several periods in the history of Canadian film.

HIST 5332   History of Labour in New Brunswick (O) 3 ch (3S) [W]
Examines the history of the labour question in New Brunswick. Places the
provincial experience in the context of national and international labour and
working-class history.

HIST 5335   A History of Canadian Left   3 ch (3S) [W]
A course in social, political and intellectual history examining the history of the left
in Canada from the eighteenth century to the present. Topics include the origins
of the radical tradition, utopian and cooperative reform, early socialism and
feminism, the Communist Party, the Cooperative Commonwealth Federation, the
New Democratic Party, the New Left and other alternatives.

HIST 5342   Environmental History of   3 ch (3S) [W]
North America (O)
Examines the interaction of the peoples of Canada and the United States with the
natural environment. Topics include the theory and methodology of environmental
history, changing patterns of land use, resource depletion and industrial
migration, the environmental implications of urbanization, and the intellectual and
institutional development of the conservation/environmental movement.

HIST 5345   Natural Resources, Industrialization 3 ch (3S) [W]
and the Environment in Atlantic Canada (A)
Explores the political, economic and environmental implications of the
dependence on natural resources in Atlantic Canada, through an examination of
the historical development of the forest, fishing, agricultural and mining industries
from the eighteenth century to the post-Second World War period.

HIST 5352   Schooling and Scholars in Nineteenth- 3 ch (3S) [W
Century Canada (O)
Focuses on the world of students and their teachers during the nineteenth
century. Changes in education, which influenced the development of the modern
system, will be situated within the broader context of change in Canadian society.
Topics include the feminization of teaching; teacher training; curriculum; the
relationship between school attendance patterns and such factors as sex, age,
geographic location and parents' occupations; and the emergence of free and
compulsory education.

HIST 5353   Canadian Women's History (A) 3 ch (3S) [W]
This seminar is designed to encourage students to think about relevant topics and
approaches to the history of women in Canada. Using both primary and
secondary materials, the seminar focuses on themes drawn from the 19th and
20th century. Themes include, but are not limited to: major approaches to
Canadian women's history; historiography; women's work and family lives;
women and politics, migration/immigration; aboriginal women's lives; women's
experiences of war; social reform movements; women in professions; women and
health; feminism.

HIST 5381   Health and Disease in   3 ch (3S) [W]
Historical Perspective (O)
Focuses on nineteenth and twentieth century understandings of health and
disease in North America. Stresses how gender, class, race/ethnicity affect
historical understandings of disease.

HIST 5388   Understanding the Virtual Past; Making 3 ch (3S) [W]
Digital History (A)
Introduces students to the emerging fields of digital history and virtual museum
studies by combining theoretical readings with practical content on the creation
and maintenance of digital archives and web design. At the end of this course
students will be familiar with the ways in which historical documents, artifacts and
other materials can be framed and reframed digitally to allow for new readings
and interactions between them. Depending on enrollments from year to year, this
course will have students digitize historical sources; create interactive websites;
and prepare written assignments on the digitization process and the ways in
which new media create and shape historical consciousness.

HIST 5403   The Loyalists   3 ch (3S) [W]
Studies the Loyalists during the American Revolution and in exile in British North
America, Great Britain, Sierra Leone, Bermuda, the Bahamas, the British West
Indies and Central America. Also considers their long-term political and social
role particularly in Canada, including the Loyalist myth. One week is devoted to
local Loyalist remains, such as houses, and museum and art gallery holdings.

HIST 5445   The United States in the Progressive   3 ch (3S) [W]
Era, 1890-1920
Examines themes in the history of the United States at the turn of the nineteenth
century, including the development of Populism, Progressivism, imperialism, anti-
imperialism, and the impact of America's entry into the First World War. Explores
the social, cultural, and political consequences of industrialization and
modernization. Prerequisite: HIST 2404 or permission of instructor.

HIST 5475   Modernist Manhattan (O)   3 ch (3S) [W]
Explores the innovations and institutions that made New York City the epicentre
of North American modernism. Considers a range of cultural products and
processes, including bohemianism, literary and visual culture, the cross-
fertilization of "black" and "white" forms and traditions, improvisation and the jazz
scene, the grounding of critical authority, the politics of authenticity, and the
interplay between the avant-garde and the popular.

HIST 5702   Folk-Mass-Popular: Locating   3 ch (3S) [W]
Culture in the Shadow of Capital (A)
Examines the historical debates surrounding such key terms in cultural studies as
"folk," "mass," and "popular" culture, through the lens of late-capitalist visual
cultural production and cultural politics. Analyzes the modern implications of folk
culture's invention through Western European philosophy and its historical ties to
Romantic nationalism; the creation of mass culture as a commodity form through
the modern and global culture industries; and the modern and contemporary
framing of popular culture as a contested terrain between state and corporate
domination, subaltern resistance, and integral component of everyday life.

HIST 5725   The Art of Public History (A)   3 ch (3S) [W]
Examines the concept of "public history" as the work that history professionals
engage in outside the academy. Each year, this course will focus on a particular
aspect of the intersection of public history with disciplinary knowledge and cultural
institutions. Topics covered from year to year include the historical development
of the modern public museum; the relationship between non-Western cultural
production and Western cultural institutions; the modern tourism and heritage
industries; and video and performance art as a site of social activism. Note: a field
trip may be required. Cost varies to a maximum of $50.

HIST 5735   Historians and the Visual (O)   3 ch (3C) [W]
Considers how historians can use visual materials, such as prints, photographs, paintings, and advertisements, in their research. Students will both discover and evaluate different methods of visual investigation, including content analysis, formal analysis, iconography, and semiotics. Readings will be drawn from the realms of social, cultural, military, material, art, medical, women's, and gender history.

HIST 5800   War: Themes and Theorists   6 ch (3S) [W]
An in-depth look at the major developments in the theory and practice of war since the fifteenth century. Examines important theorists from Machiavelli to Kahn and such major themes as command, the industrialization of war, logistics and the impact of changing social and political patterns.

HIST 5803   The First World War (O)   3 ch (3S) [W]
Reviews the key points of controversy surrounding the origins, personalities and conduct of the war on the Western Front. Particular attention will be paid to the role of the British Expeditionary Force, of which the Canadian Expeditionary Force was an increasingly important part.

HIST 5804   The Second World War (A)   3 ch (3S) [W]
Examines key events and issues of the military campaigns of the Second World War, and wrestles with how historians and writers of memoirs have portrayed them. Provides a survey of the major historical problems surrounding the conduct of the war, including: the collapse of the West, the German invasion of Russia, the Japanese attack on Pearl Harbour, area bombing, Normandy, and the bombing of Hiroshima and Nagasaki.

HIST 5805   Seapower   3 ch (3S) [W]
Themes in naval history. Uses selected problems to explore the role of naval power in shaping the modern world

HIST 5812   Themes of War and Diplomacy in the   3 ch (3 S) [W]
                             Modern Middle East (A)
Explores major themes relating to the history of war and diplomacy in the region in the twentieth century, including Zionism, pan-Arabism, decolonization, the super powers, the Palestinians, and fundamentalist Islam.

HIST 5815   The Study of War since 1945 (A)   3 ch (3S) [W]
Examines the conduct of war since 1945 through an exploration of the literature on war in theory and practice. Course will focus on the interaction of strategic theory and doctrine, technology, and society in conventional and revolutionary war.

HIST 5900   The Nature of History 6 ch (3S) [W]
This course is compulsory for third year Single Honours students. It offers an introduction to the nature of the historical discipline, examining questions related to the philosophy of history, research skills and techniques, the history of historical thought and the application of history in the community. Double Honours students may participate in the course but may not count it as one of their required history courses. Open to History Honours students only.

HIST 5910   Fourth Year Reading/Research   6 ch (R) [W]
A reading research course for fourth year students to be supervised by a professor with whom the student is enrolled in a 3 or 6 ch seminar. The supervisor's permission must be obtained prior to 1 October. This course is for fourth year students who are enrolled in at least 12 ch of seminars.

HIST 5920   Honours Thesis   6 ch (R) [W]
A reading and research course open to exceptional Honours students in their fourth year which should be used to produce an Honours Thesis. Permission to take this course must be sought from the professor in the desired field and the project must be approved by the Department. This course may be used as an alternative to a seminar in the fourth year. It requires a CGPA of at least 3.6 in History courses for admission.

HIST 5945   The Cultural Origins of Science (O)   3 ch (3S) [W]
Why did the Scientific Revolution of the seventeenth century occur in Western Europe and not in China, the Islamic World or the Greco-Roman period? What was the Scientific Revolution and its cause? The course explores these vexed questions through the historiography on the Scientific Revolution, its medieval and Renaissance background, and the context of natural philosophy in other cultures.

INTERNATIONAL DEVELOPMENT STUDIES

IDS 2001   Introduction to International   3 ch (3C) [W]
                 Development Studies

Examines the major social, economic and political characteristics of the Third World, and discusses underdevelopment, dependency, the bases of political and economic domination of the Third World by the developed world, social stratification, the position of elites and the interaction of culture and poverty. Offered annually.

IDS 3002   Seminar in International   3 ch (3C) [W]
                 Development Studies

Deals intensively with all the major issues of development studies and the relationship between the developed and the developing world. Some of the issues covered are globalization, foreign aid, women and development, trade liberalization, ethnic rivalries, urbanization and poverty. Prerequisite: IDS 2001

IDS 4003   IDS Practicum   3 ch

The student will be required to conceptualize , create and complete a project in partnership with the staff of the MCAF(Multicultural Association of Fredericton) or similar agency. This project must deal with issues such as refugees, resettlement or cultural readjustment. The student will be mentored by the staff of the MCAF and the Director of IDS, and must chronicle and critically reflect on his/her work as it progresses. This experience will provide the student with valuable practical skills and opportunities to acquire insights into and better understanding and knowledge of new-immigrant and refugee groups. Enrollment will be limited. Prerequisite IDS 2001 and the permission of the Director.

INFO 4900   Honours Thesis in International   6ch [W]

                 Development Studies

An in-depth independent research project on an important issue concerning development studies. Offered annually. Prerequisite IDS 3002

INFORMATION SYSTEMS

The *L notation indicates that labs are held on alternate weeks.

The [P] designation is used to identify courses with an extensive computer programming component. Please see the Bachelor of Computer Science degree regulations for further details.

INFO 1003   Foundations of Information Systems 4 ch (3C 2L)
This course is designed to introduce students to contemporary information systems and demonstrate how these systems are used throughout global organizations. The focus of this course will be on the key components of information systems - people, software, hardware, data, and communication technologies, and how these components can be integrated and managed to create competitive advantage. This course also provides an introduction to systems and development concepts, technology acquisition, and various types of enterprise information systems such as Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), and decision support systems. Prerequisites: None. Note: Normally intended for first-year BISys students and interested students from other degree programs. Credit is not given for both INFO 1003 and ADM 3713.

INFO 1103   Data and Information Management 4 ch (3C 2L) Topics include: History and motivation of information systems; database system components; relational data model; relational algebra; SQL language; data integrity, security and privacy; data modeling and logical database design; indexing and physical database design; rapid application development; user interface design; data validation and exception handling; accessing a database using an API (such as ADO.NET and JDBC); stored procedures and triggers; introduction to web development, three-layered architecture, and XML. Note: Credit is only given for one of CS 2513, CS 2533, INFO 1103 and INFO 2103. Prerequisite: CS 1073.

INFO 2403   Information Security   4 ch (3C 1T)
This course is an introduction to information security. Topics normally include: Critical infrastructure Protection, the Corporate Security Policy, Threat Risk Assessment, Secuirty Models, Mandatory and Discretionary Access Control, Symmetric and Assymetric Cryptography, Message Authentication, Message Digests, Public Key Infrastructure. Prerequsisites: INFO 1103 and (MATH 1833 or CS 1303 or equivalent).

INFO 3103   E-Business Software Development 3 ch (3C) [P]
Software technologies, methods, and processes for developing Internet-based e-business and enterprise applications. Internet standards and protocols, distributed objects and components, and client-server computing. Distributed software design for functionality and quality. Evaluation and implementations of e-business processes and technologies. Prerequisite: INFO 1103 and CS 2043.

INFO 3303   Enterprise Information Systems 4 ch (3C 2*L)
Topics include: Information systems within an enterprise environment; Decision support systems; data warehousing; reporting systems and OLAP; data mining applications; e-Business models and strategies; information privacy and security policy; enterprise resource planning; customer relationship management; supply chain management; collaboration systems. Prerequisite: INFO 1103 and 60 ch. Note: Credit will not be given for both CS 3513 and INFO 3303.

INFO 3403   Information System Administration 4 ch (3C 2*L) Topics include: internal database structure; query evaluation and optimization; transaction management and concurrency control; database recovery; distributed and parallel database architectures; physical database design; performance tuning and capacity planning; database administration; technical architecture design systems integration. Prerequisite: INFO 1103 and 60 ch (CS 3413 recommended).

INFO 4900   Information System Design Project   6 ch (6L) [W] An information design and implementation experience involving a medium to large group. Students prepare requirements, specification, analysis and design documents as a team toward development of an information system and use the documentation to implement and test the system. Students manage their projects professionally, present their design work orally, and demonstrate formally that the product meets its requirements. Prerequisites: CS 3503, INFO 3103 and INFO 3303. Students may not take both SWE 4040 and INFO 4900 for credit.

JAPANESE

Courses in Japanese Language are offered at the Introductory level and occasionally at the Intermediate level if resources are available.

JPNS 1013   Introductory Japanese I   3 ch (3C)
Focuses on the fundamental structure of Japanese and practicing of communication skills. Introduces Hiragan and Katakana, writing systems in Japanese, and practice of reading and writing. Some aspects of Japanese culture are discussed. Not open to native speakers.

JPNS 1023   Introductory Japanese II   3 ch (3C)
Continuation of JPNS1013 . Focuses on communicative aspects as well as practice of reading and writing in Hiragana. Katakana and basic Kanji, the other writing system in Japanese, are introduced. Not open to native speakers.

JPNS 2013   Intermediate Japanese I   3 ch (3C)

Develops the communicative skills for a wide range of everyday situations. Focuses on both conversation and writing systems, developing vocabulary and sentence structures. One hundred Kanji characters are introduced and practiced. Prerequisite: JPNS 1013 and 1023.

JPNS 2023   Intermediate Japanese II   3 ch (3C)

Continuation of JPNS 2013. The textbook "Genki I" is completed with this course, and students reach the level of Level IV Japanese Proficiency Test. Prerequisite: JPNS 2013

KINESIOLOGY

General Information

KIN 1001 is considered to be a prerequisite or co requisite to all other Kinesiology (KIN) and Recreation (RSS) courses for students enrolled in one of the degree programs offered by the Faculty of Kinesiology.

Recreation and Sports Studies (RSS) courses are grouped together and listed in their own section of this calendar.

Unless otherwise stated, prerequisite shall mean a D or better in the prerequisite course.

Note: See beginning of Section H for abbreviations, course numbers and coding.

POLICY ON NON-FACULTY OF KINESIOLOGY STUDENTS TAKING KIN AND/OR RSS COURSES

Due to the extensive number of KIN and RSS courses full with a waitlist, and to the highly competitive nature of upper-year admissions, the number of KIN and RSS credit hours that a student not registered in a degree program offered by the Faculty of Kinesiology may register for will be limited. Students not registered in a degree program offered by the Faculty of Kinesiology, and wishing to register for KIN and/or RSS courses shall be governed by the following:

1. A student not registered in a degree program offered by the Faculty of Kinesiology must have permission of the course instructor to register in any KIN and RSS course.

2. Normally, all students must have successfully completed all required pre-requisites to a KIN or RSS course prior to admission to KIN and RSS courses. Waiver of prerequisites is permissible only with consent of the Instructor.

3. In all KIN and RSS courses students registered in a degree program offered by the Faculty of Kinesiology will be given priority.

4. Normally, KIN 1001 shall be restricted to students in the degree programs offered by the Faculty of Kinesiology.

5. Normally, KIN 1001 is the pre-requisite to all 2000, 3000 and 4000 level KIN and RSS courses.

1. Normally, students not registered in a degree program offered by the Faculty of Kinesiology shall be limited to twelve (12) credit hours of KIN/RSS courses.

ACTIVITY COURSES

Basic Activity Labs (1 ch):

KIN 2603 Swimming (must pass entry level test) (A)
KIN 2613 Pilates
KIN 2614 Yoga
KIN 2615-19 (Determined by Faculty)
KIN 2625-29 (Determined by Faculty)
KIN 2673 HIGH FIVE
KIN 2623 Basketball

KIN 2693 Fitness
KIN 2701 Golf (A)
KIN 2723 Ice Hockey
KIN 2733 Badminton (A)
KIN 2751 Soccer (A)
KIN 2783 Volleyball (A)
KIN 2793 Weight Training (A)
KIN 2802 Wrestling (A)

KIN 2831 Special Activity Project
KIN 2832 Special Activity Project

KIN 2851 Special Activity Project (Determined by Faculty)
KIN 2852 Special Activity Project (Determined by Faculty)
KIN 2861 Leadership Activity*
KIN 2862 Leadership Activity*
KIN 2883 Wall Climbing (A)

Advanced Activity Labs (2 ch) (Prerequisite: the 2000 level activity):

KIN 3523 Communication Skills
KIN 3623 Basketball (A)
KIN 3723 Ice Hockey (A)

KIN 3783 Volleyball (A)
KIN 3831 Special Activity Project
KIN 3832 Special Activity Project
KIN 3851 Special Activity Project (Determined by Faculty)
KIN 3852 Special Activity Project (Determined by Faculty)
KIN 3861 Leadership Activity*
KIN 3862 Leadership Activity*

* KIN 2861/2, 3861/2. Leadership activity credits provide students with an opportunity to gain leadership skills training and experience. These projects are designed to provide new learning opportunities through directing, leading, coaching, and managing groups or individuals in physical activity, recreation, sport, and wellness. Only open to Kinesiology students who have completed at least 48 ch, have the most recent term GPA of at least 2.5.

* KIN 2831/2, 3831/2. Special activity credits provide students with an opportunity to learn new skills in areas related to sport, recreation, leisure, physical activity, and wellness that are not currently being offered within the university's standard curriculum, for example: SCUBA, wilderness first aid, canoeing, etc. These learning experiences are designed to offer course credit for new skill learning in an area specific to one's individual interests. Only open to Kinesiology students who have completed at least 48 ch, have the most recent term GPA of at least 2.5.

The Faculty reserves the right to cancel classes for insufficient enrollment.

CRITERIA FOR SPECIAL ACTIVITY AND LEADERSHIP PROJECTS

Any special activity and leadership project (KIN 2831, KIN 2832,KIN 2861,KIN 2862, KIN 3831, KIN 3832, KIN 3861, KIN 3862) must represent an opportunity for significant physical or recreational skill attainment and/or improvement by the student.

PROJECT CRITERIA:

To participate in any Special Activity or Leadership Project (KIN 2831, KIN 2832, KIN 2861, KIN 2862, KIN 3831, KIN 3832, KIN 3861, KIN 3862) a student must:

1. Have completed 48 ch or more towards the degree.

2. Have a GPA (most recent assessment year GPA) of at least 2.5.

3. Normally start and complete the project in the term in which the project was registered.

4. A one-credit hour course (i.e., KIN 2831, KIN 2832, KIN 2861, KIN 2862) normally must include at least 40 hours of learning (instruction, practice, study, etc.).

5. A two-credit hour course (i.e., KIN 3831, KIN 3832, KIN 3861, KIN 3862) normally must include at least 80 hours of learning (instruction, practice, study, etc.).

6. All projects must be approved by the course coordinator before the student may register for the course.

7. A student shall be allowed to register for a maximum of six (6) credit hours of special project and leadership courses, i.e., KIN 2831, KIN 2832, KIN 2861, KIN 2862, KIN 3831, KIN 3832, KIN 3861, KIN 3862.

KIN 1001   Introduction to Kinesiology   3 ch (3C 1T) [W]
This course is designed as a thematic introduction to the academic discipline of Kinesiology. The course surveys the basic concepts, theories and analytical methods of Kinesiology and their application to the study of human movement in recreation, sport, exercise and physical activity. Weekly sessions include three lectures and one tutorial. KIN 1001 is restricted to students registered in the Faculty of Kinesiology.

KIN 2032   Introduction to Sport and Leisure Psychology 3 ch (3C) [W]
Provides an introduction into the psychological influence of sport, physical activity, and leisure on the individual. Current social psychological theory about sport, physical activity and leisure behaviour will be examined through a wide variety of sport, leisure, and exercise psychology topics.

KIN 2051   Prevention and Care of Athletic Injuries   4 ch (3C 1.5L)
Covers principles and procedures for the recognition and management of injuries and disorders in physical activity, athletics and sport programs. Prerequisite or Co-requisite: BIOL 1711.

KIN 2062   Introductory Biomechanics   3 ch (3C)
This is an introductory course covering the anatomical factors and physical laws that govern human movement. The course focuses on quantitative techniques for analysis of full-body and multi-segment human motions, and the force systems that cause and resist these motions. Students will gain the necessary background and skills for understanding and applying biomechanical concepts in practice, by developing the skills required to translate problems in human movement into a biomechanical framework for quantitative analysis, and applying biomechanical concepts to solve problems in the rehabilitation and sport sciences. Prerequisite: BIOL 1711, and MATH 1003 or MATH 1503

KIN 2072   Introduction to Motor Control and Learning   3 ch (3C)
Introduces the student to the principles of motor skill acquisition and performance as well as the conditions that influence these processes. Topics include information processing, attention, perception, decision-making, motor programs, and feedback. The role of motivation, anxiety, concentration, observational learning and mental practice in motor performance and learning will be examined. Practical applications for sport, physical activity, industry, and the performing arts will be discussed. Lectures only.

KIN 2082 The Physiologic Basis for Physical Activity 3 ch (3C)
This is a course in applied human physiology that focuses on developing a conceptual model to explain how the nervous, muscular, metabolic and cardiorespiratory systems function together to allow human movement. In this course the student will examine the cellular and systemic changes that take place within the body during the performance of physical work in a variety of modalities, intensities and durations. Prerequisite: C grade or better in BIOL 2721 Human Physiology II. Note: Credit will not be given for both KIN 2082 and KIN 3081.

KIN 2093   Introduction to Philosophy of Kinesiology   3 ch (3C) [W]
This course will conduct a philosophical analysis in to the nature of sport, exercise, and recreation by asking questions about the fundamental value and purpose of these activities. Prerequisite: KIN 1001 or consent of the instructor.

KIN 2160   Laboratory Methods in Kinesiology 3 ch (3L)
This laboratory based course introduces the student to the basic laboratory techniques and methods for the collection of kinesiological data. Experienced will be gained through a series of laboratory sessions in each of the exercise science disciplines (motor control, exercise physiology and biomechanics, sport psychology). Instruction pertaining to the application of the introduced techniques will accompany each laboratory session.

KIN 3001   Introduction to Research Methods in Kinesiology   3 ch (3C)
Introduces basic concepts in research methods and experimental design relevant to the area of kinesiology including recreation and leisure studies. It is also designed to create a better understanding of the principles, concepts, terminology, and instruments used in measurement and analysis in the various sub-domains of kinesiology. The course will focus on the scientific method, with both quantitative and qualitative research being discussed. Topics include: different methods of knowledge, strategies of discovery, ethical issues, observation (systematic and self-report observational methods), measurement (reliability, validity, objectivity), experimental design (randomized and non-randomized designs, survey design and subject selection), and data analysis (descriptive and inferential statistics). Finally, research reporting and the A.P.A. format will also be examined. Prerequisites: STAT 2263 or STAT 2264 or equivalent.

KIN 3031   Exercise Psychology   3 ch (3C) [W]
An introduction to the study of behaviour in the exercise environment. The course will focus on how psychological factors effect physical performance, how exercise effects psychological development, and on the development of strategies to encourage exercise participation. Prerequisite: KIN 2032 or consent of instructor.

KIN 3032   Sports Psychology   3 ch (3C) [W]
Examines how the principles of psychology are applied in the sport setting to enhance performance. Involves an analysis of the current findings in psychological research into sport with special attention to personality theory, imagery, goal setting, cohesiveness, and spectator behaviour. The course will be based on theoretical considerations and will involve a practical component. Prerequisite: KIN 2032 or consent of the instructor.

KIN 3041   Disability Awareness   3 ch (3C)
This course aims to introduce students to the issues and challenges faced by persons with disabilities by exploring: disability concepts from a social, medical and political perspective; the impacts of disability on the person, family unit and labor force; disability issues in movement activities, from daily living to sport and recreation skills. Disability awareness training includes an introduction to appropriate terminology, knowledge of specific disorders that cause disability, and experience working with disabled individuals in the community.

KIN 3061   Advanced Biomechanics   4 ch (3C 2T) [W]
Examines, through lecture and laboratory experiences, the theoretical and applied aspects of the biomechanics of human performance. Prerequisite: C grade or better in KIN 2062.

KIN 3093   Ethics and Kinesiology   3 ch (3C) [W]
This course examines the fundamental principles of ethics, and their application to selected ethical issues in sport, recreation, exercise and other dimensions within kinesiology. Through intensive reading, open dialogue, critical reflection, and writing, students will be challenged to develop their philosophic ability, knowledge, and skills in evaluating an ethical dimension of relevant issues. Prerequisite: Students must have completed at least 27 credit hours of their degree program.

KIN 3131   Psychological Intervention in 3 ch (3C) [W] (A)
                 Sport and Exercise
Introduction to psychological consulting in the areas of sport and exercise. The course will provide the student with the basic knowledge needed to develop mental skills training programs and will introduce practitioner-athlete consulting process. Prerequisites: KIN 2032, KIN 3032, or KIN 3031, or consent of instructor.

KIN 3161   Human Factors in Ergonomic Design 3ch (3C) [W]
This course introduces the physical, biomechanical psycho-social and cognitive demands on workers in both office and industrial settings. Through lectures, student projects and review of current research, the role of proper human factors as a component of the improvement of health and well-being of the worker are explored. The understanding of human physical and psychological capabilities and limitations are incorporated in proper ergonomic design of the workplace environment.

KIN 3202   Movement Awareness 3 ch (3C) [W]
The aim of this course is for the student to develop greater awareness of the movement experience. Three approaches are utilized to examine movement: 1) Review of selected literature related to body, mind, and movement; 2) Production of a movement autobiography that details the affects of movement experiences; 3) Participation in movement activities including Hatha Yoga, Tai Chi, Aikido, Zen meditation and Somatic exercises.

KIN 3252   Functional Human Anatomy 4 ch (3C 1L)
This course is designed to introduce the concepts of functional human anatomy with a focus on how the anatomy interacts and supports various human movements. Practical movement assessment skills are taught, such as: anatomical movement assessments, postural assessment, muscle length and strength testing and movement screening. Prerequisite: C grade or better in BIOL 1711 and BIOL 2812.

KIN 3282   Physical Activity, Health and Wellness   3 ch (3C)
Provides an introduction to holistic health through integrating the concepts of physical activity, fitness, and wellness. The focus will be on the impact that physical activity and physical inactivity have upon the major diseases and disabilities which affect overall health and wellness in industrial and technological based societies. This will be accomplished through summarizing and critically assessing the epidemiological and physiological research evidence. Prerequisite: C grade or better in KIN 3001 and KIN 3081.

KIN 3291   Coaching Healthy Behaviours 3 ch (3C)
This course will examine individuals' attitudes and behaviours towards healthy and active living, with a focus on individual health-related behaviour change. Techniques for identifying strategies and overcoming barriers to changing health behaviours will be examined, developed and practiced within the framework of health education and behaviour change. Course participants will be challenged and empowered to make their own positive lifestyle changes in regards to healthy behaviours, and will be prepared to begin working with others in this realm. Prerequisite: RSS 2081 or permission of the instructor.

KIN 3382   Pediatric Exercise Science   3 ch (3C) [W] (O)
To develop an understanding of the physiological, medical, and physical performance implications associated with changing activity patterns in today's youth. Examines the influence of physical activity on normal growth and development, exercise and fitness related secular trends, issues related to pediatric exercise science, and activity program development. Prerequisite: BIOL 2721 .

KIN 3481   Nutrition for Healthy Living 3 ch (3C)
The science of the nutrients and their role in the body and in health, factors influencing food intake, dietary assessment and guidance, nutrition and physical activity, and current nutrition issues. Note: Credit will not be given for both ED4791 and KIN 3481.

KIN 3482   Bioenergetics of Exercise   3 ch (3C)
An in-depth integrative and applied study of the conversion of carbohydrates, fats, and proteins into biologically useable forms of energy. Topics include: basic chemistry and biochemistry involved in the process, the biochemical pathways, the metabolic responses to energies and exercise, and the neuroenodocrine regulation of exercise metabolism. Prerequisite: KIN 3081 or equivalent.KIN 3913

KIN 3913   Practicum I   3ch (3C/L)
Relates theory to practice through professional career and field experiences. Faculty approval is required prior to any service commitment or registration procedures.   Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

KIN 3914   Practicum II   3 ch (3C/L)
Relates theory to practice through professional career and field experiences. Faculty approval is required prior to any service commitment or registration procedures. Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

KIN 3950   Athletic Therapy Practicum   6 ch (6C/L) [W]
Involves Athletic Therapy internships only. Relates theory to practice through professional career and field experiences. Faculty approval is required prior to any service commitment or registration procedures. Prerequisite: B grade or better in KIN 2051 and permission of the instructor.

KIN 4041   Movement Disorders   3 ch (3C) (A)
This course introduces students to the biomechanics of movement disorders using state-of-the-art techniques in motion analysis. Topics include instrumentation, clinical gait analysis, data interpretation, and treatment effectiveness. Prerequisites or Co-requisites: KIN 3061; Only open to students with 57 ch toward their degree.

KIN 4063   Biomechanical Instrumental and   3 ch (3C) (A)
                    Data Acquisition
Introduces advanced concepts in instrumentation and data acquisition relevant to the area of human motion analysis. The student will be introduced to motion analysis systems, electromyographs, and force platforms through laboratory sessions. Emphasis will be placed on accuracy and reliability of equipment. Students will also be introduced to the Matlab programming language and various data analysis techniques in biomechanics (i.e. filtering, joint angle computation). Prerequisites: KIN 3061; Only open to students with 57 ch towards their degree.

KIN 4065   Matlab and 3D Biomechanics   3ch (1C 2L)
This course introduces students to the Matlab programming language with specific applications to the field of biomechanics. Topics include vector manipulations, joint angle computations, and matrix mathematics. All lectures are conducted in computer labs using the Matlab software. Matlab is a popular language used in academia and various industrial applications. Students will learn how to create computer programs that perform mathematical operations and analysis using biomechanical data. Prerequisite: KIN3061, MATH 1503, or permission of the instructor.

KIN 4072   Neural Control of Human Movement 3 ch (3C) (A)
The aim of this course is to provide the student with a fundamental understanding of the neural processes that underlie the control of voluntary action. The mechanism, structure and function of the human nervous system will be presented at various levels of analysis, from the cellular level to the behavioural level. Specific topics to be addressed include the mechanism of information transmission; the mechanism of skeletal muscle contraction; the use of surface electromyograms; mechanisms of excitatory and inhibitory control, reflexes; pre-programmed reactions; simple brain anatomy, structures and pathways; postural control, locomotive control and single and multi-joint movements. Prerequisite: KIN 2072 and KIN 3081.

KIN 4082 Advanced Exercise Physiology 4 ch (3C 1.5L) [W] (A)
Through lecture and laboratory experiences the acute responses and adaptations of the muscular, nervous, and immune systems to exercise will be studied. The specific topics of neuromuscular fatigue, overtraining, and resistance training programs will be examined. Prerequisite: KIN 3081 or equivalent.

KIN 4093   Seminar on Health Care Ethics 3 ch (3C) [W]
This course will explore the area of health care. Through intensive reading, open dialogue, and critical reflection, students will be challenged to develop knowledge and skills in analyzing the dimensions of health and health care. Prerequisite: KIN 3093 or consent of the instructor.

KIN 4161   Occupational Biomechanics   3 ch (3C) [W]
This course will examine topics in applied ergonomics and occupational biomechanics. Lectures will be used to present ergonomic assessment tools and present current research directives in the area of occupational biomechanics and prevention of workplace musculoskeletal injuries. Development of the skills required to identify occupational ergonomic concerns, perform biomechanical analyses of musculoskeletal demands and modifications of work tasks to reduce musculoskeletal demands will be emphasized through practical experiences. Prerequisite: KIN 2062 and KIN 3161, or consent of the instructor.

KIN 4162 Occupational Health and Safety for Ergonomists (3C)
This course will provide an overview of the occupational health and safety field and its relationship to workplace ergonomics. An introduction to occupational health and safety legislation will be provided and health and safety hazards in a variety of work environments will be examined. Emphasis will be placed on how to eliminate and reduce hazards and risks associated with several work processes, including the physical working environment, adaptation of tools and the workplace to the worker, and equipment design. The roles and responsibilities of workers and their employers will also be covered. Prerequisite: KIN 3161. Credit will not be given for KIN 4162 and ME 5283

KIN 4163   Workplace Ergonomic Design and Analysis   3 ch (3C)
The focus of this course is on the theoretical background and practical knowledge required to create functional ergonomic designs and provide comprehensive ergonomic analyses of industrial or service workplaces using work measurement and task analysis methodologies. Industrial and human factors engineering techniques together with the principles of occupational biomechanics are applied to investigate human / machine interactions, job design, and workstation layout. Work Measurement and Task Analysis methodologies are used to describe and determine work standards, physiological task loads and the elements of manual and mental activities in human / machine work systems. Laboratory exercises provide the opportunity to apply the theory to actual workplace situations. Prerequisite: Completion of 96 ch in Kinesiology / Engineering, KIN 3161, or consent of instructor.

KIN 4165   Occupational Physiology   3 ch (3C) (A)
This course will investigate issues related to the physical requirements, program design, the measurement of physical demands, and factors related to fatigue and injury in the workplace from a physiological perspective. It will also examine issues related to safety and completion of job specific tasks in the workplace. The standards and job requirements for an occupation will be examined using the "Bona Fide Occupational Requirements (BFOR)". Prerequisites: Completion of 96 ch in Kinesiology, KIN 3081, or consent of the instructor.

KIN 4252   Advanced Functional Anatomy   4 ch (3C 1L)
This course is designed to build upon the concepts and theories learned in Kin 3252 - Functional Human Anatomy, with a focus on mastery of hands-on assessment techniques and methodologies, assessment interpretation techniques, identification of movement impairments, and the development of appropriate movement correction exercise intervention programs based upon the interpretations of the assessments. This course will focus on the application of advanced theories of anatomical systematic integration. Pre-requisite: KIN 3252.

**KIN 4281   Measurement and Evaluation in   4 ch (1C 3L)
                 Exercise Science**
An advanced course examining the theory and developing practical skills for measuring body composition and cardiovascular, neuromuscular, and metabolic function during exercise. Students will learn about the equipment commonly used in Exercise Science and the principles of using these instruments including the influence of calibration and signal processing amplification, filtering and sampling. They will also learn computer based data acquisition, the pros and cons of various measurement approaches, and gain experience in screening subjects for exercise testing, data analysis and interpretation of test results. Prerequisite: Minimum grade of "C" in KIN 3081.vanced theories of anatomical systemic

**KIN 4282   Exercise Prescription for Health, Well-being 4 ch (2C 2L)
                 and Performance**
An advanced course to examine the principles of physical fitness, activity, and exercise and the application of these principles for the development and design of exercise programs for the acquisition of health, well-being and performance in children, adults, persons with a disability, and athletes. This course will be applied in a variety of settings to include practical experiences in the design and implementation of exercise programs. Prerequisite: Minimum grade of "C" in KIN 3081, highly recommended KIN 4281. integration. Pre-requisite: KIN 3252.

KIN 4481   Exercise and Sport Nutrition 3 ch (3C) (A)
An in-depth examination of the role which nutrition plays (especially ergogenic aids) in exercise and sport performance. Approached from an applied biochemistry and physiology perspective through lecture and seminar. Co- or Prerequisite: KIN 3081 or equivalent.

KIN 4800 Directed Studies in Kinesiology 6ch (6C)
Provides opportunities to explore in detail a number of special areas in Kinesiology. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Open only to students with at least 57 ch completed towards their degree.

KIN 4900   Honours Research Project 6 ch (3C)
BScKin Honours students must complete a research project under the supervision of a faculty member.   The project can take the form of a thesis, report, or case study as determined by the faculty member.   A presentation is required.   Prerequisite: Students must be accepted into the BScKin Honours program (see Honours program degree requirements).

KIN 4903   Directed Studies in Kinesiology 3 ch
Provides opportunities to explore in detail a number of special areas in Kinesiology. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Open only to students with at least 57 ch completed towards their degree.

KIN 4904   Directed Studies in Kinesiology 3 ch
Provides opportunities to explore in detail a number of special areas in Kinesiology. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Open only to students with at least 57 ch completed towards their degree.

KIN 4910   Advanced Practicum 6 ch (6C/L)
Continuation of KIN 3913/3914.   Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

KIN 4950   Advanced Athletic Therapy Practicum   6 ch (6C/L) [W]
Prerequisite: RSS 3950.

**KIN 4980 Advanced Exercise Physiology, Assessment   6ch (3C 6L)
                 and Design**
A combination of advanced theory and practical experience will help the student learn how to develop exercise prescription advice and training programs that achieve specific outcomes related to health, fitness and high performance athletics.   Completion of this course will provide the student with the relevant theory and practical experience needed to challenge the CSEP-Certified Exercise Physiologist and NSCA-Certified Strength and Conditioning Specialist professional certification exams. Prerequisites: Students must hold current CSEP-CPT certification, KIN 2051, KIN 3081, KIN 3252, KIN 4281, KIN 4282

KIN 4993   Selected Topics in Kinesiology 3 ch
Selected topics of special interest from the area of kinesiology are examined in detail. Special emphasis will be placed on current issues. Topics will be specified by the Faculty. Title of topic chosen will appear on the student's transcripts. Open only to students who have completed 57 ch or more.

KIN 4994   Selected Topics in Kinesiology 3 ch
Selected topics of special interest from the area of kinesiology are examined in detail. Special emphasis will be placed on current issues. Topics will be specified by the Faculty. Title of topic chosen will appear on the student's transcripts. Open only to students who have completed 57 ch or more.

KIN 5031   Applied Sports Psychology 3 ch (3C) [W] (A)
This course will focus on psychological skills and methods in sport and exercise, and how sport psychologists, coaches, therapists, and athletics use these skills and methods to positively affect sport participation, performance, motivation, and enjoyment. More specifically, the psychology skills and methods which were presented and discussed in KIN 2032, 3031, 3032, and 3131 will be applied in the sport setting. This will involve working with a team, teaching mental skills in group sessions, and being available for individual consultations. Prerequisite: KIN 2032, KIN 3032, KIN 3131, KIN 3031.

**KIN 5032   Research in Sport and Exercise   3 ch (3C) [W] (A)
                 Psychology**
Designed to permit analysis and discussion of theoretical developments and recent research findings in the areas of sport and exercise psychology. The seminar format will allow students to critically appraise research and permit them to express their own ideas. Recent research articles will provide the basis for discussion and presentations. Prerequisites: KIN 2032 and KIN 3131, KIN 3032 or KIN 3031 or consent of instructor.

KIN 5072 Advanced Motor Control and Learning 4 ch (3C 2L) (A)
The aim of this course is to explore concepts of information processing within motor control. Each week specific attention will be paid to a seminal paper on this topic. Issues that arise for motor control from these papers will be presented and discussed in seminar format. To gain a practical understanding of these issues, the student will undertake and write-up a series of laboratory experiments on these aforementioned papers. Prerequisite: KIN 2072 and KIN 3001and STAT 2263 or STAT 2264 or equivalent.

LATIN

LAT 1103   Introductory Latin I   3ch (3C)
An introduction to the Classical Latin language spoken and written by Ancient Romans. This introduction presupposes no previous knowledge of the language, and students should be aware that this course is conducted in English.

LAT 1113   Introductory Latin II   3 ch (3C)
A continuation of the introduction to Classical Latin. Prerequisite: LAT 1103 or equivalent.

LAT 2105   Intermediate Latin   4.5ch (3C 1T)
An intensive intermediate course in Classical Latin language designed to prepare the successful student for the reading of Latin texts from classical literature. Prerequisite: LAT 1123 or equivalent. Note: Students who do not complete both 2105 and 3105 will receive only 3 ch for this course.

LAT 3105   Beginning Classical Latin Reading   4.5ch (3C 1T)

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An intensive course designed to complete the study of basic grammar and to begin the development of skills in the reading of Classical Latin texts. Prerequisite: LAT 2105 or equivalent.

LAT 3113   Reading Classical Latin authors I   3ch (3C)

A reading course designed to strengthen skills in the reading of Classical Latin texts. Prerequisite: LAT 3105 or equivalent .

LAT 3123   Reading Classical Latin Authors II   3 ch (3C)

Lat 3133   Advanced Latin I   3 ch (3C)

N/A

LAT 3143   Advanced Latin II   3 ch (3C)

LAT 3153   Directed Reading in Latin   3 ch

By arrangement with the department, students who have completed LAT 3103 and an additional 12ch of advanced courses in Latin may register for this course after consulting with the directing Faculty Member on the selections to be read.

LAW
See the Faculty of Law Calendar or the Faculty of Law website: (http://www.law.unb.ca) for course descriptions.)

LAW IN SOCIETY

LWSO 4003   Law and Society   3 ch

Introduction to legal method and to the Canadian legal system: common law systems and civil law systems; precedent; legislation and delegated legislation as sources of law; federalism; substantive and procedural law; public and private law; and the courts, legal officials and the legal profession; contemporary problems in the organization, procedure and sub stance of law. Recommended: minimum two years of university study.

LWSO 5001   Honours Seminar in Law in Society   3 ch

Directed readings in several disciplines covering theoretical and methodological approaches to examining connections between law and the character or quality of society. Limited to students admitted to the LWSO Joint Honours Program.

LINGUISTICS

LING 2401   Introduction to Language   3 ch (3C) [W]

Basic concepts, language structure and change.

**LING 3006   Linguistic Introduction to Canadian   3 ch (3C) [W]
                     English (A)**

Introduces various ways of describing the structure, especially syntactic, of language. English, specifically Canadian English, is used as a model. Assumes some acquaintance with linguistic analysis; students will normally have taken either LING 2401 (Introduction to Language) and 3411 (Phonetics and Phonemics) or ENGL 3010 (History of the English Language).

**LING 3010   History of the English Language (O) 6 ch (3C) [W]
                     (Cross Listed: ENGL 3010)**
After a brief consideration of the nature of human language, introduces students to phonetics and the International Phonetic Alphabet. Then traces the history of the English language from its Indo-European origins to its present state. Focuses on the various kinds of linguistic change: those affecting sounds, forms, and vocabulary.

LING 3411 Phonetics and Phonemics 3 ch (3C) [W]
Articulatory phonetics and phonology. Prerequisite: Previous experience in linguistics. May be taken concurrently with LING 2401.

LING 3422   Morphology and Syntax   3 ch (3C) [W]

Structure of meaningful elements; syntax. Prerequisite: LING 3411.

LING 3903   Independent Studies in Linguistics I   3 ch
Studies in linguistics. The topic and the content are to be chosen jointly by the student and the instructor. The course must be approved by theDirector of Linguistics.

LING 3904   Independent Studies in Linguistics II   3 ch

Studies in linguistics. The topic and the content are to be chosen jointly by the student and the instructor. The course must be approved by the Director of Linguistics.

FRENCH LINGUISTIC COURSES

LING/FR 3404 Introduction à la linguistique   3 cr (3C)

Étude d'aspects phonologiques, morphologiques et syntaxiques, à partir d'exemples tirés du français.

LING/FR 3404   Introduction to Linguistics   3 ch (3C)

Introduction to various sub-disciplines of linguistics (phonology, morphology, and syntax) exemplified through French.

LING/FR 3414　　Sociolinguistique　　　　　3 cr (3C)

Initiation à l'étude empirique des interactions entre la langue française et son contexte social. Thèmes : variation sociale et stylistique, dialectes et norme, attitudes linguistiques, féminisation du discours, bilinguisme. Préalable: FR/LING 3404 ou léquivalent; FR/LING 3414 et FR/LING 3404 peuvent être suivis simultanément.

LING/FR 3414　Sociolinguistics of French　　　3 ch (3C)

An introduction to the empirical study of language as it is used in its social context. Topics include: social and stylistic variation, dialects and the "standard," linguistic attitudes, language and gender, bilingualism. Prerequisite: FR/LING 3404 or equivalent; FR/LING 3414 may be taken concurrently with FR/LING 3404.

LING/FR 3424　Phonétique et phonologie　　　3 cr (3C)

Étude des concepts fondamentaux de la phonétique et de la phonologie. Description des propriétés phonologiques du français contemporain et de leurs diverses réalisations phonétiques. Étude des variantes régionales et sociales. Préalable : FR 3404.

LING/FR 3424　Phonetics and Phonology of French　3 ch (3C)

The concepts and methods of phonetics and phonology. The basic French sound system and its various phonetic realizations depending on dialects and sociolects. Prerequisite: FR 3404.

LING/FR 3444　La créativité lexicale　　　3 cr (3C)

Le vocabulaire est un système dynamique, capable de se modifier pour répondre aux besoins de la société. Ce cours consiste en l'étude et l'analyse de la structure du lexique, des mécanismes créateurs de la langue et des divers moyens de formation des mots, y compris la dérivation, la néologie, l'emprunt et la métaphore. Préalable: FR/LING 3404.

LING/FR 3444　　Lexical Creativity　　　　3 ch (3C)

The vocabulary of a language is a dynamic system constantly evolving to meet the changing needs of society. This course consists of the study and analysis of the structure of the lexicon, the creative mechanisms of language, and the various types of word formations, including derivation, neology, loanwords and metaphors. Prerequisite: FR/LING 3404.

LING/FR 3454　Histoire de la langue française　　3 cr (3C)

Étude de l'évolution du français depuis ses origines latines jusqu'à nos jours. Esquisse diachronique: phonologie, morphologie, syntaxe et vocabulaire de l'ancien français, du français classique et du français moderne. Préalable: FR 3404.

LING/FR 3454　History of French　　　　3 ch (3C)

A study of the evolution of French from its roots in Latin to the present. Old, Middle and Modern French will be sketched: the phonology, morphology, syntax and vocabulary of each period will be studied. Prerequisite: FR 3404.

LING/FR 3464　Syntaxe　　　　　　3 cr (3C)

Étude de la structure phrastique dans le cadre de la grammaire générative. Présentation de phénomènes typiques du français, illustrant quelques règles syntagmatiques et transformationnelles. Préalable: FR 3404.

LING/FR 3464　Syntax　　　　　　3 ch (3C)

A study of sentence structure in the framework of generative grammar. Phrase structure and transformational rules will be studied and some classical problems of French syntax will be presented. Prerequisite: FR 3404.

LING/FR 3484　Questions de psycholinguistique　　3 cr (3C)

Approche pluridisciplinaire du comportement verbal. Étude de l'acquisition et de la pathologie du langage par rapport aux théories linguistiques et neurolinguistiques.

**LING/FR 3484　　Issues and Trends in　　　　3 ch (3C)
　　　　　　　Psycholinguistics**

Pluridisciplinary approach to language as behaviour. Developmental and pathological issues are discussed in relation to linguistic and neurolinguistic theories.

LING/FR 3494　Mythes et Réalités sur le language　　3 cr (3C)

Discussion de mythes répandus sur le langage visant létude de questions dintérêt général. Thèmes abordés : acquisition du langage et apprentissage de langues, langage et pensée, origines des langues, enfants sauvages, communication animale, dégradation qualitative des langues, réformes orthographiques, codes signés, langues primitives, complexité grammaticale, sabirs et créoles, argots et jargons, langage artificielles. Les étudiant.e.s inscrit.e.s au programme de linguistique anglaise pourront rédiger leurs travaux en anglais. Préalable : LING/FR 3404 ou léquivalent; LING/FR 3494 et LING/FR 3404 peuvent être suivis simultanément.

LING/FR 3494　Myths and Realities about Language 3 ch (3C)

Discussion of widespread myths about language, aiming to shed light on questions of general interest. Topics include: language acquisition and language learning, language and thought, origin of languages, feral children, communication among animals, deterioration of language quality, orthographic reforms, sign languages, primitive languages, grammatical complexity pidgins and creoles, slang and jargons, artificial language. Students enrolled in the Linguistics Program may write their papers in English. Prerequisite or co-requisite: LING/FR 3404 or equivalent.

LING/FR 4414　Français canadien　　　3 ch (3C)

Examen de traits caractéristiques du français parlé au Canada, notamment du franco-acadien et du franco-québécois. Préalables: deux cours FR/LING

LING/FR 4414　Canadian French　　　3 ch (3C)

Examines the major linguistic features of French spoken in Canada, in particular Acadian and Québécois French. Prerequisites: Two courses in FR/LING.

LING/FR 4444　　Sémantique　　　　3 cr (3C)

Initiation à l'étude de la signification et de la référence. Survol historique du domaine, sa place au sein de la linguistique générale et parmi d'autres sciences humaines; notions essentielles à l'examen des relations de sens; analyse componentielle. Préalable: FR/LING 3404.

LING/FR 4444　Semantics　　　　3 ch (3C)

An introduction to the study of meaning and reference. Historical survey of the field, and its place within general linguistics and amongst other fields of human sciences; fundamental notions for the examination of meaning relations; componential analysis. Prerequisite: FR/LING 3404.

LING/FR 4464　Théorie linguistique　　　3 cr (3C)

Mise en place de concepts fondamentaux en linguistique moderne. Étude de la relation entre forme et sens, de la nature des représentations grammaticales et de leur pertinence. Préalable : FR 3404.

LING/FR 4464　Linguistic Theory　　　3 ch (3C)

Presents fundamental concepts in modern linguistics. Examines the relation between form and meaning, the nature of grammatical representations, and their relevance. Prerequisite: FR 3404.

LING/FR 4465　Morphologie générative　　3 cr (3C)

Initiation aux principes et aux règles de base régissant la formation des mots. Présentation et étude de tendances récentes en théorie morphologique. Préalable: FR 3404.

LING/FR 4465　Generative Morphology　　3 ch (3C)

Introduction to basic principles and rules governing word formation. Presents and examines recent trends in contemporary morphological theory. Prerequisite: FR 3404.

MEDIA ARTS AND CULTURE

Introductory and Intermediate Level Courses

MAAC 1001   Understanding Media I: Technology and Culture   3 ch Provides an introduction to the study of media, technology and culture. Surveys a variety of contemporary media forms, from print to radio to film, television and the internet, considering their history, their impact on modern culture, and their present state in the digital age. Course may be taken on its own but is designed to be combined with MAAC 1002 for a complete introduction to the study of media and culture. Students who have already completed MM 1001 for credit may not enrol in MAAC 1001.

MAAC 1002   Understanding Media II: Power and Pleasure   3 ch (LE)
Complementing material covered in MAAC 1001, this course presents a more hands-on approach to critical media studies by introducing students to basic concepts in semiotics and close analysis of media texts. Lectures will cover notions of signs and signification, the way codes and conventions contribute to socially-constructed meaning, as well as the personal, political and cultural implications embedded in all media constructions. Students will learn to break down and analyze magazines and television ads, music clips and movie posters, websites and viral videos, isolating how each of these texts convey messages and reflect the values and assumptions of the world that produced them. In addition to tests and written assignments, students will complete individual projects that will apply what they have learned to communicate critically and creatively via digital media. Students who have already completed MM 1002 for credit many not enrol in MAAC 1002.

MAAC 1021 Introduction to Culture, Arts, and Media   3 ch (3C) [W]
          (Cross-Listed: CCS 1021)
An interdisciplinary exploration of the pivotal role which culture, media, and the arts play in shaping understandings of the world around us. By considering a variety of cultural expressions, creative and artistic practices, and media representations, both old and new, from around the globe, this introductory course invites students to open up to new ways of thinking about how culture is created and continually contested, and is ultimately central to how we experience our lives. Required for CCS Majors and Honours students.

MAAC 1023 Media, Technology, and Creativity 3 ch (3C) [W]
The complex interplay of arts, culture, and technology supplies the subject matter for a critical and creative engagement with contemporary digital culture. Students are introduced to key concepts in media studies through a series of topical modules while also working individually and in groups in a creative environment with an array of digital media tools usd in the wider Media Arts & Cultures curriculum.

MAAC 2021   Popular Culture   3 ch (3C) [W]   (Cross-Listed: CCS 2021) This course introduces historical and theoretical contexts for the study of mass-mediated popular culture, from movies and TV to comic books and video games. It also explores the reciprocal relationship between creative expression and economic constraints, between the mainstream, sub-cultures, and counter-cultures, as well as familiar designations of "high-brow" and "low-brow." Using specific media case studies, students will engage with contemporary debates about the impact of representations, the role of ideology, the agency of the audience, the meaning of fandom, and the politics of taste. While learning to analyze and evaluate their relative merits, students will learn to step back and think critically about the larger implications and the cumulative effects of our constant exposure to popular culture texts. Students who have already completed MM 2021 for credit may not enrol in MAAC 2021.

MAAC 2022   The Art of Film   3 ch (3C) [W]
          (Cross-Listed: FILM 2022) Introduces students to the language of motion pictures and to critical tools for discussing and writing about the 7th art - the art of film. By studying how movies function aesthetically, and how they become meaningful to audiences, students will acquire critical and formal analytical skills that will both enhance their appreciation for cinema and serve them more broadly as consumers and/or producers of visual culture. Topics will include mise-en-scène, framing, image composition, photographic space, colour, editing, sound, and narrative structure.

MAAC 2095   Introduction to Video Games (O)   3 ch (3C) [W]
An introduction to the study of games as interactive electronic and digital media. Topics may include the history of computer games and videogames, game genres, the current structure of the games industry, and an overview of game studies as an academic field. Assignments may include both written work and creative media projects. No previous experience with digital games is required.

MAAC 2797   Rock and American Popular Music   3 ch (3C)
          (Cross-Listed: MUS 2797)
This course is a survey of the history of Rock music from its origins in the late nineteenth century to the present day. Topics addressed include: the effects of technology in the music industry, role of African-American music in the development of popular music, the developments of Jazz, R&B, and early Rock and Roll, and the "white appropriation" of African- American music. The course finishes with a survey of recent trends of disco, new wave, heavy metal, rap and alternative music. Restriction: Credit may not be obtained for both FNAT 2792 and MAAC 2797.

MAAC 2998   Digital Film Production I   3 ch (3C)
          (Cross-Listed: FILM 2998)
An introduction to the fundamental concepts and procedures of visual and audio production,including the techniques and aesthetics of shooting, lighting and editing. Over the course of the term, students will engage in a series of short exercises covering a variety of styles, genres and modes. Taught cooperatively with the New Brunswick Filmmakers' Co-op. NOTE: Students who have received credit for MAAC/FILM/ENGL 3999 may not take this course for credit.

MAAC 2999   Digital Film Production II   3 ch (3C)
          (Cross-Listed: FILM 2999)
This second course in the production sequence puts emphasis on application of skills learned in MAAC 2998 by focusing on production of several short projects in various formats. Group work and analysis of student productions constitute the main course activities. Taught cooperatively with the New Brunswick Filmmakers' Co-op. NOTE: Students who have received credit for MAAC/FILM 3998 may not take this course for credit. Prereq: MAAC 2998, or permission of the instructor.

MAAC 3001   Media Arts (A)   3 ch
Surveys artists' engagement with electronic and digital media, as well as media institutions, from the early 20th century avant-garde to the present. Topics may include Dada, Surrealism, Andy Warhol, experimental cinema, video art, modernism, postmodernism, electronic music, remix culture, art and public space, and new media art. In addition to traditional assignments and tests, students will complete individual and group creative projects. Students cannot obtain credit for both MM 2001 and MAAC 3001. Students who have already taken MAAC 2001 may not attain credit for MAAC 3001.

MAAC 3003   Click Herel: Interactivity on the Web   3 ch (LE)   The use of web applets that advertise, entertain or inform is ubiquitous, and a lexicon of good practice is developing. The course introduces the problem of designing web-browser-based interactive modules that are human-friendly. Through the completion of individual projects, students will use Flash® or HTML5 to display text, images, and computer generated graphics as well as techniques to control the presentation of material in response to how people interact with it. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 3003 for credit may not enrol in MAAC 3003.

MAAC 3021 Culture Matters: Critical Approaches to   3 ch (3C) [W]
                Studying Culture
                (Cross-Listed: CCS 3021)
Offers critical interdisciplinary approaches to understanding culture through examination of key concepts, theories and practices in the field of Cultural Studies. Required for CCS and MAAC Majors and Honours students.

MAAC 3055   Gender, Women and Media (A)   3 ch (3C) [W]
Investigates key issues and theoretical approaches in the study of gender and media, with a particular focus on women as producers, consumers, and subjects of media. Students will research and analyze how media create and challenge stereotypes and ideas of difference along gender lines. Readings, class discussions, and projects will reveal how representations of gender across media-forms play a central role in shaping our attitudes and identities. Open to students who have completed 45 ch, or with permission of the instructor.

MAAC 3057 Advertising and Consumer Culture (O) 3 ch (3C) [W]
Traces the origins, transformations, and current landscape of consumer culture, especially in relation to the role and impact of advertising as a form. Topics may include postmodern culture, consumer identity, gender and representations, viral marketing, activism, and resistence. Open to students who have completed 45 credit hours, or with permission of the instructor.

MAAC 3065   Horror Across Media & Culture (A)   3 ch (3C) [W]
(Cross-Listed: CCS 3065)   Why
have people in so many times and places enjoyed spooky stories? What, if any, value can we assign to tales of horror and the supernatural? Do ghost stories and monster movies differ across nations and cultures? Questions like these will guide our global study of gothic, horror and supernatural texts chosen from a wide array of media, from literature and cinema, to television, comic books, and video games. Topics may include visual culture and the sublime, Freud's notion of "the uncanny," Jungian archetypes, gender identity, conceptions of ritual and myth, the modern and the postmodern, subcultures, folklore, religion and secularization. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 3065 for credit may not enrol in MAAC 3065. Students who have taken WLCS 3065 may not attain credit for MAAC3065.

MAAC 3066   Trauma and Seduction: Early German   3 ch (3C) [W]
Cinema (A)
(Cross-Listed: CCS 3066, FILM 3066, GER 3066)
Beginning with the earliest silent movies and concluding with National Socialist propaganda films,this course offers an introduction to a prolific and important era in German film history: the Weimar Republic and pre-WWII period, 1918-1939. Our discussions will situate the films within larger political and cultural discourses. Emphasis will be placed on such topics as the cinematic response to the trauma of WWI; German national identity; expressionism and modernity; the politics of gender and sexuality; the impact of sound on film aesthetics; the relationship between cinema and other media; the ethics of film production. Films to be studied include features by directors such as Lang,Lubitsch, Murnau, Pabst, Riefenstahl, Sagan, von Sternberg and Wiene. In English. Students who have taken WLCS 3065, or GER 3066 may not attain credit for MAAC 3065.

MAAC 3072   (Re)constructing National Identity: 3 ch (3C) [W]
Contemporary German Cinema (A)
(Cross-Listed: CCS 3072, FILM 3072)
Studies the major accomplishments of East and West German cinema of the postwar period, as well as cinematic trends since German unification. We will consider questions of narrative, genre, and
authorship, examine film's relationship to other media, and focus on the dynamic interaction between film history and social history. Films to be studied include features by prominent directors such as Wolf, Fassbinder, Wenders, von Trotta, Carow, Dörrie, and Tykwer. Students who have taken WLCS 3062, or GER 3072 may not attain credit for MAAC 3072.

MAAC 3075   Framing Reality: Theory and Practice   3 ch (3C)
of Documentary Media (A)
(Cross-Listed: FILM 3075)   This course
surveys the history and aesthetics of non-fiction filmmaking from the birth of cinema to the digital age. It will examine epistemological and ethical questions raised by documentary's encounter with reality and its attempt to present "the truth." Films screened are drawn from an array of nations and range from the personal to the political as well as more experimental and avant-garde works. The course includes a film production component as students will apply what they have learned in class by producing a short non-fiction film as a final project. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 3075 for credit may not enrol in MAAC 3075.

MAAC 3082   History of Canadian Cinema (A)   3 ch (3C) [W]
(Cross-Listed: CCS 3082, FILM 3082)
Focuses on the first half-century of filmmaking in Canada and the nation's long struggle to develop and sustain a functioning film industry in the shadow of Hollywood. Readings and screenings trace
the history of the movies in Canada from the silent era to the 1970s. Issues raised may include Canadian/American relations, national and regional identities, tensions between art and entertainment, media and cultural policy, representation of race, class, gender, and relation of Canadian film to other media (TV, radio, video) and other arts (painting, music, literature) in Canada. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have taken WLCS 3082 may not attain credit for MAAC 3082.

MAAC 3085   Television Studies (A)   3 ch (3C) [W]
This course explores the different approaches used by scholars to understand the cultural role of television in contemporary North American life. Special attention is paid to the impact of new technologies like colour broadcasting, satellite and cable systems, HDTV and the internet. Topics may include TV genres from sitcoms to soap operas, the rise of reality TV, fatherhood and family values, advertising aesthetics, Saturday morning cartoons, Hockey Night in Canada™, and the ethics of the evening news. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 3085 for credit may not enrol in MAAC 3085.

MAAC 3095   Digital Game Studies (A)   3 ch (3C) [W]
Digital games are a major cultural and artistic force in the contemporary media landscape. In this course, students will have the opportunity to consider digital games of various kinds and how they might both relate to and be distinct from the other forms of media. Using critical readings, class discussion and gameplay projects, we will consider competing notions about the nature of games, gaming practices, gameplay, and gaming cultures. No previous experience with digital games is required. Open to students who have completed 45 credit hours, or with permission of the instructor.

MAAC 3101   Media Design I   3 ch (LE)
Explores strategies for creative visual expression across media, working within the constraints of the design paradigm. Topics will include formal design theory, colour theory, basic typography, image construction, and an introduction to visual communications using lectures, assignments, readings, in-class seminars, group discussion and critique. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 2002 for credit may not enrol in MAAC 3103.

MAAC 3102   Media Design II   3 ch (LE)
Provides an opportunity for students to develop further skills and broaden their understanding of visual communication. Topics will include organizing efficient design systems, producing eloquent moving image typography and developing consistent visual identity programs. The work and design strategies of leading contemporary practitioners will be examined. Prerequisite: MAAC 3101. Students who have already completed MM 3001 for credit may not enrol in MAAC 3102.

MAAC 3113   Music, Computers, and Technology   3 ch (3C)
(Cross-Listed: MUS 3113)
The use of computers in music from a practical and historical perspective is identified and studied. Early uses in notation, composition, presentation, interactive media applications are explored. Project based with work in current software applications. Open to students who have completed 30 credit hours.

MAAC 3212   Lens Media   3 ch (LE)
Examines the principles of still image construction using digital technology. Covers the general theories of light in natural and artificial environments. Introduces notions of colour, form, line and
texture as they relate to photographic image making. Workshop activity will provide students with skills in making still images in the studio and the natural environment. Prerequisite: Students will have normally have completed 45 ch. Students who have already completed MM 3212 for credit may not enrol in MAAC 3212.

MAAC 3213   Lens Media II   3 ch (LE)
Explores the construction of a single image from multiple still photographs, and the concepts of aspect ratio and information density in image making. Students will examine how these images maybe used to build immersive environments, and experiment with presentation technologies that expose consideration of physical and social presence in these environments. Prerequisite: MAAC 3212, orpermission of the instructor. Students who have already completed MM 3213 for credit may not enrol in MAAC 3213.

MAAC 3362   Sound Design   3 ch (LE)   Sound
design, though often overlooked, is an essential aspect of much contemporary media. Course focuses on creativity and technology for recording, editing and mixing sound to engage audiences in film, video, drama and multimedia production. Topics include: technical and artistic application of sound design for film with regards to specific genres, foley artistry, animation, game audio, soundscape design and sound motif. Open to students who have completed 45 credit hours, or with permission of the instructor. Students who have already completed MM 3362 for credit may not enrol in MAAC 3362.

MAAC 3401   Digital Culture   3 ch (3C) [W]
Examines major theories of digital culture and contemporary media. Using examples from a broad range of social, artistic, and cultural practices, the course analyzes the development of digital technologies and their impact on today's culture. Topics and approaches may include cyborg theory, the information economy, convergence, media ecology, virtual worlds, remix culture, and new media aesthetics. Open to students who have completed 60 credit hours, or with permission of the instructor. Note: Students who have received credit for MM 3107 may not take MAAC 3401 for credit.

MAAC 3431   Global Media, Politics,   3 ch (3C) [W]
and Power (O)
(Cross-Listed: CCS 3431)
Uses core readings and theoretical frameworks from media studies to examine the complex relationships between media, society, and politics, across the twentieth century and into the new millennium and in global perspective. Topics include media ownership and regulation; media and social movements; censorship and freedom of the press; television and digital culture in emerging democracies; the politics of the popular; media arts and activism. Students who have taken WLCS 3431 may not attain credit for MAAC 3431.

MAAC 3501-9   Individual Studies in Multimedia   3 ch
Courses of independent study in a topic of special interest to the student, to be taken under the supervision of a Faculty member. Topics will be specified in a written proposal and approved in advance by the Director of Media Arts and Cultures. Students who have already completed a MM 3501-9 course for credit may not enrol in the matching MAAC 3501-9 course.

MAAC 3601   Game Design I   3 ch (3C)
The fundamental challenges of creating interactive gameplay are the subject of this course that introduces students to the processes employed by designers for the creation of a game. Students will interrogate notions of "gameplay" and the evolution of the medium, compare and re-design a variety of existing games, workshop ideas, and create their own game designs. This course is open to students who have completed at least 45 ch at the university level

MAAC 3602   Game Design II   3 ch (3C)

Building on skills learned in Game Design I, students work in groups to conceptualize and implement a digital game while examining more advanced issues in game design and development from a variety of perspectives. Prerequisite: MAAC 3601 or permission of the instructor.

MAAC 3793   East Coast Music (O)   3 ch (3C)
(Cross-Listed: CCS 3793, MUS 3793)
The relationship between music and East Coast identity is the focus of this course that covers a range of music styles, regional differences, and contemporary modes. The theme uniting the various case studies is the importance of music to the region's culture(s). The subject also allows for a broader reflection on music's importance to identity. Topics may range from Cape Breton fiddle, through to Halifax hip-hop.

MAAC 3795   Dark Futures: Visions of Dystopia   3 ch (3C)
since World War I (O)
(Cross-Listed: CCS 3795)
Offers an exploration of dystopian literature and film from a broad cross-section of cultures over the past 100 years or so. Based on an examination of texts by authors such as Karel Capek, Evgeny Zamiatin, Paolo Bacigalupi, and Sandra Newman and films such as Stalker, Late August in the Hotel Ozone, and Battle Royale, students will consider how dystopias reflect, respond to, and anticipate totalitarianism, environmental degradation, dehumanization, and other social, political, cultural, and technological challenges facing humanity.

MAAC 3981   Screen Acting (O)   3 ch (1.5C/1.5WS) (LE)
(Cross-Listed: FILM 3981)
Explores the relationship between actor, director, script and camera. Workshop exercises allow students to explore various modes of working with actors on a film set and during the rehearsal and audition process in order to realize the development of character within the setting of story and script. Limited to 20 students. NOTE: Students who already have credit for ENGL 3980 or FILM 3980 cannot obtain credit for FILM 3981.

MAAC 3998   Film Production   3 ch (3C/WS) (LE)
(Cross-Listed: FILM 3998)
This course introduces students to the processes and technical aspects of motion picture film production. Topics include: 16mm film camera, analog and digital sound recording, lighting for film, film crew roles, budgets, casting and rehearsals, locations, script breakdowns and film forms, and advanced editing. Students will participate in both the production of a short, small-group 16mm film project, and a larger, full-class Super 16mm film project produced as an industry-model film. Taught cooperatively with the New Brunswick Filmmakers' Co-Op and the Film Industry of New Brunswick. Limited to 20 students. NOTE: Students who already have credit for ENGL 3990 "Advanced Film Production" and/or ENGL 3999 "Film and Video Production" cannot obtain credit for MAAC 3998.

MAAC 3999 Editing and Post Production (A)   3 ch (3C/WS)
(Cross-Listed: FILM 3999)
An intensive hands-on course in the theory and application of post-production techniques for digital filmmaking and video production, with a focus on editing for narrative film. The course covers history of film editing, basic techniques, best practices, and changing technologies. Grading is principally based on creative assignments that grow out of engagement with this material.

MAAC 4000   Digital Film Production III   6 ch (6WS)
(Cross-Listed: FILM 4000)
This full year course takes students through the entire process of production of a professional quality short film, from fundraising, budget planning, and pre-production work through the shoot to the final edit and on to the marketing and submission of the film to festivals. Students work together as a production team, taking on a variety of responsibilities while supervised by the instructor. Prerequisite: MAAC /FILM 2999 or permission of the instructor.

MAAC 4001 Advanced Production   3 ch (3C/WS) (LE)
(Cross-Listed: FILM 4001)
Students produce more complex films, developing a project from beginning to end, working on each other's projects, and gaining hands-on experience in a variety of skilled positions on a film's crew. Prereq: MAAC/FILM 2999 or MAAC/FILM 3998, or permission of the instructor.

MAAC 4021   Advanced Studies in   3 ch (3S) [W]
Popular Culture (A)
(Cross-Listed: CCS 4021)
Seminar focusing on theoretical approaches to the study of popular culture. Topics and theories covered may rotate from year to year. Prerequisite: 60 ch and MAAC/CCS 2021, or permission of the instructor.

MAAC 4401   Animation Principles (A)   3 ch (LE)
Examines animated image making across a variety of media (film, TV, games), all of which rely on the Phi Phenomenon identified in Gestalt theory. Small project assignments will introduce students to some common animation tools and course discussions will focus on the application of animation concepts to storytelling. Prerequisites: Students will normally have completed 60 ch. Students who have already completed MM 4401 for credit may not enrol in MAAC 4401.

MAAC 4402   Animation Methods (A)   3 ch (LE)
Considers the practical aspects of storytelling using 3D model-building tools. Students will gain practical experience using current digital animation software such as Autodesk Maya®. Topics considered include modelling, skinning, texturing, lighting, animation, and rendering. Prerequisite: MAAC 4401, or permission from the instructor. Students who have already completed MM 4402 for credit may not enrol in MAAC 4402.

MAAC 4404   Mobile Media (A)   3 ch (3S)
This course explores the impact and influence mobile devices have had, and continue to have, on patterns of life, work and play. Examines the unique media forms and characteristic experiences emerging from the use of smart phones, tablets and other handheld digital devices. Discussions, readings and assignments encourage critical reflection on the relationship between technology and culture in a mobile world. Prerequisite: 60 ch, or permission of the instructor.

MAAC 4405   Creative Mobile App Design (A)   3 ch (3C)
An overview of principles of human interface design for creating, designing, and prototyping applications for smartphones and tablets. Topics covered may include social networking, information access, gaming and creative play. Students explore practical problems associated with planning game-play scenarios, integrating computer-generated imagery, and creating well-designed information displays for mobile devices. Individual project work will focus on all the steps needed to produce a prototype for the app. Mobile devices will be provided for classroom use. Prerequisite: MAAC 4404, or with permission of the instructor. NOTE: Students who have already received credit for MAAC 4403 cannot obtain credit for MAAC 4405.

MAAC 4951   Professional Practice   3 ch
Individual work-study or internship consisting of 80 hours of work in one term on a project for an organization in the community that involves skills and/or ideas directly related to the Media Arts & Cultures program. A faculty member will supervise the progress of the student and a final report on the project undertaken will be evaluated for academic assessment. Subject to faculty and placement availability. Prerequisite: MAAC 3101, and at least 75 ch completed.

MAAC 4952 Professional Practice   3 ch
Individual work-study or internship consisting of 80 hours of work in one term on a project for an organization in the community that involves skills and/or ideas directly related to the Media Arts & Cultures program. A faculty member will supervise the progress of the student and a final report on the project undertaken will be evaluated for academic assessment. Subject to faculty and placement availability. Prerequisite: MAAC 3101, and at least 75 ch completed.

MAAC 4992   Topics in Media Arts & Cultures (O)   3 ch (3S)
An advanced seminar in theory of Media Cultures and/or practice of Media Arts. Topics will vary from year-to-year. Prerequisites: 75 ch, and MAAC 3401, or permission of the instructor. NOTE: Students who already have credit for MM 4992 may not enrol in MAAC 4992.

MAAC 5000   Honours Thesis   6 ch [W]
A reading and research course open to students qualifying for Honours in Media Arts & Cultures. To enrol in this course, students must first arrange for a professor to supervise their thesis. The course will result in the writing of an Honours Thesis, normally 40-60 pages in length. Student may not enroll in both MAAC 5000 and MAAC 5980.

MAAC 5980   Honours Project   6 ch [W]
A reading, research and creative practice course open to students qualifying for Honours in Media Arts & Cultures. To enrol in this course, students must first arrange for a professor to supervise their project. The course will result in the creation of a Media Arts Project along with a 10-15 page Project Paper. Students may not enroll in both MAAC 5000 and MAAC 5980.

MATHEMATICS

See also "Statistics"

1. Calculus Challenge Exam
This examination which is held in early June is open to students registered in a calculus course at a high school that has made arrangements with the Department of Mathematics & Statistics. A fee will be charged.

Students who qualify for credit will receive a certificate entitling them to credit for and therefore exemption from MATH 1003 when they register at UNB. Upon the student's acceptance of the credit (3ch), the letter grade of the exam will be recorded on their transcript.

More information can be obtained from http://www.math.unb.ca or from the Department.

2. Advanced Placement Test
The Science Faculty offers Advanced Placement Tests for some first year science courses, including MATH 1003, during registration week (early September) each year.

More information can be obtained by consulting the Science section of the calendar or by contacting the Science Faculty or the Department of Mathematics & Statistics.

Students should note that in the Science Faculty the minimum acceptable grade in a course which is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is being taken for the first time in the final year

Note: See Courses -> Saint John or Fredericton -> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

MATH 0863   Precalculus Mathematics   0 ch (3C 1T)
A review of high school mathematics topics, including basic properties of number systems, manipulation of algebraic expressions, equations and inequalities, analytic geometry, linear and quadratic functions, polynomial and rational functions, exponential and logarithm functions, trigonometric functions. Note: This course is designed to serve as preparation for calculus courses at the university level, such as Math 1003 and Math 1823. It carries no credit for degree programs at UNB Fredericton.

MATH 1003   Introduction to Calculus I 3ch (4C)
Functions and graphs, limits, derivatives of polynomial, log, exponential and trigonometric functions. Curve sketching and extrema of functions. NOTE: Credit can be obtained for only one of MATH 1003, 1053 or 1823. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Pre-Calculus and Pre-Calculus B 120, or equivalent courses; and a passing score on the Department of Mathematics and Statistics placement test.

MATH 1013   Introduction to Calculus II 3ch (4C)
Definition of the integral, fundamental theorem of Calculus, Techniques of integration, improper integrals. Ordinary differential equations. Taylor polynomials and series. NOTE: Credit may be obtained for only one of MATH 1013 or 1053.Prerequisite: MATH 1003 or 1063. Note that MATH 1823 does not fully prepare students for MATH 1013; consult the Department of Mathematics and Statistics for advice.

MATH 1053   Enriched Introduction to Calculus   3ch (4C)
The syllabus is similar to that for MATH 1003, with more emphasis placed both on the theory of Calculus and interesting applications. The course will be of special interest to students with strong Mathematical backgrounds. Any interested student (with or without High School Calculus) is encouraged to consult with the Mathematics Department. NOTE: Credit may be obtained for only of MATH 1003, 1053 or 1823. Prerequisite: Superior grades (at least 95% recommended) in each of Pre-Calculus A 120 and Pre-Calculus B 120; or a grade of 85% or higher in a Grade 12 Math course that contains some Calculus, or consent of the Department of Mathematics and Statistics.

MATH 1063   Enriched Introduction to Calculus II   4ch (4C)
The syllabus for this course is similar to that of MATH 1013. As with MATH 1053, more emphasis is placed on theory, mathematical rigor and interesting applications. NOTE: Credit may be obtained for only of MATH 1013 or 1063. Prerequisite: A grade of B or higher in MATH 1053, or MATH 1003 with consent of the Department of Mathematics and Statistics.

MATH 1503   Introduction to Linear Algebra   3ch (3C)
Lines and Planes, The Geometry and Algebra of vectors, Systems of linear equations, Matrix Algebra, Linear Independence, Linear Transformations, Determinants, Complex numbers, Eigenvalues, Eigenvectors, Diagonalization, Rotation matrices, Quadratic forms, Least squares. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Pre-Calculus A 120 and Pre-Calculus B 120, or equivalent courses. Note: Credit will not be given for both Math 1503 and Math 2213.

MATH 1823   Calculus for Management Science   3ch (3C 1T)
Polynomial, logarithmic and exponential functions. Limits and derivatives. Extreme values and related rates. Simple integration and differential equations, with stress on applications to business and economics. NOTE: Credit may be obtained for only one of MATH 1003, 1053 or 1823. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Trigonometry and 3-space, Advanced Math with an Introduction to Calculus, or equivalent courses.

MATH 1833   Finite Mathematics for Management Science   3ch (3C)
Matrices and systems of linear equations. Linear programming concepts; graphical solution of two variable problems. Permutations and combinations. Elementary probability. Mathematics of finance. NOTE: Credit for MATH1833 will not be given if the student has previously taken either MATH 1503 or MATH 2213. Prerequisite: A minimum grade of 60% in New Brunswick high school courses: Pre-Calculus 110 or Foundations of Mathematics 120, or an equivalent course.

MATH 2003   Intermediate Mathematics I   3ch (3C 1T)
Analytic geometry and vectors. Parametric curves. Polar, cylindrical and spherical coordinates. Functions of several variables, partial derivatives, applications to max-min. Double and triple integrals. Prerequisite: MATH 1013 or MATH 1063. Note: Credit may not be obtained for both MATH 2003 and MATH 2513.

MATH 2013   Intermediate Mathematics II   3ch (3C 1T)
Review of first order differential equations. Second order linear O.D.E.'s. Infinite series, including power series solutions to O.D.E.'s. Line and surface integrals. Theorems of Green and Stokes. Divergence Theorem. Prerequisite: MATH 2003.

MATH 2203   Discrete Mathematics   3ch (3C)
Logic, methods of proof, mathematical induction, elementary set theory, functions and relations. NOTE: This course is designed for students desiring a good grounding in the foundations of mathematics. Theorems and proofs are an important part of the course. Credit will not be given for both MATH 2203 and CS 1303. Students majoring in Mathematics must take MATH 2203. Prerequisite: MATH 1063 or MATH 1013 or permission of instructor. NOTE: It is strongly recommended that students should have at least a grade of B in MATH 1013 or MATH 1063 to take this course.

MATH 2213   Linear Algebra I   3ch (3C)
This course introduces the basic concepts of linear algebra, mainly in finite dimensional real vector spaces. Systems of linear equations, vector and matrix algebra, bases and dimension of subspaces, row and column spaces, linear transformations and matrix representations, inner products, determinants, eigenvectors and diagonalization. Applications as time permits. Prerequisite: MATH 1013, or MATH 1053, or both MATH 1823 and 1833. This course may also be taken with the consent of the instructor. Interested first year students are encouraged to enquire. Note: Credit will not be given for both MATH 1503 and MATH 2213.

MATH 2513   Multivariable Calculus for Engineers   4ch (4C)
Functions of several variables, partial derivatives, multiple integrals, vector functions, Green's and Stokes' Theorems. Prerequisite: MATH 1013 and MATH 1503. Note: Credit may not be obtained for both MATH 2003 and MATH 2513.

MATH 2623   Introduction to Mathematical Thinking   3ch (3C)
An introduction to mathematical thinking. Content varies, and is focused on presenting mathematics as a living, creative discipline. A sample of topics: patterns and symmetry, tiling, non-Euclidean geometry, chaos and fractals, planetary motion, binary numerals, prime numbers, Fibonacci numbers, voting systems, the calendar. Not available for credit to students with a Major in Mathematics/Statistics. Prerequisite: Successful completion of at least one year of a university program.

MATH 2633   Fundamental Principles of Elementary   3ch (3C 1L)
School Mathematics
This course is intended for students who anticipate a career as an elementary or middle school teacher. The course focuses on topics taken from the K-8 curriculum with extensions beyond classroom topics to show the 'how' and 'why' behind school mathematics. The major topics are problem solving, number concepts, number and relationship operations, patterns and relations, shape and space, as well as data management and probability. Intended for students registered in arts programs. Not available for credit to students who would have 6ch of Level 1000 mathematics in their degree programs. Antirequisite: MATH 3633. Prerequisite: Successful completion of at least one year of a university program.

MATH 3003 Applied Analysis 3ch (3C)
Vector spaces of functions, convergence in normed linear spaces, orthogonal polynomials, Fourier series, Fourier transform, Fast Fourier transform, introduction to wavelets, and selected applications. Prerequisites: MATH 2013 or MATH 3503, and MATH 2213 or MATH 1503 (MATH 3213 recommended). NOTE: Credit will not be given for both MATH 3003 and MATH 3113.

MATH 3033 Group Theory 3ch (3C)
Groups are the mathematical objects used to describe symmetries. This course covers the fundamentals of group theory, together with applications selected from chemistry, geometry, advanced algebra and physical sciences. Prerequisites: MATH 2203 or CS1303, and MATH 2213 or MATH 1503 (MATH 3213 recommended). Other interested students are encouraged to seek consent of the instructor.

MATH 3043 Ordinary Differential Equations 3ch (3C)
First order equations, linear systems, variation of parameters, method of undeterminedcoefficients, Laplace transforms, power series solutions, fundamental matrix solution. Existence and uniqueness of solutions, properties of linear systems, eigenvalue problems, vector fields, phase-plane analysis, Liapunov method. Prerequisite: MATH 2013 or MATH 2513. NOTE: Credit cannot be obtained for both MATH 3043 and MATH 3503.

MATH 3063 Geometry 3ch (3C)
Axiomatic systems, non-Euclidean geometry, transformations in geometries, topological properties of figures. As well as serving mathematics majors, this course will be of particular benefit to prospective mathematics teachers. Prerequisite: MATH 1503 or MATH 2213, or permission of the instructor. Other interested students are encouraged to enquire.

MATH 3073 Partial Differential Equations 3ch (3C)
Methods of solution for first order equations. Classification of second order equations. Characteristics. Analytic and numerical methods of solution for hyperbolic, elliptic and parabolic equations. Prerequisite: MATH 2013 or both MATH 2513 and 3503.

MATH 3093 Elementary Number Theory 3ch (3C)
Primes, unique factorization, congruences, Diophantine equations, basic number theoretic functions. As well as serving mathematics majors, this course will be of particular benefit to prospective mathematics teachers.

MATH 3103 Analysis I 3ch (3C)
The real number system, metric spaces, sequences and series, continuity Prerequisites: MATH 2013, 2203, and MATH 2213 or 1503.

MATH 3113 Analysis II 3ch (3C)
Differential calculus, integration, sequences and series of functions, completeness of basis, convergence of Fourier Series, Fourier Transforms. Additional topics may include differentialforms or wavelets and wavelet transforms. Prerequisite: MATH 3103. NOTE: Credit will not be given for both MATH 3003 and MATH 3113.

MATH 3213 Linear Algebra I 3ch (3C)
Finite and infinite dimensional vector spaces over general fields. Subspaces, independent and spanning sets, dimension, linear operators, determinants, inner product spaces. As time permits, applications selected from least squares approximation, Markov chains, data compression, traffic flow, robotics, genetics, graph theory, cryptography.Prerequisite: MATH 2213 or MATH 1503 or consent of the instructor.

MATH 3243 Complex Analysis 3ch (3C)
Complex analytic functions, contour integrals and Cauchy's theorems; Taylor's, Laurent's and Liouville's theorems; residue calculus. Prerequisites: MATH 2003, MATH 2013 or equivalent.

MATH 3333 Combinatorial Theory 3ch (3C)
Topics selected from: Principle of inclusion and exclusion, Mobius inversion, generating functions, systems of distinct representatives, Ramsey's Theorem, duality in external problems, duality in programming, dynamic programming, block designs, introduction to matroid theory, signal-flow graphs. (The course is also of interest to students in Computer Science and Engineering.) Prerequisite: MATH 1003, 1823 or 1833.

MATH 3343 Networks and Graphs 3ch (3C)
Graphs, Euler paths, tournaments, factors, spanning trees, applications, electric networks and Kirchhoff's laws, matroids, kernels, Grundy function and application to game theory,Menger's theorem, flows in networks, flow algorithms. Prerequisite: MATH 1003, 1823 or 1833 and MATH 2203 or CS 1303.

MATH 3353 Computational Algebra (O) 3ch (3C)
Topics in abstract algebra are approached from the perspective of what can be computed using such software packages as Maple, Macaulay and GAP. The topics covered will be selected from: Grobner bases, resultants, solving polynomial equations, invariant theory of finite groups, and the exact solution of differential equations. The course work will include a mixture of problem sets emphasizing theory and practical lab assignments. Prerequisites: one of MATH 1013 or MATH 1063, and one of MATH 1503 or MATH 2213.

MATH 3363 Finite Mathematics (A) 3ch (3C)
Applications of algebraic and combinatorial methods to a selection of problems from coding theory, computability, information theory, formal languages, cybernetics and the social and physical sciences. Prerequisite: 12 ch in Math and/or Stat.

MATH 3373 Introduction to Game Theory 3ch (3C)
Strategic games, n-person games in normal forms, dominated strategies, Nash equilibrium, mixed strategies and mixed strategy equilibrium, games with perfect information, games with imperfect information, Bayesian games, extensive games. The course introduces basic non- cooperative game theory and analytical tools for decision makers (consumers, firms, politicians, governments). It is suitable for Mathemtics, Economics, Computer Science, Management Science, Political Science, Social Science and Science students or any student with a minor in such disciplines, in particularthose in the Mathematics/Statistics-Economics option. Note: this course is cross-listed as ECON 4673. Students cannot obtain credit for both MATH 3373 and ECON 4673 (or 5673). Prerequisites: MATH 1823 and MATH 1833; or MATH 1003 and MATH 1013; or MATH 1053 and MATH 1063; or ECON 3013; or permission of the instructor.

Math 3383 Introduction to Mathematical Logic 3ch (3C)
The course introduces the basic concepts of mathematical logic, including the Axiom of Choice and its equivalents; propositional logic; languages and structures, axioms and theories, models; elements of model theory (Completeness, Compactness, Löwenheim-Skolem theorems, nonstandard models); theory of computability (Church-Turing Thesis, recursive functions and sets, recursively enumerable sets, decision problems, the Halting Problem); Gödel's Incompleteness Theorems. Prerequisites: Math 1013; and either Math1503 or Math 2213; and either Math 2203 or CS 1303.

MATH 3413 Introduction to Numerical Methods 3ch (3C)
Intended for Mathematics, Science or Engineering students. Error analysis, convergence and stability. Approximation of functions by polynomials. Numerical quadrature and differentiation. The solution of linear and nonlinear equations and the solution of ordinary differential equations. This course will emphasize the understanding of numerical algorithms and stress applications in the applied sciences, as well as the influence of finite precision and arithmetic on computational results. Credit will not be given for both MATH 3413 and CS 3113. Prerequisites: CS 1003 or CS 1073 and MATH 2213 or MATH 1503.

MATH 3473 Mathematical Modelling (A) 3ch (3C)
This course is intended to develop skills in translating a problem in the real world to a well formulated mathematical problem. The basic techniques and tools for model formulation, model analysis, numerical simulation and model interpretation will be offered. Project topics will be chosen from Biology, Physics, Chemistry, Mechanics, Engineering, Economics and elsewhere. Prerequisites: MATH 1013 and permission of the instructor.

MATH 3503 Differential Equations for Engineers 3ch (3C 1T)
Nonhomogeneous differential equations, undetermined coefficients, variation of parameters, systems of 1st and 2nd order ordinary differential equations, Laplace transforms, Fourier series. Prerequisite: MATH 1503 or 2213. Co-requisite MATH 2513 or MATH 2003. NOTE: Credit cannot be obtained for both MATH 3503 and MATH 3403.

MATH 3543 Differential Geometry for Geomatics Engineers 3ch (4L 1T)
Basic analytic geometry, spherical trigonometry, geometry of curves in space, measurements on surfaces, Gaussian surface geometry. Prerequisites: MATH 2513.

MATH 3623 History of Mathematics (A) 3ch (3C) [W]
A non-technical survey of the development of mathematics from primitive peoples through Indian, Oriental, Babylonian, Egyptian and Greek cultures. More emphasis will be placed on Western European and post-Renaissance mathematics, and recent (post-1940) history. An attempt is made to discuss each new mathematical contribution in light of both past mathematics and social scientific forces of the day. Some background in Mathematics necessary. Prerequisite: 12 ch in Math and/or Stat.

MATH 3633 Fundamental Principles of School Mathematics I. 3ch (3C)
A course for undergraduate students who anticipate a career as teachers. Topics build around the K-12 syllabus, with extensions beyond the classroom, to show the 'how' and 'why' behind school mathematics. Mathematical language; real numbers and other mathematical structures; Euclidean geometry; functions; mathematical connections; problem solving. Prerequisite: 6 ch of university mathematics.

MATH 3803 Introduction to the Mathematics of Finance 3ch (3C)
Measurement of interest, compound interest, annuities, amortization schedules and sinking funds, bonds. Prerequisite: MATH1013 or a grade of B or better in MATH 1823.

MATH 3813 Mathematics of Finance II (O) 3ch (3C)
A more advanced study of the topics in MATH3803 including varying and continuous annuities and yield rates. Prerequisite: MATH3803 with a grade of B or better.

MATH 3843   Introduction to Life Contingencies (O)   3ch (3C)
Survival distributions, general life insurances and life annuities, reserves. Joint annuities and last survivor annuities. Prerequisite: One term of statistics and MATH 3803.

MATH 4023   Functional Analysis (O)   3ch (3C)
Normed spaces, the Hahn-Banach theorem, uniform boundedness theorem. The contraction mapping theorem. Existence and uniqueness for nonlinear differential equations. Further topics may include Wavelets or Banach spaces. Prerequisite: Any two of MATH 3003, 3103, 3113, or permission of the instructor.

MATH 4043   Advanced Algebra (A)   3ch (3C)
Prime fields and characteristic, extension fields, algebraic extensions, theory of finite fields, Galois theory, and topics which may include some of: rings, topological algebra, multilinear and exterior algebra, quadratic forms. Prerequisites: MATH 3033.

MATH 4063   Advanced Geometry (O)   3ch (3C)
A deeper investigation of Euclidean and Non-Euclidean spaces of any dimension. Topics selected from: axiom systems, linear and affine transformations, conformal and linear models for Euclidean and hyperbolic spaces and their isometry groups, basic theory of convexity, combinatorial properties of polytopes. Prerequisites: One of MATH 2213, MATH 2003, MATH 2513, or MATH 3063.

MATH 4100   Honours Project   6ch [W]
Mathematics Honours students must complete a project under the supervision of a faculty member. The project is to include a written report and an oral presentation. Prior to being admitted into MATH 4100, the student must have been admitted to the Honours Program and have submitted an acceptable project proposal to the department. Normally students would begin preparation and research for the project during their third year of study, submit the proposal by October of their fourth (final) year of study, and complete the written and oral presentation by the end of the winter term, to graduate in May of that year. Honours students in an interdepartmental program with mathematics may choose to complete their honours project in mathematics.

MATH 4103   Measure Theory and Wavelets (O) 3ch (3C)
Brief review of Riemann integration. Algebras of sets, outer measure, measure, measurable sets, measurable functions, the Lebesgue integral, properties of the Lebesgue integral, abstract measure spaces, integrals and derivatives, sequences of integrals, Fubini's theorem. Properties of Fourier transforms, multiresolution analysis, Daubechies wavelets. Prerequisite: One of MATH 3003, MATH 3103, or permission of the instructor.

MATH 4123   Advanced Linear Algebra (O)   3ch (3C)
The theory of vector spaces and linear transformations, dual spaces, multilinear maps (including tensors and determinants); further topics chosen from canonical forms, metric vector spaces, algebras, etc. Prerequisites: MATH 3213.

MATH 4142   Introduction to Dynamical Systems (O)   3 ch (3C)
Many of the processes studied in science, engineering and economics are described by nonlinear of differential equations. This course introduces qualitative methods to find essential information about the solutions of nonlinear equations without necessarily attempting to find the solution completly. Topics include flows, stability, phase plane analysis, limit cycles, bifurcations, chaos, attractors, maps, fractals. Applications throughout. Prerequisites: MATH 3043, or both MATH 2513 and MATH 3503, or permission of the instructor.

MATH 4153   Topology (O)   3ch (3C)
A continuation of the topological concepts introduced in MATH 3103. Basic results in pointset topology. Prerequisites: MATH 3103.

MATH 4413   Fluid Mechanics (O)   3ch (3C)
Derivation of the Equations of Motion: Euler's equations, rotation and vorticity, Navier-Stokes equations. Potential Flow: complex potentials, harmonic functions, conformal mapping, potential flow in three dimensions. Slightly Viscous Flow: boundary layers and Prandtl boundary layer equations. Gas Flow in one dimension: characteristics and shocks. Prerequisite: MATH 2013 or equivalent.

MATH 4423   Mathematical Theory and Control (O)   3ch (3C)
Topics selected according to the interests of students and faculty which may include the following: optimal control of linear systems, Pontryagin's maximum principle, controlability,observability, distributed parameter systems, differential games, stochastic systems. Prerequisite: MATH 2003-2013 or equivalent.

MATH 4433 Calculus of Variations (O)   3ch (3C)
Introduction to functionals and function spaces. Variation of a functional. Euler's equations, necessary condition for an extremum, case of several variables, invariance of Euler's equation, fixed end point problem for unknown functions, variational problems in parametric form, functionals depending on high order derivatives. Prerequisite: MATH 2013 or equivalent.

MATH 4443   Introduction to Quantum Field Theory (O)   3ch (3C)
Relativistic quantum mechanics. The negative energy problem. Classical field theory, symmetries and Noether's theorem. Free field theory and Fock space quantization. The interacting field: LSZ reduction formula, Wick's theorem, Green's functions, and Feynman diagrams. Introduction to Quantum electrodynamics and renormalization. This course is cross-listed as PHYS 4938. Credit cannot be obtained for both MATH 4443 and PHYS 4953. Prerequisites: MATH 3003, PHYS 3351, and one of MATH 3043, 3503, PHYS 2312, 3331, or permission of instructor.

MATH 4453   Special Functions (O)   3ch (3C)
Covers in depth those functions which commonly occur in Physics and Engineering, namely, the Gamma, Beta, Bessel, Legendre, hypergeometric, Hermite and Laguerre functions. Additional or alternative special functions may be included. Applications to Physics and Engineering will be discussed. Prerequisite: MATH 3043 or MATH 3503 or equivalent.

MATH 4473   Introduction to Differential Geometry (A)   3ch (3C)
Geometry of embedded curves and surfaces, n-dimensional manifolds, tensors, Riemannian geometry. Prerequisites: MATH 2013 or equivalent

MATH 4483   Introduction to General Relativity (A)   3ch (3C)
Along with quantum theory, general relativity is one of the central pillars of modern theoretical physics with a wide-ranging implications for astrophysics and high energy physics. The essential idea is that gravitation is a manifestationof the curvature of spacetime rather than a force in the Newtonian sense. This course will provide students with a basicworking understanding of general relativity and an introduction to important applications such as black holes and cosmology. Contents: review and geometric interpretation of special relativity, foundations of general relativity , linearized gravity and classical tests, black holes, cosmology. Note: this course is cross-listed as PHYS 4983. Credit cannot be obtained for both MATH 4483 and PHYS 4983. Prerequisites MATH 4473 or permission of instructor.

MATH 4503   Numerical Methods for   3ch (3C)
                   Differential Equations
The numerical solution of ordinary differential equations, and partial differential equations of elliptic, hyperbolic and parabolic type. The course is a basic introduction to finite difference methods, including the associated theory of stability, accuracy and convergence. Students will gain practical experience using state-of-the-art numerical solvers and visualization tools, while solving practical problems from the physical and biological sciences. Cross-listed as CS 4115. Prerequisites: One of: MATH 3043, MATH 3073, MATH 3413, MATH 3503, CS 3113, CHE 3418, or ME 3522.

MATH 4563   Mathematical Biology (A)   3 ch (3C)
Overview of the field of Mathematical Biology. Development, simulation and analysis of mathematical model describing biological systems. Equal emphasis is placed on developing simple models and case studies of successful models. The prinicipal mathematical tools are differential and difference equations, finite mathematics, probability and statistics . This course is intended for students in their third or fourth year having an interest in biological research. Prerequisites: a course in statistics, MATH 2003 or 2013 or equivalent, or permission of the instructor. This course is cross-listed as BIOL 4563. Credit may not bed obtained for both MATH 4563 and BIOL 4563.

MATH 4633   Calculus Revisited (O)   3ch (3C)
A course for high school mathematics teachers. The course is built around a set of optimization problems, whose solution requires review of topics in first and second year calculus and linear algebra. Connections are made with topics in the Common Atlantic High School Mathematics Curriculum. Prerequisite: Permission of Instructor.

MATH 4643   Formal Languages (O)   3ch (3C)
Brief history of structural linguistics. Introduction to mathematical methods of linguistics. Finite state automata, regular languages. Computability. Chomsky hierarchy. Phrasestructure grammars. Artificial intelligence problem. Critiques of structural linguistics. Prerequisite: Permission of the instructor. MATH 2203 or CS2333 recommended.

MATH 4853   Mathematics of Financial Derivatives (A)   3ch (3C)
Basics of options, futures, and other derivative securities. Introduction to Arbitrage. Brief introduction to partial differential equations. Stochastic calculus and Ito's Lemma. Option pricing using the Black-Scholes model. Put-call parity and Hedging. Pricing of European and American call and put options. Numerical methods for the Black-Scholes model: binary trees, moving boundary problems, and linear complementarity. The barrier, and other exotic options. Prerequisites: CS 1073 or experience with a computer programming language, and either MATH 3503 and STAT 2593, or MATH 2013, 2213, and STAT 3083.

MATH 4903   Independent Study in Mathematics   3ch
Topics to be chosen jointly by student, advisor, and Department Chair. May be taken for credit more than once. Title of topic chosen will appear on transcript. Prerequisite: Permission of Department.

MECHANICAL ENGINEERING

Note: See beginning of Section H for abbreviations, course numbers and coding.

All courses must be passed with a grade of C or better. All pre-and co-requisites are strictly enforced.

L* = Laboratory periods on alternate weeks.
T*- Tutorial periods on alternate weeks.
* = Engineering electives. Not all offered every year. Consult Department as to availability of courses from year to year at web site: http://www.me.unb.ca.

ME 1312   Computer Aided Design   4 ch (2C 3L)

Introduces the technology of 3D parametric geometric modeling to design and model mechanical engineering parts, assemblies and devices. Geometric variables and their interrelationships will be covered by projects involving the design of mechanical components, assemblies and machines to meet functional requirements. Manufacturing requirements including Geometric Dimensioning and Tolerancing. The use of the model for analysis, optimization and simulation will be stressed. Presentation of the model through engineering drawings and pictorial renderings. Animation of mechanisms. A comprehensive commercial CAD program will be utilized. Prerequisite: ENGG 1003. Corequisite: MATH 1503

ME 2003   Dynamics for Engineers   4 ch (3C 2L 1T)

The dynamic analysis of linear particle systems based on momentum. The analysis of centroids and moments of inertia for rigid bodies. Introduction to the rotation of a rigid body about a fixed axis, motion of a rigid body in a plane. The dynamic analysis of a rigid body with general planar motion using Newton's second law, work and energy, momentum and angular momentum. Prerequisite: ENGG 1062. Co-requisite: MATH 1003, (MATH 1503, or MATH 2213, or equivalent). 4 ch (3C 2L 1T)

ME 2111   Mechanics of Materials I   3 ch (3C 1T)

Basic concepts, uniaxial stress and strain, Hooke's law, torsion, pure bending, bending design, shear flow, transverse loads, stress and strain transformation, Mohr's circle, strain measurement. Corequisite: ME 2003 or APSC 1023.

ME 2122   Mechanics of Materials II   3 ch (3C 2T*)

Fatigue, yield criteria, thin-wall pressure vessels, strength and deflection of beams, buckling of columns, instability, indeterminate beams, energy methods, Castigliano's theorem. Prerequisite: ME 2111 or ME 2121 or CE 2023.

ME 2125   Mechanics of Materials   1 ch (2L*) [W]
               Design Project

Analysis of the strength of a mechanical device. Shapes and materials will be modified to meet deflection and stress limits. Written reports will document choices made and assessment of design. Group oral reports. Prerequisite: ME 2111 or ME 2121 or CE 2023. Co-requisite: ME 2122.

ME 2143   Kinematics and   3 ch (3C 2T*)
               Dynamics of Machines

Fundamental concepts of linkages; displacement, velocity and acceleration analysis using graphical and analytical methods. Static and dynamic force analysis of linkages. Design of cams, gears and gear trains; including ordinary and planetary gear trains. Balancing rotating masses. Simple gyroscopic effects. Prerequisite: ME 2003 or APSC 1023. Recommended: CS 1003 or other introductory programming course.

ME 2145   Kinematics and Dynamics   1 ch (2L*)[W]
               Design Project

Student groups to design and build working model of planar linkage mechanism, based on a mechanical application. Cooperation and project management skills. Written reports to document choices made; evaluation of working model performance; and position, velocity, acceleration and force analyses. Group oral reports. Prerequisite: ME 2003 or APSC 1023. Co-requisite: ME 2143. Recommended co-requisite: ME2352 or ME 3352.

ME 2222   Manufacturing Engineering   4 ch (3C 2L)

Introduction to manufacturing processes; design criteria for material and process selections. Fundamentals of mechanical behaviour of materials, particularly the yield behaviour under triaxial stresses. Crystal structures; failure modes and the effect of various factors; manufacturing properties of metals. Surface structure and properties; surface texture and roughness; friction, wear, and basic lubrication; surface treatment design. Metal casting processes and equipment; casting design; heat treatment design. The laboratory exercises are: heat treatment, precipitation strengthening, Jominy, centrifugal casting, and impact toughness test. Prerequisite: (CHE 2501 and CHE 2506) or CHE 2503.

ME 2352   Design Optimization   4 ch (3C 2L)

Optimization of any design is essential either to remain competitive or to improve product efficiency and quality. Several optimization methods are presented through a variety of mechanical design and industrial engineering problems. Topics include: single and multi-variable unconstrained optimization, linear programming, transportation, assignment and network problems. Other topics such as constrained and global optimization are introduced. Prerequisites: CS 1003, MATH 1003 and MATH 1503.

ME 3232   Engineering Economics   3 ch (3C)

Application of engineering economic analysis to mechanical and industrial engineering systems. Major emphasis will be given to decision-making based on the comparison of worth of alternative courses of action with respect to their costs. Topics include: discounted cash flow mechanics, economic analyses, management of money, economic decisions. Restricted to students with at least 60 ch.

ME 3341   Machine Design   3 ch (3C 2T*)

Review of design process. Safety, environmental and sustainability issues of machine design. Design of shafts, power screws, threaded fasteners. Tolerances and fits. Contact stresses. Lubrication, journal bearings and rolling element bearings. Gearing design: spur, helical, bevel and worm gearing. Critical speeds of rotating systems. Couplings, seals. Prerequisite: ME 2143 and ME 2122 . Recommended: STAT 2593 or STAT 2264.

ME 3345   Machine Design Project   1 ch (2L*) [W]

Applies many topics of first 2 years in mechanical engineering. Practical aspects of detailed machine design project in team environment. Student groups to design, build and test a mechanical device for a client. Written reports will document choices made and assessment of design. Group oral reports. Prerequisite: ME 1312, ME 2122, ME 2145. Co-requisite: ME 3341.

ME 3413   Thermodynamics   3 ch (3C 1T)

Properties of a pure substance -- work and heat. First law and applications in non-flow and flow processes. Second law and reversibility: entropy, applications of the second law to non-flow and flow processes. Analysis of thermodynamic cycles: Otto and Diesel cycles. Thermodynamic relationships. Prerequisites: CHEM 1982, MATH1013. Co-requisite: MATH 2513.

ME 3415   Thermodynamics Laboratory   1 ch (3L*) [W]

Laboratory experiments and measurements related to Thermodynamics Laboratory reports and readings are assigned. Corequisite: ME 3413.

ME 3433   Heat Transfer I   3 ch (3C 1T)

Conduction: One dimensional steady conduction and applications. Thermal properties. The differential equations of conduction; analytic and numerical solutions to two dimensional problems and applications. Unsteady conduction lumped and differential approaches with applications. Temperature measurement. Convection: Dynamic similarity and dimensional analysis; boundary layer theory and applications to flow over heated/cooled surfaces; laminar and turbulent flow-free convection. Heat transfer with change of phase. Radiation: the laws of black body radiation; Kirchhoff's law and gray body radiation. Combined modes of heat transfer: heat exchanger design; augmentation of heat transfer; fins and thermocouples. Environmental heat exchange. Equivalent to CHE 3304. Prerequisite: ME 3413, ME 3415, (ME 3511 or ME 3513).

ME 3435   Heat Transfer I Laboratory   1 ch (3L*) [W]

Laboratory experiments and measurements related to Heat Transfer I. Laboratory reports and readings are assigned. Prerequisites: (ME 3415 and ME 3515) or CHE 2412. Corequisite: ME 3433 or CHE 3304.

ME 3511   Fluid Mechanics   3 ch (3C)

The principles of fluid mechanics are introduced and methods are presented for the analysis of fluid motion in practical engineering problems. Specific topics include: fluid statics; integral balances of mass, momentum, angular momentum and energy; boundary layer theory and introduction to the Navier-Stokes equations; dimensional analysis; and liquid flow in piping networks with pumps and turbines. Pressure and flow measurement and experimental uncertainty. Prerequisite: ME 2003 or APSC 1023. Co-requisite: MATH 2513.

ME 3515   Fluid Mechanics Laboratory   1 ch (3L*) [W]

Laboratory experiments and measurements related to Fluid Mechanics I. Laboratory reports and readings are assigned. Corequisite: ME 3511.

ME 3522   Applied Fluid Mechanics   2 ch (2C 1T)

The performance and selection of hydraulic pumps and turbines, the lift and drag on immersed objects, and compressible flow in piping and nozzles. Prerequisites: ME 3413, (ME 3511 or ME 3513), ME 3515.

ME 3524   Fluid Systems and Design   2 ch (1C 1L) [W]

Students work in groups on design projects that apply fluid mechanics. Examples include: pump and turbine selection; piping for conveyance of gases and liquids; gas and steam nozzles; lift and drag on air and water craft, land vehicles and projectiles; fluid forces on solid structures. Prerequisites: ME 3413, (ME 3511 or ME 3513), ME 3515. Corequisite: ME 3522.

ME 3613   Systems Dynamics   4 ch (3C 1L* 1T)

System concepts. Development and analysis of differential equation models for mechanical, electrical, thermal, and fluid systems, including some sensors. Systems are primarily analyzed using Laplace transforms and computer simulation methods. Analysis concepts cover first, second, and higher order differential equations, transient characteristics, transfer functions, stability, dominance, and frequency response. Properties of systems: time constant, natural and damped frequency, damping ratio. Prerequisites: APSC 1023, (CS 1003 or CS 1073), (ECE 1013 or ECE 1813 or EE 1013 or EE 1813), MATH 3503. Recommended: ECE 2701 or EE 2701.

ME 3623   Automatic Controls I   4 ch (3C 1L* 1T)

Philosophy of automatic control; open loop, sensitivity, components of a control loop; closed loop control, error analysis. Design of P, I, PI, and PID-controllers based on closed-loop specifications. Stability criteria: Routh-Hurwitz. Lead/lag controller design using Root Locus and Bode diagrams. Sensor frequency response to classical inputs. Application of electronics and sensors to control systems based on frequency response. Basic digital analysis including digitization, sampling, aliasing, A/D and D/A devices, and phase loss due to time delays. Prerequisite: ME 3613.

ME 4173*   Robot Kinematics   4 ch (3C 2L* 2T*)

Structure and specification of robotic manipulators. Homogeneous transformations and link descriptions. Manipulator forward and inverse displacement solutions. Jacobians in the velocity and static force domains. Singular configurations and workspace analysis. An introduction to trajectory planning and manipulator dynamics. Lab experiments explore several robotic manipulators. Prerequisites: MATH 1503 and ME 2143.

ME 4243*   Advanced Manufacturing Methods   4 ch (3C 3L*)

An advanced course in methods of manufacturing engineering materials. Technical and theoretical bases of manufacturing methods. Material behaviour during processing. Computer simulation. High speed forming; sheet metal forming; forming limit diagrams. Prerequisites: ME 2122, ME 4283.

ME 4283   Manufacturing Engineering II   4 ch (3C 3L*)

Principles and physical phenomena of the basic manufacturing processes. A review of the attributes of manufactured products will precede lectures on forging, sheet metal working, machining and joining. Material behaviour during manufacturing. Processing of polymers, particulate metals and ceramics is presented. Design of manufacturing systems and the design of components based on criteria and constraints of manufacturing systems and equipment is included in each topic area of the course. A combination of lectures and experimental labs round out the course content. Prerequisites: ME 2121 or ME 2122, ME 2222.

ME 4421   Applied Thermodynamics   2 ch (2C 1T)

Air standard cycles: Open and closed gas turbine cycles with reheat, regenerative heat exchange and pressure drop. Steam power plants: analysis of vapor power systems, Rankine cycle, reheat and regenerative cycles; binary and nuclear plant cycles, power plant performance parameters, exergy accounting of a vapor power plant. Basic analysis of combined cycle power plants. Refrigeration systems. Properties of gas and vapor mixtures, psychrometric principles, air-conditioning processes. Combustion: fuels, chemical equations, experimental analysis and the products of combustion. Prerequisites: ME 3413, ME 3415. Recommended: ME 3433, ME 3435, ME 3522, ME 3524.

ME 4424   Thermal Systems Design   2 ch (1C 2L) [W]

Project oriented course dealing with the design of energy systems that meet regional and global energy needs in the 21st century in a sustainable manner. A combination of conventional and renewable energy technologies will be presented, including topics on resources, extraction, conversion, and end-use. The impact of engineering design on the environment, society, and sustainable development is discussed. Projects will focus on the improved design of both conventional and renewable energy systems with the aim of improving overall efficiency while minimizing the environmental and social impact. Prerequisites: ME 3413 , ME 3415 , ME 3433 , ME 3435 , ME 3522 , ME 3524 . Co-requisite: ME 4421 .

ME 4613   Mechanical Vibration   4 ch (3C 3L*)

Review of single degree-of-freedom vibration: free response, damping, forced response. Multiple-degree-of-freedom systems. Design for vibration suppression. Distributed parameter systems; wave propagation. Vibration testing and experimental modal analysis including transducers and FFT analysis. Vibration of rotating machinery, balancing, condition monitoring, and predictive vs. preventative maintenance philosophies. Prerequisites: ME 3613 and Math 3503.

ME 4622*   Human Factors Engineering   3 ch (2C 3L)
(Cross-Listed: FE 4622)

An interdisciplinary study of the interaction of humans and their workspace. Physiological principles of work and energy. Anthropometry. Biomechanics. The ergonomics of workspace and job design. Fatigue. Work/rest schedules and nutrition. The physiological and psychological effects on humans of noise, vibration, lighting, vision, and the workspace environment. Lab periods include seminars and practical design exercises applying human factors and ergonomic theory to workspace problems. Prerequisite: Restricted to students with at least 65 credit hours.

ME 4673   Introduction to Mechatronics   4 ch (3C 2L)

Mechatronics is an integrated approach to mechanical, electronic and computer engineering for the design of "smart" products and "intelligent" manufacturing systems. Fundamentals of mechatronics design, with emphasis on product design and fabrication. Examples of mechanical systems utilizing sensors and actuator technologies, including use of signal conditioning circuits such as filters, amplifiers and analog-to-digital converters. Software design and implementation for process monitoring and logic control. Laboratory experiments give hands-on experience with components and equipment used in the design of mechatronic products. Project to design and fabricate a mechatronic system. Prerequisites: ECE 2213 or (ECE 2214 and ECE 2215), ECE 3111 or EE 3111, ME 3341 and ME 3613.

ME 4683   Mechatronics Applications   4 ch (3C 2L)

Concepts in automating processes. Programmable logic controller (PLC) architecture, PLC programming with mathematical functions, and PLC interfacing. Microprocessor selection, programming and interfacing for system automation and control. Project involving use of PLC or microprocessor technology in a mechatronics system. Prerequisite: ME 4673.

ME 4703*   Mechanical Engineering   3 ch (3C 2L)
**   Measurements**

Discusses a variety of measurement techniques used in Mechanical Engineering. Topics include analog and digital measurement systems, frequency response, calibration and assessment of uncertainty. The focus is on the analysis and design of measuring instruments. Laboratory exercises include measures of time and rate, displacements, stress and strain, force, pressure, flow, temperature, and vibrations. Pre-requisites: ME 2111 and ME 3613 or permission from the instructor.

ME 4860   Senior Design Project   6 ch (1WS 4L) [W]

A mechanical engineering design is developed and documented in the form of a technical report. Students normally work in approved teams. Industrial projects are developed in cooperation with industry and may require some period of time on site. University-based projects are developed in cooperation with university faculty. The first stage of this process involves definition of the project topic, background studies, and development of a conceptual design. An oral examination is conducted towards the end of the first term, and a written preliminary report is submitted. In the second term, a detailed design is prepared, the project is completed and orally examined, and a final report is submitted. One of the laboratory weekly hours is designated for a scheduled meeting with project advisor(s). Workshops involve practice exercises, relevant to student projects, on: problem definition and formulation, project planning, teamwork, information and communication; conceptual, parametric and configuration designs; and professional, environmental, social, human factors, and safety aspects of design. Restricted to students who have completed at least 110 ch in their program. Prerequisite: ME 3341 and ME 3345. Recommended prerequisite: ME 3524. Co-requisite: ME 4861. Prerequisite for Mechatronics Option students: ME 4673.

ME 4861   Mechanical Healthy and Safety   1 ch (1*C) [W]

Accidents, their effects and causation. Mechanical hazards and machine safeguarding. Temperature extremes. Pressure hazards. Fire hazards, Noise and vibration hazards. Computers, automation and robots. Ethics and safety.Co-requisite: ME 4860 or ENGG 4025 or TME 5025.

ME 5173*   Advanced Kinematics of Manipulators 4 ch (3C 3L*)

Various methods for solving the forward and inverse displacement problems are described. Particular emphasis is made on the use of screw theory for the derivation of the Jacobian matrix. The selection of alternate frames of reference for describing the Jacobian are also discussed. Methods used in the solution of the inverse displacement problem and the inverse and forward velocity problems for kinematically redundant manipulators are discussed. Prerequisite: ME 4173. Recommended co-requisite: ME 2352.

ME 5183*   Industrial Robotics and Automation   4 ch (3C 2L*)

Brief introduction to robot kinematics including forward and inverse displacement and velocity solutions. An introduction to trajectory planning. Description of common uses of robotics in the manufacturing industry. Description and differences between soft and hard automation particularly in material handling systems. Fundamentals of sensors, actuators and controllers. Examples of automated machinery conveyor systems, feeder systems and packaging systems. Lab introduces different components of a flexible manufacturing systems. Graduate students enrolling in this course must submit an additional project in order to receive credit for this course.Prerequisite: CS 1003, MATH 1503, ME 2143 and (ECE 2701 or ECE 2711).

ME 5223*   Finite Element Analysis in Engineering   4 ch (3C 3L*)

Introduction to the basic concepts of finite element analysis (FEA) including domain discretization, element types, system matrix assembly, and numerical solution techniques. Application of FEA to solve static, dynamic and harmonic problems of linearly elastic solid bodies and heat transfer will be covered in detail. Graduate students enrolling in this course must submit an additional project in order to receive credit for this course. Extension of FEA techniques to solve problems in heat transfer, fluid mechanics and piezoelectricity are also introduced. Prerequisites: ME 2122 and ME 3613 and MATH 3503 and (CS 3113 or CE 3933 or CHE 2418).

ME 5243*   Machining Theory and Practice   4 ch (3C 3L*)

The fundamentals of metal cutting theory will be examined with particular emphasis on understanding cutting forces, stresses, strains, strain rates, and temperatures during the cutting process. Tribological issues, tool wear, and tool life will also be presented. Tools typically available to the manufacturing engineer such as Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and Computer Numerical Control (CNC) programming will comprise a significant portion of the course. Using the machine shop in the Mechanical Engineering Department, students will extend classroom concepts to practical scenarios and situations on the machine shop floor. Prerequisite: ME 2222. Co-requisite: ME 4283.

ME 5243 Codified Design and Failure Analysis 4 ch (3C 3T*)

This senior level course examines the application of mechanical design to engineering practice. In particular, the course will examine codified design of steel structures and the analysis of common failures that occur in service. Prerequisite: ME3341 Corequisite: ME4613.

ME 5283*   Micro/Nano Manufacturing   3 ch (3C)

Review of principles and practices of micro/nano fabrication technologies with research and industrial perspectives. Introduction to micro/nano fabrication and its applications in MEMS/NEMS, renewable energy and biomaterials; materials selection; silicon processing; lithography process; thin film fabrication; advanced lithography process; characterization and micro/nano measurement techniques; atomic force microscopy and its applications. Prerequisites: CHE2501 and ME2222

ME 5353*   Fracture Mechanics   3 ch (3C)

Principles of fractures mechanics and fracture analysis of engineering structures. Plane elasticity and mathematical methods to determine the elastic stress, strain and displacement fields. Fracture criteria and their limitations. Elastic-plastic fracture mechanics, J integral and COD. Fatigue fracture and S-N curve. Prerequisite: ME 3341.

ME 5373*   Nuclear Reactor Engineering   3 ch (3C)

Review of reactor systems. Neutronic design of equilibrium core. Fuel management. Reactor thermal hydraulics. Accident analysis and safety systems. (This course will not be offered every year. It will be a technical elective for chemical and mechanical engineering students, and is a designated elective in the Nuclear and Power Plant Engineering Option programs within mechanical and chemical engineering.) Prerequisite: 90 credit hours completed in Mechanical or Chemical Engineering.

MUSIC

MUS 1001   Music Through the Ages   3 ch (3C)
This course examines the role of music in the social, ceremonial, spiritual, and everyday lives of people in the western world over the last two millennia. It provides an overview of how people in successive eras experienced music and the influences that initiated changes in and perceptions of music. Many of the great musicians, composers, and styles of western music culture are studied. This course serves as a foundation for other studies in music and music history.

MUS 2113 Introduction to Music   3 ch (3C) [W] An introductory course investigating music theory and performance, for students with limited or no music background. Content includes notation in treble and bass clef, rhythmic notation, basic music theory, music terminology and various aspects of performance. May require concert attendance. No prerequisite.

MUS 2114   Introduction to Music Appreciation   3 ch (3C)
Introductory course in music appreciation for the classical music lover with little or no music background. This course covers elements of music, performing media, and historical music periods from the Middle Ages to the Twentieth Century. The student will be introduced to music terminology, important composers and will develop listening skills. May require attendance to a symphony and additional lab fee.

MUS 2123 Music Theory I   3 ch (3C) [W] Introductory course in music theory for those students with some musical background. Content includes notation, time values, major and minor scales, intervals, chords, simple time, transposition, terms and signs, music analysis, ear-training and rhythm studies. Restriction: Credit may not be obtained for both FNAT 2123 and MUS 2123.

MUS 2797 Rock and American Popular Music   3 ch (3C)
(Cross-Listed: MAAC 2797) This course is a survey of the history of Rock music from its origins in the late nineteenth century to the present day. Topics addressed include: the effects of technology in the music industry, role of African-American music in the development of popular music, the developments of Jazz, R&B, and early Rock and Roll, and the "white appropriation" of African-American music. The course finishes with a survey of recent trends of disco, new wave, heavy metal, rap and alternative music.

MUS 3000 Studio Work 6 ch (6C)
Practical work in some aspects of music. Students must seek permission of the Director Music before registering. Restriction: Credit may not be obtained for both FNAT 3000 and MUS 3000.

MUS 3001   Studio Work/Directed Study   3 ch
Practical or academic work in various aspects of music. Usually project-based in consultation with the Director of Music. Students must seek permission of the Director of Music before registering.

MUS 3003   Studio Work: Private Lesson I 1.5 ch (1.5C)
Practical work in some aspect of music, often in the form of one-on-one lessons to develop knowledge, musicianship and skills on an instrument or voice. Students must seek permission of the Director of Music before registering. Most students will complete both MUS 3003 and MUS 3004. Students who have received credit for MUS 3001 cannot receive credit for MUS 3003.

MUS 3004   Studio Work: Private Lessons II 1.5 ch (1.5C)
Practical work in some aspect of music, often in the form of one-on-one lessons to develop knowledge, musicianship and skills on an instrument or voice. Students must seek permission of the Director of Music before registering. Most students will complete both MUS 3003 and MUS 3004. Students who have received credit for MUS 3001 cannot receive credit for MUS 3004.

MUS 3005 Studio Work: Music Ensemble 1   1 ch (1C)
Practical work in one area of music, to develop musicianship through participation in directed ensembles such as band, choir or orchestra. Students must seek permission of the Director of Music before registering. Most students should expect to take all three of MUS 3005, MUS 3006, and MUS 3007.

MUS 3006 Studio Work: Music Ensemble 2   1 ch (1C)
Practical work in one area of music, to develop musicianship through participation in directed ensembles such as band, choir or orchestra. Students must seek permission of the Director of Music before registering. Most students should expect to take all three of MUS 3005, MUS 3006, and MUS 3007.

MUS 3007 Studio Work: Music Ensemble 3   1 ch (1C)
Practical work in one area of music, to develop musicianship through participation in directed ensembles such as band, choir or orchestra. Students must seek permission of the Director of Music before registering. Most students should expect to take all three of MUS 3005, MUS 3006, and MUS 3007. Students who have received credit for MUS 3002 cannot receive credit for MUS 3007.

MUS 3023   Berlin to Broadway: Musical Theatre   3 ch (3C) [W]
Across the Oceans
(Cross-Listed: CCS/GER 3023)
An examination of the life and work of Kurt Weill focusing on his contribution to the theatre culture of Berlin in the twenties and to Broadway in the forties. We will read selected stage works by Weill and his renowned literary collaborators such as B. Brecht and W. Anderson and I. Gershwin, discuss their social relevance, theatrical power, and reception and explore the interplay between the various media: text, music and stage. Emphasis will be placed on the urban cultural context of Berlin, and the history of the genres musical theatre and Broadway musical, including current trends. The goal of the course is to provide students with the opportunity to study theatre composer in depth, to foster a critical appreciation of Weill's unique place in music theatre, and to enrich their understanding of material, cultural and performative aspects of musical theatre. Stage works by Weill may include The Threepenny Opera, Happy End, The Rise and Fall of the City of Mahagonny, Lady in the Dark, Street Scence, Lost In the Stars. Other musicals to be discussed Cabaret, Guys and Dolls, Sweeney Todd, In the Woods . The course and all readings are in English. Open to students who have completed at least 30ch of university courses or by permission of the instructor. Students with credit in CCS 4033 may not take this course for credit.

MUS 3113   Music, Computers, and Technology   3 ch (3C)
(Cross-Listed: MAAC 3113)
The uses of computers in music from a practical and historical perspective is identified and studied. Early uses in notation, composition, presentation, interactive media applications are explored. Project based with work in current Software applications. Open to students who have completed 30 credit hours, or with permission of the instructor.

MUS 3123   Musical Composition   3 ch (3C) [W]

A course in basic elements of composition for students with some musical background and literacy. This course addresses both technical issues and the creative nature of composing music. Musicians who cannot read music are welcome but must have permission from the instructor. Restriction: Credit may not be obtained for both FNAT 3123 and MUS 3123 .

MUS 3133   Conducting   3 ch (3C) [W]

Basic conducting techniques as applied to wind, string, and vocal ensembles and the interpretation of various types of music. Permission of the Director of Music required before registering. Restriction: Credit may not be obtained for both FNAT 3133 and MUS 3133.

MUS 3765   History of Music in Medieval and   3ch (3C) [W]
Renaissance Periods (A)
(Cross-Listed: HIST 3765)
Introduction to music between 800 and 1600, studying representative styles and putting this music in a historical perspective.

MUS 3775   History of Music in the Late Baroque   3 ch (3C) [W]
and Classical Periods (A)
(Cross-Listed: HIST 3775)
Begins with an examination of the stylistic background of music of the Baroque period, and follows the development of musical form and style through the late Baroque and Classical eras, i.e., from c.1700-c.1800. Some attention will be given to the role of the musician in the context of the social history of the time.

**MUS 3785   History of Music in the Romantic Era (A)   3 ch (3C) [W]
                    (Cross Listed: HIST 3785)**
Traces musical development in nineteenth century Europe in its cultural-historical milieu, mainly in France and Germany. Examines the development of the orchestra, and the French and Austro-German contribution to that development, the role of nationalism in music and the role of the opera.

**MUS 3793 East Coast Music (O)   3 ch (3C)
                    (Cross-Listed: CCS 3793, MAAC 3793)**
The relationship between music and East Coast identity is the focus of this course that covers a range of music styles, regional differences, and contemporary modes. The theme uniting the various case studies is the importance of music to the region's culture(s). The subject also allows for a broader reflection on music's importance to identity. Topics may range from Cape Breton fiddle, through to Halifax hip-hop.

**MUS 3794   Music and Cultural Identity (O)   3 ch (3C)
                    (Cross-Listed: CCS 3794)**
This course will examine some of the ways in which cultural (national, regional, ethnic, class, etc.) identity is and has been expressed through music, as well as the origins, persistence, and dispersion of some of the resultant forms and genres. This will also permit us to interrogate the stability and/or fluidity of various notions of identity. Critical and theoretical readings will be employed to explore the identity of cultural groups and musical forms ranging from Tango to Blues, Opera to protest song, Flamenco to Hip Hop, from Hawaii to Russia, Canada to South Africa. The course will normally be team-taught; no previous musical background required. Open to students who have completed at least 30 ch of university courses or by permission of instructor.

**MUS 3795 A History of Music in the Twentieth Century   3 ch (3C) [W]
                    (Cross Listed: HIST 3795)**
Begins with an examination of the Post-Romantic composers, particularly Mahler and Strauss. Studies Debussy and the Impressionists, the Second Viennese School (Berg, Schoenberg, Webern)and its impact on twentieth-century music and the tonalist composers of the first half of the century. Examines music as an art form in North America.

MUS 3796 History of Music Dramas of Richard Wagner   3 ch (3C) [W]
An examination of the theoretical constructs behind Wagner's music dramas, the compositional histories of some of the dramas of the 1840's, and then of the Ring Cycle itself. Some attention will be given to the performance history of the dramas as well.

MUS 3797 Music of Canada   3 ch (3C)
Introduction to Canada's rich and diverse traditions, institutions, and industry. From the musical traditions of the First Nations peoples, through the music of the early settlers, to today's diversity of styles, Canada's music will be studied in its cultural and historical contexts. Restriction: Credit may not be obtained for both FNAT 3796 and MUS 3797.

**MUS 3798   The Forbidden, the Rebelious and the   3 ch (3C)
            Misunderstood: Canadian Jazz, Popular and Classical Music,
                    1950 to the Present (A)**
This course explores the social and historical developments of music in Canada from the 1950s through the public awakening of the 1960s to the implications of the Canadian content regulations of the 1970s and up to the present with a focus on the period ending around 1980. Music will be examined in relation to such notable phenomena as the Cold War, Expo 67 and the Hippie Movement. Major musical figures, composers and performers featured and discussed may include, The Band, Oscar Peterson, Glenn Gould, Paul Anka, Buffy Saint-Marie, The Guess Who and Rush.

MUS 3799 Women in Music (Cross-Listed: CCS 3799) 3 ch (3C)
Tracing the influences of women involved in music in a range of settings in the western world, this course presents the variety of ways that women have influenced, created and performed music through the ages. Feminist perspectives will be explored through an examination of the roles of selected individuals whether they were composers, performers or patrons. As such the course will include such individuals as Nannerl Mozart, Nadazhda von Meck, and Alma Mahler, as well as composers Clara Schumann, and Fanny Mendelssohn, who were performers in their own right.

NURSING

Nursing courses in the BN, BN ASP programs are not open to students unless they are enrolled in one of these programs. Exceptions to this are NURS 1232, NURS 1324 and NURS 3052.

Note: See beginning of Section H for abbreviations, course numbers and coding.

NURS 1011   Nursing as a Profession   3 ch (3C)

Intro to the foundations of nursing as a profession, including its heritage and practices. Examines UNB nursing curriculum and philosophy.

NURS 1032   Professional Relationships   3 ch (3C)

An introduction to the theoretical foundation of professional relationships in nursing with a focus on self-awareness, communication, caring and beginning counseling skills. Prerequisite: Pre- or co-requisite NURS 1011.

NURS 1121   Introduction to Nursing and Health 4 ch (4C)

Introduction to foundations of nursing as a profession including nursing roles, values, and practices. Explores concepts of wellness, health, and illness within the context of the profession of nursing and the Canadian Health Care Systemn.

NURS 1131 ASP Helping Relationships 3 ch (2C 1L/T)

Explores the helping relationship within the context of nursing practice. Students will develop more advanced counseling skills. Includes the use of labs and/or tutorials. Co-requisite: NURS1136

**NURS 1135   Enhancing Well-Being in Situations of 4 ch (4C)
                    Chronicity**

Explores the experiences of people living with chronic physical and mental/psychiatric conditions and the impact on their capacity to achieve well-being. Examines nursing therapeutics to support and enhance well-being. Pre- or co-requisite NURS 1121.

NURS 1136   Practicum: Wellness and Chronicity   4 ch (4L)

Complements and supplements NURS 1135 and NURS 1142. Application of wellness concepts as they relate to clients living with chronic physical and mental/psychiatric conditions. Involves health assessment and application of relevant nursing therapeutics and roles in institutional and community settings. Pre- or Co-requisite NURS 1121 and NURS 1135.

NURS 3042   ASP Health Assessment   4 ch (3C 1L)

Designed to establish the foundation required for health assessment. Expands the concept of health, health promotion and health lifestyle choices as they apply to health assessment. Includes health, health assessment techniques and interpretive skills. The lab component focuses on the practical application of health assessment. Co-requisite NURS 3066

NURS 1225   Nursing and Wellness   3 ch (3C)

Explores the concepts of wellness, health and illness within the framework of Primary Health Care. Pre-requisite NURS 1011 and NURS 1032.

NURS 1232* Cultural Encounters in Nursing   3 ch (3C)

This course prepares students to work at home and abroad with clients from diverse cultures. Emphasis is on developing cultural sensitivity, beginning competence, and insight into cultural beliefs, assumptions, and values and their influence on practice. Pre-requisite to any exchange experience in the Faculty of Nursing. Course prerequisite: permission of instructor.

NURS 1235 Clinical Practicum: Nursing and 3 ch (3L)
**   Wellness**

Pre- or Co-requisite: NURS 1225.

NURS 1324 Aboriginal Health Issues   3 ch

The course focuses on developing students' understanding of the historical and socio-cultural context of Aboriginal peoples in Canada, including present health status, health services, and health policies. The course will examine the role of nursing in addressing health issues faced by Aboriginal peoples in Canada and will engage the students in the process of becoming culturally competent/safe nurses. This course is open to students registered in the Bachelor of Nursing program and is required for students who have been admitted through a designated seat or are registered in the Mi'kmaq Maliseet Institute (MMI) and are applying for the Bachelor of Nursing Program at UNB.

NURS 2041 Health Assessment   4 ch (3C 1L)

Addresses physical and psychosocial assessment throughout the lifespan. Includes lab experiences. Pre or Co-requisite: NURS 2135.

NURS 2063 Concentrated Clinical Practice   3 ch (3L)

An integrative practice experience. Pre-requisites include NURS 2155 and NURS 2187.

NURS 2132 Pharmacotherapeutics   3 ch (3C)

Includes theory and principles of pharmacology as they apply to nursing. Provides requisite knowledge to administer medications, provide patient education, and assess potential for adverse events related to drug and lifestyle issues. Theory will include basic legal and safety issues related to drug administration by the nurse. Pre-requisite NURS1235.

NURS 2133 ASP Pharmacotherapeutics   3 ch (3C)

Includes theory and principles of pharmacology as they apply to nursing. Provides requisite knowledge to administer medications, provide patient education, and assess potential for adverse events related to drug and lifestyle issues. Theory includes basic legal and safety issues related to drug administration by the nurse. Incorporates increased student support for application of the related concepts. Pre-requisites: NURS 1136 or permission of the instructor for BMLS students.

NURS 2135 Chronic Health Challenges   3 ch (3C)

Focuses on the impact/influences of long term health challenges on clients. Examines rehabilitative and supporting nursing practice. Prerequisite NURS 1235.

NURS 2145 Mental Health Challenges   3 ch (3C)

Explores the experiences of persons living with psychiatric illness and examines related nursing therapeutics. Prerequisite NURS 1235.

NURS 2155 Clinical Practicum I   4 ch (4L)

Pre-or Co-requisites: NURS 2135, NURS 2145, or NURS 2177.

NURS 2171 ASP Young Families: Health 2 ch (2C)

Explores the factors influencing the ability of young families to achieve health as they define it. Covers the processes involved in establishing and maintaining health of young families particularly as they undergo transitions such as childbearing. Prerequisite NURS 1136. Co-requisite NURS 2172.

NURS 2172 ASP Clinical Practicum   5 ch (5L)

This course is designed to provide students, in partnership with clients, opportunities to explore family processes, and develop and implement strategies to support health behaviours of young families and clients living with mental health challenges.

NURS 2173 Pediatric Community Clinical Practicum   2 ch (2L)

This integrative practice experience will provide students an opportunity to apply concepts of growth and development, family centered care, health promotion, and communication with children, adolescents, and their families. Co-requisites: NURS 2171 and NURS 2172.

NURS 2177 Young Families' Health   3 ch (3C)

Focuses on promoting the health of childbearing families. Encompasses the childbearing experience. Prerequisite NURS 2135. Co-requisite NURS 2187.

NURS 2187 Clinical Practicum II   3 ch (3L)

Pre- or Co-requisite NURS 2135, NURS 2145, or NURS 2177.

NURS 3031 Helping Relationships   3 ch (2C 1L/T)

Explores the helping relationship within the context of nursing practice. Students will develop more advanced counseling skills. The use of labs and/or tutorials may vary with the teaching sites. Co-requisite: NURS 3073 or with permission of instructor.

NURS 3052* The Canadian Health Care System   3 ch (3C)

Explores the structure of the Canadian health care system. Examines current service delivery issues as they influence healthcare professions and the health of Canadians.

NURS 3065 Community and Population Health 4 ch (4C)
**   Nursing**
Focuses on the role of the nurse in the community and public health nursing, using the population health framework. Addresses principles of community assessment and development, program planning, and other strategies that are supported through a population health perspective, with particular emphasis on populations, and social, poltical and economic determinants of health. Prerequisites: NURS 2063 or NURS 2172 and NURS 2173. Co-requisite: NURS 3066.

NURS 3066 Clinical Practicum: Community and   4 ch (4L)
**   Population Health Nursing**

Complements and supplements NURS 3065.

Prerequisite: NURS 2063. Co-requisite: NURS 3065.

NURS 3072 Acute Health Challenges   3 ch (3C)

Examines the client's experience of acute health challenges, with the focus on nursing therapeutics. Prerequisite: NURS 3065 and NURS 3066. Co-requisite NURS 3073.

NURS 3073 Clinical Practicum: Acute Health   5 ch (5L)
**   Challenges**

Complements and supplements NURS 3072. Pre- or Co-requisite NURS 3072.

NURS 3082 Theoretical Foundations of Nursing   3 ch (3C) [W]

Explores the theoretical foundations of nursing practice and research, including clinical analysis of theories and concepts related to nursing. Prerequisite: NURS 1235 or permission of the instructor.

NURS 3092 Nursing Research   3 ch (3C)

Critically examines the purpose, processes, and utilization of nursing research. Explores the interaction between theory and evidence-based practice. Prerequisite: STAT 2263 or equivalent, and NURS 1235, or permission of the instructor.

NURS 3103 Concentrated Clinical Practice II   4 ch (4L)

An integrative practice experience. Pre-requisites NURS 3072 and NURS 3073.

NURS 4111 Families with Multiple Challenges   3 ch (3C)

Explores the impact of complex health challenges on the family. Examines the implications for nursing practice. Pre-requisite: NURS 3103. Co-requisite NURS 4121 and NURS 4123.

NURS 4113 Families within Populations   3 ch (3C)
Explores the experiences of families living with complex health challenges from a population health perspective. Focuses on nursing therapeutics with further development of independent clinical judgement and decision making appropriate to primary health care. Prerequisite: NURS3073. Co-requisites: NURS4121, NURS4124 and NURS4176.

NURS 4121   Nursing in Complex Situations   3 ch (3C)

Explores the client's experience of complex health challenges. Examines related nursing therapeutics with an emphasis on clinical judgment and decision making. Prerequisite: NURS 3073 or 3103. Co-requisite NURS 4111 or NURS 4113 and NURS 4123 or NURS 4124.

NURS 4123   Clinical Practicum: Nursing Families 5 ch (5L)
**   in Complex Situations**

This course is designed to provide students with the opportunity to care for families who have at least one member experiencing an acute or chronic illness. Students will be expected to care for families in multiple settings, including their home and hospital. Students will integrate and apply the theory examined in NURS 4111 and 4121 in this practice setting. Pre or Co-requisite NURS 4111 and NURS 4121.

NURS 4124   ASP Clinical Practicum: Nursing Families 4 ch (4L)
**   in Complex Situations**

This course is designed to provide students with the opportunity to care for families experiencing an acute or chronic illness. Students will be expected to care for families in multiple settings, including their home and hospital. Students will integrate and apply the theory examined in NURS4113 and NURS4121 in this practice setting.
Pre or co-requisites: NURS4113 and NURS4121.

NURS 4152   Nursing Practice Elective   6 ch (6L)

A preceptored clinical experience in the area of the student's choice.
Prerequisite: All required credits for the BN program.
Co-requisite: NURS 4185

NURS 4153   ASP Nursing Practice Elective   2 ch (2C)
A preceptored clinical experience in the area of the student's choice.
Prerequisites: NURS4124 and NURS4176   Co-requisite: NURS4185

NURS 4165   Integrated Nursing Care   2 ch (2C)

Further explores the experiences of a population living with complex health challenges from a population health perspective. Focuses on nursing therapeutics with further development of independent clinical judgment and decision making appropriate to primary health care. Prerequisite: NURS 4123. Co-requisite: NURS 4175

NURS 4175   Clinical Practicum: Integrated   3 ch (3L)
**   Nursing Care**

 Pre-requisite: NURS 4123. Co-requisite: NURS 4165.

NURS 4176   ASP Clinical Practicum: Integrated   3 ch (3L)
**   Nursing Care**
Complements and supplements NURS 4113

 Prerequisite: NURS3073 Co-requisite: NURS4113 and NURS4124

 NURS 4185   Trends and Leadership In Nursing 3 ch (3C)
Explores trends in Nursing Profession. Examines organizational theory and leadership roles of nurses. Explores the foundations of professional development and practice. Co-requisite: NURS 4152 or NURS 4153

NURS 4234* Independent Study   3 ch (3C/L)

An independent study program under the guidance of a faculty member is pursued on the basis of student interest in any area of nursing. Faculty approval required.

NURS 4242   Nursing Theory for Exchange   3 ch (3C)
**   Students**

The content of the course will be determined by the needs of the visiting student. Nursing students who come on exchange have special needs for theory. This course will provide an avenue for these needs to be covered within a single course.

NURS 4252   Clinical Nursing Experience for   3 ch (3L)
**   Exchange Students**

The content of this course will be determined by the needs of the visiting student. However, it will be developed around a clinical experience in the hospital or community. Nursing students who come on exchange have special needs for clinical experiences. This course will provide an avenue for these needs to be covered with a single course.

PHILOSOPHY

Note: See beginning of Section H for abbreviations, course numbers and coding.

Introdcutory and Intermediate Level Courses
These 1000 and 2000 level courses have no prerequisites, and except where otherwise noted, each may be taken as a first course in Philosophy.

PHIL 1101   Critical Thinking   3ch (3C) [W]
Improves the ability to analyse and evaluate arguments and assertions met with in everyday life, and hence sharpens skills of reasoning to sound conclusions from available evidence. Does this by studying the classic fallacies that people often commit and using elementary formal logic to explore differences between deductive and inductive reasoning.

PHIL 1201   Ethics of Life and Death   3ch (3C) [W]
Introduces various ethical theories and examines moral problems including abortion, euthanasia and capital punishment.

PHIL 1301   Introduction to the History of Philosophy I   3ch (3C) [W]
This course offers a general survey of philosophy from the Pre-Socratics to Scholasticism. It will concentrate upon issues central to ancient and medieval philosophy through a look at such figures as Parmenides, Plato, Augustine and Aquinas.

PHIL 1302   Introduction to the History of Philophy II   3ch (3C) [W]
This course offers a general survey of philosophy from Rationalism to German Idealism. It will concentrate upon the concerns of modern philosophy by looking at the philosophies of such figures as Descartes, Hume, Kant, Hegel and Marx. Designed to bridge the gap for upper year students.

PHIL 1401   God, Mind and Freedom   3ch (3C) [W]
This course provides an introduction to three important, interconnected issues in metaphysics. Questions concerning the definition and existence of free will, the nature of the mind and its relation to the brain, as well as whether or not there are good reasons to believe in God, will be explored.

PHIL 1501   Monsters and Philosophy   3ch (3C) [O]
As a category, Monsters challenge our understanding of the normal, the natural, the intelligible and the ethical. In so doing, the study of monsters provides an opportunity to explore the perennial questions of philosophy in a new and interesting way. This course will use monsters as a tool to explore aspects of the three main branches of philosophy: metaphysics, ethics and epistemology. Some of the topics to be discussed will include human nature, the conditions of knowledge, the mind-body problem, artificial intelligence, ethical dilemmas and theories, the metaphysics of identity, and good and evil.

PHIL 2201   Autonomy, Value and Well Being: 3ch [W]
**   An Introdcution To Ethical Theory**
This course investigates core problems and key authors in ethical theory. The main focus of the course is to treat the rival theories of eudaimonism, deontology and utilitarianism as they are expressed both in contemporary ethical literature and in their historical context by Aristotle, Immanuel Kant, and John Stuart Mill. We also give some attention to those figures that have influenced their development, such as Plato, Niccolò Machiavelli, Thomas Hobbes, Jeremy Bentham and Jean-Jacques Rousseau. In the last part of the course, we turn to another alternative--the work of Friedrich Nietzsche and his influential critique of much of the Western ethical tradition that preceded him.

PHIL 2203   Ethical Issues in Business   3ch (3C) [W]
An introduction to moral problems arising in business. The course is designed to introduce the student to ethical theory and its relevance for business decision making. Prerequisite: Students enrolled in the Faculty of Business Administration must have completed 30ch, including ECON 1013 and ECON 1023.

PHIL 2207: Online Only Ethics For Engineers   O 3C [W]

This course is directed at individuals who are currently qualified engineers, or to those who have permission of the instructor. It provides a problem-centred approach to engineering ethics, as well as the conceptual and theoretical tools basic to developing the skills for recognizing and addressing ethical issues in the engineering field. Topics include: engineering as a profession, design safety and risk, accidents, confidentiality, conflicts of interest, intellectual property, professional conscience, whistle-blowing, engineering and the environment, computer ethics, and the ethics of engineering research. These concerns are developed in part through analysis of wide-ranging, real-life scenarios. PHIL 2207 cannot be used for any credit in the Faculty of Engineering at UNB.

PHIL 2501   Philosophy and Film   3ch [C] [O] [W]
Film is an incredible medium. Many issues in Philosophy can be explored developed and explained through the medium of film. This course will examine some philosophical problems occasioned by great films. Some of the topics to be discussed might include free will and determinism, the mind-body problem, just war theory, human nature, and/or ethical theories

ADVANCED LEVEL COURSES

PHIL 3101   Introduction to Symbolic Logic   3ch (3C)
The techniques of natural deduction, including conditional proof, indirect proof and separation of cases. Emphasizes applications in sentence logic and in the logic of quantification up to the logic of relations. Prerequisite: PHIL 1101 or an equivalent with permission of the instructor.

PHIL 3203   Health Care Ethics   3ch (3C) [W]
An examination of the ethical issues raised by problems in Bioethics, such as experimentation with human subjects, euthanasia, assisted suicide and cessation of medical treatment, patients' rights, informed consent, and tissue transplantation. Open to 2nd year students and above.

PHIL 3205   Contemporary Ethical Theory (O)   3 ch (3C) [W]
This course provides a select treatment of some methodological and substantive problems in twentieth-century and more recent ethical theory. The topics range from the challenge of normativity (Moore, Gewirth, Searle, and Koorsgaard), intuitionism (Strawson, McMahon), and egoism (Sidgewick, Parfit) to recent versions of the consequentialist and non-consequentialist debate (Fry, Hooker, Narveson; Thomas Hill, Francis Kamm). We then situate contemporary virtue ethics (especially Nussbaum, Foot, Hursthouse) within the latter debate and consider related discussions of moral luck and situationism as well as their implications for some of these theories. We conclude by surveying some of the emerging literature in experimental philosophy and its contribution to ethical theory. Open to 2nd year students and above.

PHIL 3206   Environmental Ethics   3 ch (3C) [W]
This course covers a range of thinking on a variety of issues concerning the environment. Specific issues addressed are: Do species other than human beings have value in themselves, or only because humans value them? Do non-organic entities possess value? What problems beset attempts to formulate an environmental ethic? Open to 2nd year students and above. Students cannot receive credit for both PHIL 2206 and PHIL 3206.

PHIL 3251   Advanced Business Ethics   3ch (3C) [W]
Administrators can be found in for-profit businesses, NGOs, schools and universities, hospitals, the armed forces, government, etc. The course strives to address two key questions: "What responsibilities do decision makers in organizations have to others?" and "Why do they have such responsibilities?" Analytical tools presented in the course to help answer these questions will include such approaches as Rawls' distributive justice, Harsanyi's utilitarianism, and Gauthier's morals by agreement, among many others. Students will be expected to understand the justification for each of these tools, apply them to cases discussed in class, and ultimately be able to recommend and defend what actions administrators ought to take according to each method of analysis. In conjunction with the above analytical tools, the course will also introduce a variety of "thinking methods," such as formal logic, thought experiments, and game theory, which underlie the tools. Prerequisite: 3 ch in philosophy, or permission of the instructor.

PHIL 3301   Early Greek Philosophy (A)   3ch (3C)
The period of philosophy beginning with Thales and culminating with Plato. Stresses the development of certain key themes and problems in this period and their influence on later philosophical thought. Half the course is devoted to examining philosophical thought prior to Plato; the other half focuses on Plato's thought. Prerequisite: A course in Philosophy or permission of the instructor. Open to 2nd year students and above.

PHIL 3302   Later Greek Philosophy (A)   3ch (3C) [W]
Focuses on Aristotle and subsequent developments in Greek philosophy. Half the course examines different aspects of Aristotle's thought, the other half considers post-Aristotelian schools of thought. Prerequisite: A course in Philosophy or permission of the instructor. Open to 2nd year students and above.

PHIL 3303   Modern Philosophy I (A)   3ch (3C) [W]
Introduction to some of the philosophical issues of 17th-century philosophy, such as: philosophical method; the nature, scope and limits of knowledge; the nature of reality; the question of the nature and existence of God. Reference is made to selections from some of the important philosophers of the era--e.g., Descartes, Locke. Prerequisite: A course in Philosophy or permission of the instructor. Open to 2nd year students and above.

PHIL 3304   Modern Philosophy II (A)   3ch (3C) [W]
Introduction to some of the philosophical issues of 17th- and 18th-century philosophy, such as: philosophical method; the nature, scope and limits of knowledge; the nature of reality; the question of the nature and existence of God. Reference is made to selections from some of the important philosophers of the era--e.g., Leibniz, Hume. Prerequisite: A course in Philosophy or permission of the instructor. Open to 2nd year students and above.

PHIL 3305   Capitalism vs. Communism   3ch [W]
This course focuses primarily on the philosophical works of Adam Smith, a founder of capitalism, and Karl Marx, a founder of communism. The socio-political-economic structures they envisioned for society are defined, and the justificatory arguments they provide for their structures are examined. The philosophical foundations of anarchism, feudalism, Leninism, libertarianism, mercantilism, and socialism may also be studied for comparison purposes, time permitting. Open to 2nd year students and above.

**PHIL 3306   Introduction to 19th and 20th   3ch (3C) [W]
              Century Existential Philosophy**
Examines the major themes of existential philosophy developed in the nineteenth and twentieth Centuries such as the self, existence, freedom, relationships with others, etc.. References are made to selections from some of the important existential thinkers -- e.g. Kierkegaard, Nietzsche, Sartre, Simon Weil, Camus, Arendt, Heidegger. Open to 2nd year students and above.

PHIL 3308   Plato's *Republic* (O)   3 ch [W]
This course provides an in-depth study of Plato's most important and influential dialogue–his masterpiece on justice, the Republic. We shall cover all of its major philosophical problems through a close reading of the whole dialogue, also taking account the role of the dramatic element of the dialogue for understanding those problems. Open to 2nd year students and above.

PHIL 3311   Nietzsche's on Socrates' Death-Wish   3ch [W]
Friedrich Nietzsche saw the beginning of western philosophy as the birth of a cultural death-wish glorified in the suicide of Socrates. This course looks at Nietzsche's portrait of Socrates in order to access his perception of ancient Greek philosophy, tragic poetry and culture. In so doing, the course will clarify Nietzsche's attacks on Christianity and Modernity as sources of the nihilism he believed would promote the death-wish of "Socratism." The course will also give some consideration to Nietzsche's confrontation with nihilism in terms of his conceptions of the Will to Power, the Ubermensche, the Revaluation of all Values, the Master race, and Eternal Recurrence. Open to 2nd year students and above.

**PHIL 3312   Infinity: Emmanuel Levinas' Encounter   3ch [W]
              with the Other**
This course will concentrate on the philosophy of Emmanuel Levinas (1906-1995). Initially influenced by Edmund Husserl and Martin Heidegger, Levinas' philosophical path diverged in the direction of Ethics as a radical critique of the traditional view of human beings as "knowing" or "rational" subjects. This course will look at Levinas' ethics both as a critique of traditional and contemporary theories of knowledge and existence, as well as a post-modern critique of western philosophy. These concerns are developed through Levinas' descriptions of our encounter with the "Other" in terms of his investigations into the human face, desire, gift, language, the concern for justice, and God. Open to 2nd year students and above.

PHIL 3313   Reason vs. Faith: The Philosophy   3ch [W]
of Kierkegaard

This course approaches Kierkegaard's philosophy through his text *Philosophical Fragments*. Written by one of the foremost of continental philosophers, this text explores the possibility of something we rarely hear spoken of these days- namely, the possibility of a relationship with absolute, eternal truth. This text will serve as a means to clarifying some of the central features of Kierkegaard's thinking such as: the relationship between reason and faith, the status of the self as a rational identity, the significance of human life within history, the aesthetic, ethical and religious modes of existence, and indirect communication. Open to 2nd year students and above.

PHIL 3314   Nietzsche's Faith and Critique of Christianity   3ch [W]

Considered one of the founding thinkers of what would eventually be called "existential philosophy," Friedrich Nietzsche's attempt to destroy the tradition of philosophy anticipates not only many themes in post - WW II Continental thought, but also those now flourishing in postmodern philosophy. This course will concentrate on one of the better known and central features of his philosophy, namely, his critique of Christianity. This approach allows us access to his criticism of Western Philosophy; the basis for his attack on modernity. Some of the central concerns will be Nietzsche's portrait of Jesus of Nazareth, view of Plato's philosophy as symptomatic of a cultural illness that would become manifest in Christianity, and how ancient Greek philosophy and Christianity constitute the basis of cultural Nihilism. Open to 2nd year students and above.

PHIL 3315   Hannah Arendt and Simone de Beauvoir   3ch [W]

This course examines Hannah Arendt's Eichmann in Jerusalem: A Report on the Banality of Evil and Simone de Beauvoir's The Ethics of Ambiguity. Through a close reading of these texts, the class will look at how both Arendt and deBeauvoir explore the politics of hate. Coming to their investigations via the European experience of mechanized mass murder and the routine events of terror and evil during World War II, these philosophers attempt to speak not only to their own generation but to ours as well. Prerequisite: Open to students 2nd year and above.

PHIL 3316   Michel Foucalt's on Sexuality and the Self   3ch [W]

Among the most influential of contemporary philosophers, Foucalt stood directly opposed to the thinking of the "existentialists." Critical of the humanism of post-WW II French philosophy, Foucault, largely influenced by Nietzsche, pursued what would in his early work become known as an "archeology" of knowledge and later as "genealogy." The course will follow a close reading of *The History of Sexuality* in order to concentrate on his investigation into the construction of "human sexuality" as an object of "knowledge." This investigation will be used to clarify Foucault's recognition of the conditions of power that function in "discourse," and how his philosophy serves as a critique of the origins and methods of the social sciences. Open to 2nd year students and above.

PHIL 3317   Jean-Paul Sartre's Philosophy of Freedom   3ch [W]

The popular view of the "existentialist" owes much to Jean-Paul Sartre-the most well known philosopher of post WW II Europe. Having studied with Edmund Husserl, who exposed him to the method of "pure phenomenology," Sartre would apply this method in his descriptions of human freedom as "dread," "bad-faith," "the look," and "desire," to mention just a few of the themes found in his philosophical texts, plays, and novels. The course will concentrate primarily on his *Being and Nothingness*, to explore how Sartre recognizes the intentional structure of human consciousness in relation to ourselves, our bodies, human relationships, atheism, and the world. Open to 2nd year students and above.

PHIL 3318   Martin Heidegger's Destruction of Philosophy   3ch [W]

This course introduces students to the philosophy of one of the foremost thinkers of the 20th Century, Martin Heidegger. Through an investigation into the seminal themes of his text, *Being and Time*, we will look at Heidegger's descriptions of ourselves as "Dasein," (Being There) in terms of his analyses of "possibility," "facticity," "authenticity," "dread,", "fallenness," and "Being-Toward-Death." Lectures will initially concentrate on three introductory concerns: 1) the early influences upon Heidegger's thinking (Nietzsche, Kierkegaard); 2) Husserl's method of pure phenomenology; and 3) how 1 and 2 provide the foundations for what would emerge as "existential philosophy" after WW II. Open to 2nd year students and above

PHIL 3331   Michel Foucalt's Discipline and Punish: The   3ch [W]
Birth of the Prison. (O)

This course concentrates on two central themes: the first is Foucault's perception of the genealogy of the social sciences in relation to the practices of incarceration and punishment in mid-eighteenth century Europe. The second follows his perception of contemporary interpretations of self-identity as they have been generated by: the continued growth of penal institutions, the social sciences as disciplines of "subjectivity", the distinction between torture and punishment, and subjective vs. objective surveillance. Open to 2nd year students and above.

PHIL 3404   Aquinas   3ch [C] [O] [W]

Beginning with Aquinas's reflections on the nature of God this course will trace Aquinas's thought as it progresses in the *Summa theologiae* and the *Summa contra Gentiles* in order to examine the philosophical problems that perplexed Aquinas and his solutions to these problems. Open to 2nd year students and above.

PHIL 3421   Philosophy of Mind   3ch [W]

What is a human being? Are human beings simply material objects? Are they a combination of matter and soul? What is consciousness and how can it be explained? In this class students will be introduced to these questions and will explore various answers to these questions from the history of philosophy and from contemporary discussions. Students will engage the answers provided in class as a means of formulating their own understanding of the connection between mind and brain and mind and body. Open to 2nd year students and above.

PHIL 3422   Philosophy of Science   3ch [W]

Kuhn's Structure of Scientific Revolutions challenged traditional conceptions of science and scientific progress and precipitated much of contemporary discussions in philosophy of science. Focusing on the history of science, Kuhn argued that logical reconstructions of science were inadequate. His argument encouraged philosophers of science to construct relativistic accounts of science and scientific progress. Beginning with the Logical Positivists, this course will trace different accounts of science, with special attention to the debate between realist and anti-realist conceptions of science. Open to 2nd year students and above.

PHIL 3423   Knowledge and Reality   3ch [W]

One of your main objectives as a student, is to learn-that is, to acquire knowledge. This is true whether you pursue knowledge for its own sake or for its "value" in terms of earning a university degree. But do you ever wonder whether knowledge is really worth pursuing? And if it is, what makes it valuable? And do you ever wonder whether it is even possible to know anything with certainty? In this course, we will explore these questions by focusing on three problems: the Gettier Problem, the Value Problem, and the Problem of Skepticism. Some readings will be drawn from classical sources (Plate and Descartes), but most will come from contemporary texts. Open to 2nd year students and above.

PHIL 3424   Language and the World   3ch [W]

What is meaning? How does language relate to speakers, their thoughts, and the world? How do we understand one another? Are the truth and falsehood of our statements determined by the world or by our linguistic conventions? Attempts at answering these fundamental questions about language have given rise to a number of important issues within contemporary philosophy. This course will be an overview of these issues as well as their bearing on broader debates within metaphysics, such as realism and anti-realism. Readings will come from authors of the 20th century analytic tradition, such as Frege, Russell, Ayer, Quine, Kripke, Putnam, Grice, and others. Open to 2nd year students and above.

PHIL 3431   Philosophy of Religion   3ch (3C)

Explores some of the traditional issues associated with belief in God, including: the arguments for God's existence, the problem of evil, the meaningfulness of religious language, and how the divine attributes are to be understood. Prerequisite: A course in Philosophy or permission of the instructor. Open to 2nd year students and above.

PHIL 4436   Models of Divine Agency (O)   3 ch [W]
Various models of how God might be conceived to act in the physical universe are explored and evaluated. These include Nancey Murphy's quantum indeterminacy model, John Polkinghorne's chaos theory model, and Arthur Peacocke's top down causality model. Prerequisites: A previous course in philosophy or permission of the instructor.

PHIL 3601   Liberalism and Its Critics (O)   3 ch [W]

This course provides a contemporary treatment of key themes in liberal political theory, especially the work of John Rawls. We will pay special attention to his conception of freedom (both its worth and extent) and equality, as well as their compatibility and role in justice. The second half of the course considers some important communitarian critics of liberal political theory, including Alisdair MacIntyre, Michael Sandel and Charles Taylor. Open to 2nd year students and above.

PHIL 3602   The Philosophy of Richard Rorty (O)   3 ch[W]

This course examines the philosophy of Richard Rorty. Topics covered include Rorty's relationship to the analytic tradition, his debt to Nietzsche, and his appropriation of Hegel and Dewey. The course allows wider exploration of Rorty's contributions to the philosophy of science, ethical theory, the American pragmatic tradition, his reformulation of philosophy, and his dialogue with the political left in the United States. Open to 2nd year students and above.

PHIL 4301   Introduction to the Philosophy of Kant (O)   3ch (3S) [W]
Examines the argument of the Transcendental Analytic in Kant's pivotal work, *The Critique of Pure Reason*. Introduces Kant's philosophical method and his transcendental philosophy. Considers their implications for an understanding of the problems of metaphysics and the theory of knowledge. Prerequisite: 6 ch in Philosophy or permission of the instructor.

PHIL 4311   Nietzsche's Zarathustra   3ch (3S) [W]
Nietzsche's *Thus Spoke Zarathustra* was the favourite of his own books, about which he nevertheless said, "For everyone else, it is obscure, mysterious, and ridiculous." This course will investigate Nietzsche's *Zarathustra* as a means to excavating exactly what Nietzsche said is expressed by this book; namely, the central themes of his philosophy. The course will look into why Nietzsche wrote this book in the style of the Old Testament, and how it articulates his perception of the "Will to Power," "The Overman," "The Master Race," and the "Revaluation of all Values." Prerequisite: Permission of the instructor.

PHIL 4401 Introduction to the Philosophy of Kant   3 ch 3S [W]

Immanuel Kant's philosophy is influenced by David Hume and the Scientific Method. This course will examine these influences on his philosophy by reading one Kant's major texts. In the light of this reading his answer to questions such as "Can we ever know first principles?"; "How can we know the world?"; How can we understand such concepts such Time and Space?": "Does God exist?" and "How can we be moral beings?" will be explored. Open to students who have taken at least 6 credit hours on Philosophy or with permission of the Instructor.

PHIL 4402 Introduction to the Philosophy of Hegel (O)   3C [W]

The course is concerned with the structure the Self in relation to Hegel's Dialectic. Through a reading of one of Hegel's major texts, students will come to understand his argument, his method, and in particular his method of dialectic. The course will clarify why hegel could have such a profound influence on philosophers as diverse as, for example, Marx, freud, Weber, Kierkegaard, Lukács, and Sartre. Prerequisite: 6 ch in Philosophy, or permission of the instructor.

PHIL 4432   Science vs God? 3ch [W]
This course examines the relationship between science and religious belief. Questions of whether design is a legitimate scientific concept, whether methodological naturalism is a prerequisite of scientific inquiry, and whether 'God of the gaps' arguments are ever legitimate will be examined, as will be various models of how God is conceived as working within nature. Prerequisite: Permission of the instructor.

PHIL 4433   The Concept of Miracle   3ch [W]
The course provides an in-depth discussion of philosophical questions associated with the concept of miracle. Questions of whether the concept of a miracle is logically coherent, whether miracles should be defined as violating the laws of nature, whether testimonial evidence could ever be sufficient to justify belief in a miracle, and whether the occurrence of miracles would intensify the problem of evil are examined. Prerequisite: Permission of the instructor.

PHIL 4434   Husserl's Pure Phenomenology   3ch (S) [W]
This course introduces students to the philosophical method of phenomenology. Developed by the German philosopher Edmund Husserl, the method of what he called "pure phenomenology" has determined the character of Continental Philosophy throughout the 20th century. Emerging as a radical break with the philosophical tradition, Husserl's thought provided the method that would determine the course of 20th century existential philosophy and serve as the point of departure for postmodernism. The course will be concerned with the main features of Husserl's thought, particularly his theory of the intentional structure of consciousness, his critique of traditional epistemology, and the foundations and crises of the sciences, as well as his views on the "natural attitude," the "irreality" of "the world," and the "life-world.." Prerequisite: Permission of the instructor.

PHIL 4601-9   Individual Studies in Philosophy (O)   3ch (T) [W]
Courses of independent study of specified texts or topics in Philosophy under the supervision of a member of the Department. These courses will normally be given only between May and August inclusive and with the agreement of the supervisor. They require the approval of the Chair of the Department and the Dean of the student's Faculty, and are subject to the regulations for individual Studies published in the Intersession/Summer Session Calendar. Prerequisite: 30 ch, including at least 6 in Philosophy.

PHYSICS

Students should note that in the Science Faculty the minimum acceptable grade in a course which is required by a particular program or is used to meet a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a course must repeat the course (at the next regular session) until a grade of "C" or better is attained. Students will not be eligible for graduation until such deficiencies are removed. The only exception will be granted for a single course with a "D" grade that is a normal part of the final year of that program, and is being taken for the first time in the final year.

Note: See Courses -> Saint John or Fredericton -> Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

Not all courses are offered every year. Consult with the Department concerning availability of courses from year to year.

PHYS 1061, PHYS 1062, PHYS 1091, PHYS 1092 are prerequisites for second year physics courses. PHYS 1071 may count in place of PHYS 1061 and PHYS 1072 in place of PHYS 1062. Note that credit can only be obtained for one of PHYS 1061 and PHYS 1091, PHYS 1071 or PHYS 1081. However, for students wishing to transfer from engineering PHYS 1081 and EE 1813 may replace First Yeas Physics i.e. PHYS 1061, 1062, 1091, 1092 (or equivalently PHYS 1071, 1072, 1091, 1092).

Courses with a 5 for the first digit are advanced courses, which may be taken only with the permission of the instructor.

PHYS 1061   Introductory Physics – I   3ch (3C 1T)
(Physical Science Interest)
This course is an introduction to the branch of Physics called mechanics. Mechanics is the study both of how objects and why they move the way they do, Describing the motion of objects requires understanding the basic kinematics quantities position, displacement, velocity and acceleration, as well as the connection between them. Understanding the causes of motion can be achieved by considering the forces acting on the object and/or by focusing on the conserved properties of the system (momentum, enery, angular momentum). Mechanics applies to a wide range of phenomena, essentially to anything that moves, but this course will highlight ties to and applications in the physical sciences. Co-requisites: MATH 1003 or 1053. NOTES: Credit can be obtained in only one of PHYS 1061, 1071 or 1081.

PHYS 1062   Introductory Physics – II   3ch (3C 1T)
(Physical Science Interest)
This course introduces the students to wave phenomena and to electricity and magnetism. Throughout, the concepts related to motion learned in the previous course are used to describe and explain new phenomena. The study of waves introduces the student to propagating, periodic disturbances. In addition to their importance in mechanical phenomena (*e.g.* seismic waves), waves form the basis of both optics and acoustics. The study of electricity and magnetism introduces the student to the concept of charge and to the effects of charges on their surroundings (fields and forces). This course will highlight ties to and applications in the physical sciences. Prerequisites: PHYS 1061, 1071 or 1081, MATH 1003 or 1053. It is recommended that students intending to take Physics courses beyond Introductory Physics should take MATH 1013 or 1063 as a co-requisite to this course. NOTES: Credit can be obtained in only one of PHYS 1062 or 1072.

PHYS 1071   Introductory Physics – I   3ch (3C 1T) [W]

(Health & Life Science Interest)
This course is an introduction to the branch of physics called mechanics. Mechanics is the study both of how objects move and why they move the way they do. Describing the motion of objects requires understanding the basic kinematics quantities position, displacement, velocity and acceleration, as well as the connection between them. Understanding the causes of motion can be achieved by considering the forces acting on the object and/or by focussing on the conserved properties of the system (momentum, energy, angular momentum). Mechanics applies to a wide range of phenomena, essentially to anything that moves, but this course will highlight ties to and applications in the health and life sciences. Co-requisite: MATH 1003 or 1053**.** NOTES: Credit can be obtained in only one of PHYS 1061, 1071 or 1081.

PHYS 1072   Introductory Physics – II   3ch (3C 1T) [W]

(Health & Life Science Interest)
This course introduces the students to wave phenomena and to electricity and magnetism. Throughout, the concepts related to motion learned in the previous course are used to describe and explain new phenomena. The study of waves introduces the student to propagating, periodic disturbances. In addition to their importance in mechanical phenomena (e.g. seismic waves), waves form the basis of both optics and acoustics. The study of electricity and magnetism introduces the student to the concept of charge and to the effects of charges on their surroundings (fields and forces). This course will highlight ties to and applications in the health and life sciences. Prerequisites: PHYS 1061 or PHYS 1071, MATH 1003 or 1503. It is recommended that students intending to take Physics courses beyond Introductory Physics

PHYS 1081   Foundations of Physics for Engineers   5ch (3C 3L)
An introduction to the fundamentals of mechanics. Vector analysis and its application to the analysis of the motion of particles and rigid bodies. Newton's three laws of motion. The kinematics and dynamics of particle motion along straight and curved paths. Work, energy, impulse and momentum of particles and rigid bodies. An introduction to the rotation of a rigid body about a fixed axis, moments of inertia, angular momentum. Simple Harmonic Motion. Co-requisites: (MATH 1003 or MATH 1053), (MATH 1503, or MATH 2213, or equivalent). NOTES: Credit can be obtained in only one of PHYS 1061 and PHYS 1091,, 1071 and PHYS 1091 or 1081.

PHYS 1091   Experiments in Introductory Physics – I   2ch (3L) [W]
This course provides the student hands-on experience with concepts covered in PHYS 1061 or 1071. Co-requisite: PHYS 1061 or 1071.

PHYS 1092   Experiments in Introductory Physics – II   2ch (3L) [W]
This course provides the student hands-on experience with concepts covered in PHYS 1062 or 1072. Prerequisite: PHYS 1091. Co-requisite: PHYS 1062 or 1072.

PHYS 2311   Mechanics I   4ch (3C 1T)
Role within programme and connections to other courses. This course is an important – and big! – first step away from the tremendously simplified problems that we have dealt with both in introductory university physics and in high school. We introduce the integration of greater mathematical sophistication in the treatment of physical situations, showing that comfort with a variety of mathematical techniques will allow us to study a greater range of – and more interesting – problems. Furthermore, this course serves to show that familiarity with the powerful Newtonian toolchest, which we have been using since high school, allows us to approach complicated, realistic situations with confidence. The inclusion of special relativity challenges us to think beyond the familiar. *Content*. Special relativity (including elements related to the development of the theory), advanced Newtonian kinematics and dynamics (translational and rotational), conservation principles, oscillatory motion, mechanics in non-inertial reference frames. Prerequisites: MATH 1003 or 1053 and 1013 or 1063 plus PHYS 1061, 1062, 1091, 1092 or equivalent, PHYS 2331. Co-requisite: MATH 2003 or equivalent.

PHYS 2312   Mechanics II   3ch (3C)
Role within programme and connections to other courses. This course introduces an entirely new approach to mechanics, one that is more elegant and more powerful but less intuitive than the Newtonian approach to which we have been exposed thus far. This is the last compulsory mechanics course and, therefore, includes the classical mechanics background for the quantum mechanics stream. Some computational exercises are included (*e.g.* the use of numerical differential equation solvers). *Content*. Calculus of variations, Lagrangian mechanics, two-body, central force problems (orbital motion), rotational motion of rigid bodies, coupled oscillators and normal modes, an introduction to Hamiltonian mechanics. Prerequisites: PHYS 2311, MATH 2003 or equivalent. Co-requisite: MATH 2013 or equivalent.

PHYS 2327   Circuits & Elementary   5ch (2C 3L)
Role within programme and connections to other courses. Understanding circuits and basic electronics is essential for any physicist who will develop or simply use measuring devices. This course moves beyond the simple DC circuits involving resistors and capacitors seen in introductory physics. It introduces the basic elements of the many electronic devices which we use every day, then shows how to combine these elements when designing simple circuits. This topic is particularly well-suited to hands-on learning. The course is experiential in design with more time devoted to manipulations than to lecture. Through the experimental work involved in learning about basic electronics, we are introduced to and become comfortable with essential measurement apparati (multimeters, oscilloscopes, *etc*). The understanding of basic electronics and measuring devices gained from this course will serve to enhance all future laboratory work: the equipment will not distract us from the physical phenomena which we are studying and we will understand how to best use the equipment and appreciate its limitations. This course also introduces some computational techniques for circuit analysis *e.g.* in the solution of simultaneous linear equations. *Content*. AC circuits, operational amplifiers, diodes, and other pertinent topics. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent. Co-requisite: MATH 2013 or equivalent.

PHYS 2331 Research Skills 3ch (3C) [W]

Role within programme and connections to other courses. This course helps us to acquire skills needed to do research. These include two different aspects: (1) how to deal with experimental limitations (2) how to read and write scientific documents. The skills acquired in this course are subsequently applied in other courses. In all future experimental work, we will treat experimental limitations properly and fully. In all future courses involving reports, written work will meet or exceed the standards established in the Research Skills course. The title of this course emphasises the fact that the programme does more than fill us with physics facts. This is also an opportunity to review other skills, which are developed by the programme (problem solving strategies, approximation, presentation skills, index/abstract searching, *etc.*). All of these skills are generally applicable in physics & beyond. *Content.* Uncertainty analysis, Data processing and analysis, Reading and understanding technical literature, Technical writing. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent, MATH 1003, 1013 or equivalent. Co-requisite: MATH 2003 or equivalent.

PHYS 2341 Thermal Physics 3ch (3C)

This course includes some experimental work that supports the lecture material. *Role within programme and connections to other courses.* This course furnishes us with classical thermodynamics and a little about properties of materials. We have heard that "energy is conserved" and even have an appreciation of how important this principle is, but in first year mechanics energy is often apparently "lost" when friction does work. Here, at last , we introduce a complete formulation for energy conservation, comparing the work defined in first year with heat as a means of energy transfer. We discuss transformations of energy in a variety of processes, then go on to explain that not all of the energy is available for doing mechanical work. The theoretical framework of classical thermodynamics is beautifully self-contained, but this course also emphasises the link between the microscopic world of the kinetic theory (drawing on Newtonian mechanics as it does so) and the macroscopic world of the everyday, in preparation for the statistical thermodynamics to follow. *Content.* Gases (ideal and real) and pressure, phases and phase diagrams, the state of a system, what is energy?, heat and work, first, second and third laws of thermodynamics, entropy, enthalpy and free energies, heat engines, refrigerators, heat pumps and efficiency, phase transitions, introductory kinetic theory. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent, MATH 1003, 1013 or equivalent. Co-requisite: MATH 2003 or equivalent.

PHYS 2351 Quantum Physics 3ch (3C)

This course includes some experimental work that supports the lecture material. *Role within programme and connections to other courses.* This course lays the necessary foundations for thinking about phenomena on very small spatial scales. This course calls on many concepts learned in introductory physics: position, momentum, energy, angular momentum, vibrations, waves. It casts many of them in a new light, at times requiring modification of the classical definition of these quantities. Quantum Physics serves as the foundation for the more in-depth learning of the tools of quantum mechanics presented in the Quantum Mechanics trio of courses and the courses which follow from these. In addition, Quantum Physics is essential background for the study of astrophysics and atmospheric physics. *Contents.* Particle properties of waves: blackbody radiation, photoelectric effect, Compton effect; wave properties of particles: de Broglie waves, Davisson-Germer experiment, the uncertainty principle; old atomic theory: atomic spectra, Rutherford's model, Bohr's model, spontaneous and stimulated transitions, lasers; quantum mechanics: the Schrodinger equation, mathematical tools; quantum mechanical examples: square wells and barriers, quantum tunnelling and its applications; quantum theory of atoms. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent, MATH 1003, 1013 or equivalent. Co-requisite: MATH 2003 or equivalent.

PHYS 2372 Waves 3ch (3C)

This course includes some experimental work that supports the lecture material. *Role within programme and connections to other courses.* Oscillations and waves are key elements to understanding many subfields and applications of physics. Acoustics, optics and electromagnetism (telecommunications) are obvious examples, but waves are also essential to understanding quantum mechanics (the Schrödinger formalism), some atmospheric phenomena, seismic phenomena and fluid mechanics. *Content.* Waves, applications to optics and acoustics. Prerequisites: PHYS 2311, MATH 2003 or equivalent. Co-requisite: MATH 2013 or equivalent.

PHYS 2603 Work Term Report I CR

A written report on the scientific activities of the work term. A component of the grade of will be the employer's evaluation of the student. (Students must have a GPA of 2.7 or better for PHYS COOP placement.)

PHYS 2703 Physics Outreach & Education (O) 3ch (3C) [W]

Role within programme and connections to other courses. This course is meant to help us develop the skills needed to communicate with non- specialists concerning physics. Given that most physics research is ultimately paid for by the public, it behooves physicists to communicate effectively with those who are funding their work, for the benefit of both parties. The goal of such communication is two-fold: (1) to insure that the general public is physics literate and therefore able to enter into a discourse about the science, and (2) to insure that the next generation of university students is exposed to physics in such a way that they can make an informed choice about whether or not their academic and career paths should include physics. *Content.* Topics may include: science journalism, science museums and exhibits, outreach to schools and other groups, physics education and physics education research. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent.

PHYS 1803 Physics and Society (O) 3ch (3c) [W]

Role within programme and connections to other courses. This course aims to investigate the two way interaction between society and physics. The ideas of physics have percolated into the collective consciousness both as scientific knowledge and as cultural reference points and various new technologies can be identified as originating in physics research. However, physics also has to deal with how it is perceived as a discipline and how physicists are perceived as trustworthy authorities. Open to students in all faculties. No mathematics beyond basic high school algebra and geometry is needed. *Content.* Introduction to the philosophy of science and the scientific method, introduction to the major scientific ideas that have shaped our society and the world.

PHYS 2902 Environmental Physics (O) 3ch (3C)

Role within programme and connections to other courses. With the population of the planet increasing and the natural resources decreasing, it is more important than ever to understand the manner in which those resources can and are being used as well as the environmental impacts of those uses. In addition, part of understanding those impacts is understanding how measurements of impacts are made. By focussing on applications of physics to environmental matters, this course contributes to the synthesis of concepts and models learned in other courses. *Content.* The main focus of the course is on matters related to energy, its production, extraction, distribution and use. Topics include hydroelectricity, solar power, nuclear power, fossil fuels, *etc.* Prerequisite: PHYS 1061, 1071 or 1081.

PHYS 3322 Electromagnetism I 3ch (3C)

Role within programme and connections to other courses. This course will be our first major foray into the formalism of electromagnetic theory. A thorough examination of the nature of vector fields and the forces they cause, and scalar fields along with their relationship to energy, will form a connection to earlier discussions started in Mechanics I. The tools studied previously in Intermediate Calculus (vector operations and calculus) and Methods of Theoretical Physics (particularly special functions like Legendre polynomials and spherical harmonics, delta functions, and tensor analysis) will play a significant role here.
Content. Interactions between point charges, the nature and calculation of the electric and magnetic fields, the distribution of electric and magnetic fields in space (flux, Gauss' law, Ampère's law), reactions of charges and dipoles to applied fields, electrostatic scalar potential and magnetic vector potential, elementary gauge theory, energy storage in static electric and magnetic fields, elementary treatment of fields in materials, fields across boundaries, time dependence of electromagnetic fields, displacement current, the final form of Maxwell's equations, electromagnetic waves. Prerequisites: PHYS 2311, 3331, MATH 2013 or equivalent.

PHYS 3331 Methods of Theoretical Physics 4ch (3C 1T*)
Role within programme and connections to other courses. In the course of an undergraduate physics programme we employ a variety of theoretical techniques. This course exposes us to theoretical ideas that are widely applicable in electromagnetism, quantum mechanics, classical mechanics and relativity. Special emphasis will be placed on demonstrating the general nature of the topics considered. *Content.* Non-orthogonal, non-normalised bases, tensors, special functions (general solutions to second order differential equations) and expansions in special functions Integral transforms (Fourier, z-transform, Laplace transform). Prerequisite: MATH 2213 or equivalent.

PHYS 4332 Computational Physics 3ch (3C)
Role within programme and connections to other courses. This is a capstone course to demonstrate the use of numerical and simulation techniques in a range of situations taken from across the programme. For instance, numerical solutions to differential equations might be used to look at some examples of chaotic behaviour or Monte-Carlo simulations might be used to look at percolative mass transport problems. Computational techniques have great importance in the modern physical sciences to the extent that some have described it as of equal importance to experimental and theoretical physics (although computational physics may also be considered to have elements of both theoretical and experimental physics, of course). The skills acquired in this course can subsequently be applied in other advanced courses, in particular the Advanced Research Project.
Content. Numerical techniques, modelling techniques. Prerequisites: CS 1003 or equivalent, approved second year physics and mathematics, CS 3113 or equivalent.

PHYS 3336 Experimental Physics I 3ch (3L)
Role within programme and connections to other courses. Various courses contain experiments that are directly related to the material addressed in the lectures, however, in the interest of promoting an understanding of connectivities (avoiding compartmentalisation) and refining research skills, this synthesis course will contain a variety of experiments, many of which integrate concepts learned in diverse courses. *Content.* The experiments include topics in mechanics, electromagnetism , quantum physics, thermal physics and optics. Prerequisite: PHYS 2331.

PHYS 3338 Independent Study 3ch (3R)
Role within programme and connections to other courses. Every physics honours student will be required to complete one independent study course, to allow the development of critical reading and thinking skills. This course shall be taken no sooner than the beginning of his/her third year and no later than the penultimate term of his/her degree (i.e. the student must know a sufficient amount of physics to allow for a challenging independent study course, and the student should complete this course before working on his/her Advanced Research Project so that the skills developed during the independent study course are of use during the thesis project). *Content.* The student will choose among the list of topics for which supervision has been offered or can choose some other topic of interest if (s)he can convince a faculty member to supervise the course. Prerequisites: approved second year physics.

PHYS 3342 Statistical Physics 3ch (3C)
Role within programme and connections to other courses. This course builds from the bottom up (molecules → continuous phases) what Thermal Physics describes from the top down (macroscopic properties → kinetic theory). We reinforce the idea (from Quantum Physics and Quantum Mechanics I) that our macroscopic observations can be based on underlying probabilities, rather than strict determinism. *Content.* The ensemble basis for basic statistics, equilibrium between interacting systems, the Laws of Thermodynamics (from a microscopic standpoint), classical and quantum statistical distributions, applications of Maxwell-Boltzmann statistics, kinetic theory of gases revisited, applications of quantum statistics. Prerequisite: PHYS 2341.

PHYS 3351 Quantum Mechanics I 4ch (3C 1T*)
Role within programme and connections to other courses. The need for and qualities of quantum mechanics have been clearly established in Quantum Physics. This course begins to put quantum mechanics on a formal footing. The approach in QM I is expected to include both wave and matrix techniques. *Content.* Mathematical structure of quantum mechanics, Hilbert space, operator algebra; postulates of quantum mechanics, symmetries and conservations; quantum dynamics; general theory of angular momentum, coupling of angular momenta, irreducible tensor operators, Wigner-Eckart theorem; analytical solution of the hydrogen atom; identical particles: spin and statistics, the Pauli exclusion principle and many electron atoms. Prerequisites: PHYS 2351, approved second year mathematics. Co-requisite: PHYS 3331.

PHYS 3603 Work Term Report II CR
A written report on the scientific activities of the work term. A component of the grade will be the employer's evaluation of the student. (Students must have a GPA of 2.7 or better for PHYS COOP placement). Prerequisite: Work Term Report I in a field of science.

PHYS 3752 Atomic and Molecular Physics (O) 3ch (3C)
Role within programme and connections to other courses. For an undergraduate student, atomic and molecular physics is one of the most fundamental applications of quantum mechanics in the curriculum. The course provides a firm grounding in quantum angular momentum theory, including spin and angular momentum coupling, and makes extensive use of the matrix approach to quantum physics calculations. The course is linked to all courses in the quantum mechanics stream, and to optics. *Content.* Quantum angular momentum concepts, including orbital angular momentum, spin, and angular momentum coupling, the hydrogen atom, including spin-orbit and hyperfine interactions, methods and approaches to multi-electron atoms, topics in molecular physics, including development of the Hamiltonian, the Born-Oppenheimer approximation, and the structure of molecular spectra. Usually offered on rotation with Subatomic Physics and Solid State Physics. Prerequisite: PHYS 3351.

PHYS 3852 Subatomic Physics (O) 3ch (3C)
Role within programme and connections to other courses. The study of nuclear and particle physics draws mainly on quantum physics but, due to the semi-empirical nature of many of the nuclear models used, it also draws heavily on basic electromagnetism and other branches of physics. An understanding of nuclear physics is essential for work related to radiation therapy, in the nuclear energy sector, and in some branches of astrophysics. As for particle physics, as well as being a field in its own right, it has become inextricably linked to research in cosmology. *Content.* Some overlap of topics with environmental physics and medical physics is to be expected, but the approach and depth will differ greatly. Exact content will be at the instructor's discretion allowing the course to focus sometimes more on applications of nuclear physics, sometimes more on particle physics, *etc*. Usually offered on rotation with Atomic & Molecular Physics and Solid State Physics. Prerequisite: PHYS 3351.

PHYS 3883 Atmospheric Physics (A) 3ch (3C)
Role within programme and connections to other courses. Atmospheric events and processes have an impact on and are impacted by human activity, making atmospheric physics a topic of great societal relevance. The study of the atmosphere requires consideration of a wide range of spatial scales – from radiation transfer at the atomic level to phenomena on the global level – and a wide range of time scales – from seconds to centuries. Making headway requires an understanding of what processes can and cannot be ignored depending on the scales under consideration. In addition to providing an introduction to the field of atmospheric physics, this course contributes toward the overall goal of the physics programme by calling on us to combine knowledge from a variety of subfields of physics. Knowledge acquired in thermal physics, in mechanics and in quantum physics (blackbody radiation, spectral lines) must be brought together to develop an understanding of basic atmospheric physics. *Content.* Structure of the atmosphere, the global energy balance, atmospheric thermodynamics, physics of weather patterns, observational techniques and instrumentation. Usually alternates with Astrophysics. Prerequisites: PHYS 2312, 2341, 2351.

PHYS 3892   Medical Physics (A)   3ch (3C)

Role within programme and connections to other courses. This course introduces our students to a field where there are many opportunities for stimulating and satisfying careers. Medical physics is an application of physics to the particular – and particularly complex – system which is the human body. This course requires an integration of concepts from optics, quantum physics, nuclear physics, electromagnetism, mathematics, *etc. Content.* Radiation therapy, medical imaging. Usually alternates with Biophysics. Prerequisite: PHYS 2351.

PHYS 3911   Mechanics III (O)   3ch (3C)

Role within programme and connections to other courses This third, elective mechanics course can afford to take a more philosophical approach to Hamiltonian mechanics, while Mechanics II will, of necessity, be more pragmatic. In addition, our tools can now be used in a variety of very sophisticated circumstances. *Content.* Topics might include Hamiltonian mechanics with greater reach, canonical transformations, Hamilton-Jacobi theory, action-angle variables, collision theory, non-linear mechanics and chaos, continuum mechanics (Lagrangian and Hamiltonian formulations, in contrast to the Continuum and Fluid Mechanics course). Prerequisite: PHYS 2312.

PHYS 3952   Solid State Physics (O)   3ch (3C)

Role within programme and connections to other courses. Solid state physics, also referred to as condensed matter physics, is the study of matter in which a large number of atoms (10^{23} cm^{-3}) are bound together, forming a dense solid aggregate. It is a fundamental field of physics that leads to such areas and topics as material science, nanotechnology, and superconductivity. In this course, the student will study the structure of solids and how this structure affects such things as their mechanical properties, their thermal properties, and their electronic properties. This course builds on concepts introduced in thermodynamics and statistical physics, as well as quantum mechanics, with links to electromagnetism (*e.g.* van der Waals forces). *Content.* Lattice structure and dynamics, electron kinetics and dynamics, applications (*e.g.* semiconductors, superconductors, magnetic resonance). Usually offered on rotation with Atomic & Molecular Physics and Subatomic Physics. Prerequisites: PHYS 3351, 3342.

PHYS 3983   Astrophysics (A)   3ch (3C)

Role within programme and connections to other courses. In addition to providing an introduction to the field of astrophysics, this course contributes toward the overall goal of the physics programme by calling on us to combine knowledge from a variety of subfields of physics. Knowledge acquired in introductory physics (conservation principles, forces, optics) and in quantum physics (blackbody radiation, spectral lines) must be brought together to develop an understanding of basic astrophysics. In addition, elements of statistical physics will be introduced as required. *Content.* Observational tools (telescopes and detectors), stars: properties, formation, and evolution, galaxies: structure and evolution, large-scale structure and cosmology. Usually alternates with Atmospheric Physics. Prerequisite: PHYS 2351 or permission of the instructor (some combinations of engineering courses may be suitable preparation for Astrophysics)

PHYS 3993   Biophysics (A)   3ch (3C)

Role within programme and connections to other courses. The study of biophysics offers a new perspective on physics through application to the biological sciences. It involves the integration of diverse concepts seen in introductory physics as well as elements of thermodynamics and fluid physics. It highlights the usefulness of physical thinking and a physicist's perspective in the study of biological phenomena. *Content.* Biomechanics, the optics of vision, sound, hearing & echolocation, fluids in motion, the thermo dynamics of life, physics at the cellular level, electricity and magnetism in biological systems. Usually alternates with Medical Physics. Prerequisites: PHYS 1061, 1062, 1091, 1092 or equivalent plus MATH 1003 or 1053, 1013 or 1063, BIOL 1001, 1012.

PHYS 4321   Electromagnetism II   4ch (3C, 1T*)

Role within programme and connections to other courses. This second course on the formalism of electricity and magnetism extends the material from Electromagnetism I, and adds mathematical rigor and sophistication to our toolbox of techniques for electromagnetic problems. Heavier use of the ideas from Methods of Theoretical Physics is made, including Fourier methods and spherical harmonics. At the culmination of this course, we will have been exposed to all of the core ideas in E/M theory except for relativity. The latter and applications will follow in Electromagnetism III. *Content.* Fields in materials (D and H), polarization and magnetization vectors, polarizability and susceptibility tensors, types of magnetization, gauge theory, and its uses in solution of electromagnetic problems, conservation laws in electromagnetic theory, Poynting's theorem, the Maxwell stress-energy tensor, the Lagrangian for a charged particle in an electromagnetic field, radiation from accelerated charges, retardation effects, generation and propagation of E/M waves, the breakdown of classical electromagnetic theory. Prerequisites: PHYS 2311, PHYS 3322, PHYS 3331.

PHYS 4338   Advanced Research Project   8ch [W]

All physics honours students are required to complete a research project, under the supervision of a member of the department. Honours students in an interdepartmental program with physics may choose to complete their honours project in physics. Non-honours students may complete a research project as an elective. The Advanced Resarch Project course includes a formal written report and an oral defense, both of which are assessed by committee. Prerequisites: PHYS 3336, PHYS 3338, permission of the department.

PHYS 4351   Quantum Mechanics II   4ch (3C, 1T*)

Role within programme and connections to other courses. The second QM course is not required for the majors programme, but furnishes our honours students with a range of tools allowing them to move beyond hydrogen-like atoms and to explore the applications of quantum mechanics. *Contents.* Time independent perturbation theory, non-degenerate and degenerate cases, the Stark effect, fine structure, the Zeeman effect; the variational method, helium atom; the WKB method; time-dependent perturbation theory, Fermi's golden rule, harmonic perturbation, the adiabatic approximation, the Berry phase; a charged particle in EM field, gauge transformation, Landau levels, the Aharonov-Bohm effect; scattering theory: the Lippmann-Schwinger equation, optical theorem, partial wave expansion, phase shifts, effective range expansion, resonances, scattering between identical particles, Coulomb scattering. Prerequisite: PHYS 3351.

PHYS 4371   Optics   3ch (3C)

This course includes some experiments that support the lecture material.
Role within programme and connections to other courses.
Optics is both a field of research in its own right and a topic the tools of which are used by many other branches of physics. This course builds on the basic concepts of wave optics introduced in Waves. It also provides a brief introduction to some concepts of photonics, the quantum treatment of light.
Contents. Advanced geometrical optics (*e.g.* the transition between geometrical and physical optics, the thick lens, Jones' matrices), Fourier optics. Prerequisite: PHYS 2372.

PHYS 4603   Work Term Report III   CR

A written report on the scientific activities of the work term. A compenent of the grade will be the employer's evaluation of the student. (Students must have a GPA of 2.7 or better for PHYS COOP placement.) Prerequisite: Work Term Report II in a field of science.

PHYS 4722   Signal & Image Processing   3ch (3C)

Role within programme and connections to other courses. Many physics career paths involve signal and image processing of some kind, *e.g.* seismic data processing, medical imaging, remote sensing (defense, forestry, mining), observational astrophysics, *etc.* As a result, understanding the possibilities and limitations of various data analysis techniques is a valuable asset for any physics graduate. *Content.* This course uses data from a variety of applications to illustrate the wide range of applicability of the tools discussed. Usually alternates with Advanced Electronics. Prerequisite: PHYS 3331

PHYS 4823   Advanced Electronics (A)   3ch (3C)

Role within programme and connections to other courses. The world of experimental physics is an electrifying blend of theory and hands-on measurements which relies heavily on a wide array of complex electronic devices. This course builds on Circuits & Elementary Electronics and introduces electronics and instrumentation we encounter through a physics career. The requirement to design and build electronic equipment, to integrate and control multiple components, and to efficiently operate complex instrumentation is fundamental to experimental physics. The goal of this course is to furnish the tools we need to meet these challenges. It includes topics in electronic design, interfacing and control, sensors and detectors, and data acquisition. *Content.* Multi-component design, amplifiers, filters, PCB design, integrated circuits, digital logic and programmable devices, radio frequency design, interfacing and control, transducers, detectors and receivers, solid state sensors. Usually alternates with Signal & Image Processing. Prerequisite: PHYS 2327.

PHYS 4838   Research Project   4ch [W]

A one-term research project, supervised by a member of the department, assessed on the basis of the research work carried out and a report. Note that no defence is involved (in contrast to the Advanced Research Project). Prerequisite: PHYS 3336.

PHYS 4872   Plasma Physics (A)   3ch (3C)

Role within programme and connections to other courses. Plasmas are sometimes referred to as the fourth state of matter. In a plasma, charge separation between electrons and ions gives rise to electric fields, and the movements of these charged particles result in currents and magnetic fields. Understanding the behaviour of plasmas involves mechanics, electromagnetism, and thermodynamics, and thus a plasma physics course contributes toward the overall goal of the physics programme by calling on us to combine knowledge from a variety of subfields of physics. Plasmas are found in many branches of physics (*e.g.* particle physics, condensed matter, astrophysics) and so the knowledge gained in this course will be of great value in many fields. *Content.* Single particle motion, trajectories and drift, plasmas as fluids (electron fluid and ion fluid, single fluid magnetohydrodynamics), waves in a fluid plasma. Usually alternates with Continuum & Fluid Mechanics. Prerequisites: PHYS 2341, 2372, 4321.

PHYS 4922   Electromagnetism II   3ch (3C)

Role within programme and connections to other courses. This course pursues high level extension and application of electromagnetic theory. It connects to and extends relativistic mechanics (started in Mechanics I), and illuminates ideas from atomic/molecular physics, plasma physics and other fields. *Content.* Magnetohydrodynamics, relativistic four-vectors and four-tensors, force and Minkowski force, covariant formulation of E/M fields, an E/M perspective on quantum field theory. Prerequisites: PHYS 4321, 3351.

PHYS 4933   Special Topics in Physics   3ch (3C)

This "course" is included in order to allow for *ad hoc* courses that might be offered only once. For instance, a visiting professor may have some expertise that s/he could share with the Department, or the student body may request a course about a particular topic that intrigues them. Prerequisite: permission of the department.

PHYS 4938   Experimental Physics II (O)   3ch (3L)

Role within programme and connections to other courses. Various courses will contain experiments that are directly related to the material addressed in the lectures, however, in the interest of promoting an understanding of connectivities (avoiding compartmentalisation) and refining research skills, this synthesis course will contain a variety of experiments, many of which integrate concepts learned in diverse courses. *Content.* The experiments will cover a wide variety of topics. Prerequisites: PHYS 3336, approved third year physics.

PHYS 4953   Introduction to Quantum Field Theory   3 ch (3C)

Content. Relativistic quantum mechanics. The negative energy problem. Classical field theory, symmetries and Noether's theorem. Free field theory and Frock space quantization. The interacting field: LSZ reduction formula, Wick;s thereom, Green's function, and Feynman diagrams. Introduction to Quantum electrodynamics and renormalization. This course is cross-listed as MATH 4443. Credit cannot be obtained for both MATH 4443 and PHYS 4953. Prerequisites: MATH 3003, PHYS 3351, and one of MATH 3043, 3503, PHYS 2313, 3331, or permission of the instructor.

PHYS 4972   Continuum & Fluid Mechanics (A)   3ch (3C)

Role within programme and connections to other courses. The emphasis of this course will be on how what we know of Newtonian mechanics is carried over into a continuum. This approach helps to emphasise that the tools and knowledge we have already developed can be used to great effect in new situations. In addition to the portability of physical concepts, we will also be able to see some generally useful mathematical tools in a new context (vector calculus in velocity fields being a key example). *Content.* Volume and surface forces, stress and strain, Hooke's Law, equation of motion for an elastic solid, longitudinal and transverse waves in a solid, fluid properties, fluid motion. Usually alternates with Plasma Physics. Prerequisites: PHYS 2312, 3331.

PHYS 4983   Introduction to General Relativity (A)   3ch (3C)

Role within programme and connections to other courses. Along with quantum theory, general relativity is one of the central pillars of modern theoretical physics with wide-ranging implications for astrophysics and high energy physics. The essential idea is that gravitation is a manifestation of the curvature of spacetime rather than a force in the Newtonian sense. This introduction to important implications such as black holes and cosmology.
Contents. Review and geometric interpretation of special relativity; foundations of general relativity; linearized gravity and classical tests; black holes; cosmology. This course is cross-listed as MATH 4483. Credt cannot be obtained from both MATH 4483 and PHYS 4983. Prerequisites: MATH 4473 or permission of the instructor.

PHYS 5993   Magnetic Resoance Imagine (O)   3ch (3C)

Role within programme and connections to other courses. This advanced course draws upon electromagnetism, quantum mechanics and statistical thermodynamics to provide a capstone topic tied to the department's research interests. *Content.* Principles of Magnetic Resonance Imaging, survey of imaging techniques, modern applications of MRI in medicine, biology and materials science. Prerequisite: permission of the instructor.

PHYS 5952   Quantum Mechanics III (O) 4 ch (3C 1T*)

Role within programme and connections to other courses. This advanced quantum mechanics course introduces relativistic quantum mechanics and a variety of modern applications of quantum mechanics.
Contents. Relativistic quantum mechanics: the Klein-Gordon equation, Lorentz transformation, the Dirac equation, the Dirac solution of the hydrogen atom; quantum theory of radiation: radiation-matter interaction, decays, absorption, stimulated emission, scattering of photons by atoms, the Casimir effect; path integral formulation; quantum entanglement, the EPR paradox, dense coding, quantum teleportation, the Bell inequality. Prerequisite: PHYS 4351.

POLITICAL SCIENCE

INTRODUCTORY COURSES

POLS 1000   Introduction to Politics 6 ch (6C) [W]
This course introduces the student to some of the important ideas of politics. It draws special attention to conceptions of the state, democracy and capitalism, and their significance for contemporary life. Available only online.

POLS 1103   North American Politics   3 ch (3C) [W]
Introduces students to the major issues and concepts involved in the study of political science through a comparison of politics in Canada, the United States, and Mexico. The course is built around an exploration of the links between the institutions and processes of government (executives, legislatures, courts and elections) and the political society of each country (its values, cultures, ideologies, and social conflicts).

**POLS 1203   Political Issues that Divide   3 ch (3C) [W]
                     Canadian**
Examines contemporary and enduring issues within the context of the Canadian political system. Topics may include: Quebec and national unity, aboriginal self-government, cultural and regional diversity, class conflict, and electoral reform.

POLS 1303   Pivotal Political Events 3 ch (3C) [W]
Considers the political origins and long-term political impact, as well as the effect on the field of political science, of crises which have shaped the contemporary world, such as the Russian Revolution, the Holocaust, the dropping of the atomic bomb, the Cold War, the rise of the welfare state, the UN Declaration of Human Rights, and the fall of the Berlin Wall.

**POLS 1403 Contemporary Political Ideas   3 ch (3C) [W]
            and Ideologies**
Introduces students to the important political ideas and movements of the past century that shape present day society. Tracing the development and thinking about political life in the twentieth century, it examines such diverse ideologies as: liberalism, social Darwinism, existentialism, feminism, ecologism, and post-modernism.

POLS 1503   Law, Power, and Politics   3 ch (3C) [W]
Introduces students to some of the main concepts of political science, including: constitutionalism, the rule of law, rights, citizenship, obligation, authority, and legitimacy. Students will also study the concrete applications of these principles in specific circumstances by examining selected political problems, public policies, and legal procedures.

POLS 1603   Politics of Globalization   3 ch (3C) [W]
The term 'globalization' has quickly become one of the most popular, yet least understood, words in the contemporary political vocabulary. This course introduces students to the key issues involved in the study of globalization. Topics examined may include: militarization and warfare, the rise of the global neo-liberal order, the end of the Cold War, international ecological politics, transnational corporations, the condition of women in the global economy, changing relations between North and South, and the impact of globalization on the role of the nation-state.

POLS 1703 Issues in World Politics   3 ch (3C) [W]
This course investigates the most pressing issues in contemporary world politics with a particular focus on conflict and security challenges which have arisen since the end of the Cold War. Debates over war and terrorism, international law and human rights, and humanitarian intervention are considered, along with new challenges connected to economic development, population growth and environmental pressures.

POLS 1803 Politics of Cimate Change (A)   3 ch (3C) [W]
This course surveys the politics of climate change in a global context. In the coming decades, climate change will drive politics at the international, national, and sub-national levels. Specific topics include climate change itself, international treaties to reduce greenhouse gas emissions, humanitarian crises and climate change refugees, climate change and the media, and climate change deniers.

FOUNDATION COURSES

POLS 2013   Introduction to Political Economy 3 ch (3C) [W]
This course surveys the basic themes of Political Economy analysis. Themes include the nature of capitalism, the work experience, class and class struggle, political organizations and parties, business associations and unions, corporations, poverty, inequality, environmental degradation, the role of the state, militarization, and imperialism.

POLS 2202   Canadian Politics   3 ch (3C) [W]
An introductory course in Canadian government and politics, dealing with the following topics: the constitution and civil liberties; federalism, with some focus on Quebec; the legislative, executive and judicial branches of government; political parties and interest groups; representation and electoral behaviour; nationalism in Canada. Students cannot hold credit for both POLS 2200 and POLS 2202.

POLS 2303   Politics of the Developing World   3 ch (3C) [W]
This course introduces students to key political issues facing developing countries using a comparative politics approach. Key themes include state formation; sovereignty, democracy and accountability; economic strategy; impact of globalization.

POLS 2503   Women and Politics   3 ch (3C) [W]
This course maps the rise of the Second Wave feminist movement in North America, examining women's engagement with politics on issues concerning citizenship, the economy, legal status, the division of public and private, and bodily autonomy.

**POLS 2603 Comparative Politics of the   3 ch (3C) [W]
            Industrialized World (A)**
This course introduces students to similarities and differences in the political culture, political institutions and public policies of countries in the industrialized world (Western Europe and North America primarily).

POLS 2703   Introduction to International Relations 3 ch (3C)
A general introduction to the theory and practice of international relations. Issues examined include: war, the global economy, international organizations, and the environment.

ADVANCED COURSES

**POLS 3011 European Imperialism, 1815-1914   3 ch (3C)
            (Cross-Listed: HIST 3011)**
Examines the evolution of European imperialism in Africa and Asia from the end of the Napoleonic Wars to the outbreak of the First World War. Topics to be covered include: causes of the revival of imperialism; the French conquest of Algeria; British expansion in South Africa; the evolution of British rule in India, French rule in Indochina, and Dutch rule in Indonesia; the European powers and informal imperialism in China; the expansion of European control in Africa; theories and practices of colonial rule; the role of explorers and missionaries; race, gender, and class in colonial societies; the promotion of imperialism in popular culture; and resistance to imperialism.

**POLS 3012   European Imperialism, 1914-1975   3 ch (3C)
            (Cross-Listed: HIST 3012)**
Examines the evolution of European Imperialism after the outbreak of the First World War, and ends with a detailed examination of post-1945 decolonization. Topics to be covered include: the impact of the First World War on European empires; gender, race, and class relations in colonial societies; cultures of imperialism in the 1920s and 1930s; the evolution of imperial systems of control; the rise of anti-colonial nationalist movements; the impact of the Second World War; counter-insurgency and colonial wars after 1945; the causes and dynamics of decolonization; and the legacies of empire. Prerequisite: prior completion of HIST 3011 an asset but not required.

POLS 3103 Rights in Conflict in North America   3 ch (3C) [W]
Investigates competing visions of rights in contemporary North American politics in historical, ethical and theoretical perspective.

POLS 3104   African American Politics (O)   3ch (3C) [W]
This course surveys African-American history and politics from Reconstruction to Barack Obama. Specific topics include segregation, repression, civil rights, and the changing politics of race in America.

POLS 3105   American Politics (A) 3 ch (3C) [W]
Surveys the American political experience with a focus on the post-1945 period. Topics include the paranoid tradition in American politics, the New Deal consensus, the Cold War, the Civil Rights movement, the Second Wave feminist movement, the war against Vietnam, the rise of the New Right and post-9/11 American Foreign policy. Students cannot hold credit for both POLS 2101 and POLS 3105.

POLS 3112   Russian Foreign Policy (O)   3 ch (3C) [W]
Russia's role in the world is examined in terms of its activities at the UN and its relationship with the major powers like the U.S., China and the European Union. Russia's policies in the Middle East are a major focus, especially with Iran, Israel and the Arab states.

POLS 3211   Canadian Governance in the   3 ch (3C)
Global Era
Introduces students to the complex mechanisms through which governance has taken shape, with a particular emphasis on recent policy shifts.

POLS 3212   Topics in Provincial Public   3ch (3C) [W]
Administration
Focuses on the study of selected aspects of the structure and process of provincial public administration.

POLS 3213   Capitalism, Canada and Class   3ch (3C) [W]
This course examines the shifting class structure of Canada from the standpoint of the evolution of global capitalism. Topics covered include the decline of the established work, the growth of non-standard work, migrant labour, unemployment, the deregulations of labour law, the minimum wage debate and the gendering of low-wage sphere.

POLS 2203 3215   Issues in Canadian   3 ch (3C) [W]
Public Policy (O)
Major issues in Canadian public policy-making and related approaches to policy analysis are examined from the perspective of political science. Topics will include health policy, economic policy, and cultural policy. Students cannot hold credit for both POLS 2203 and POLS 3215.

POLS 3227 Poverty, Governance, and   3 ch (3C) [W]
Citizenship in Canada
This course explores the relationships between poverty policy, governmental forms, and conceptions of citizenship. Students will critically evaluate major documents from Confederation to contemporary policy debates. The central objective is to map out shifts, turning points, and transformations in governing practices and sensibilities.

POLS 3233   Empire and Resistance in   3 ch (3C) [W]
New York City: From Wall Street to Zucotti Park (A)
This course explores the dynamic relationship between New York City and the contradictions of the American Empire–NYC as the centre of global financial and industrial capital! Themes explored may include its status as the financial capital of the world, its place in the history of American capitalism, the city's importance as a site of political resistance, the 9/11 tragedy and its far-reaching repercussions, New York's continuing prestige as a destination for both tourists and immigrants, its illicit economy, its stark contrasts between wealth and poverty, the city's artistic, ethnic, and cultural richness, and its role as home to the United Nations. To explore these themes, we will visit museums, art galleries, monuments, political organizations, media outlets, neighbourhoods, governmental organizations, and other related sites around the five boroughs. Normally taught on location.

POLS 3237 The Politics of Memory in Canada and   3 ch (3C) [W]   the United States
What gets remembered and how it gets remembered are necessarily political. This course will examine specific aspects of the national memory in Canada and the United States from the late nineteenth-century through to the present. Topics will include the Native in the North American imagination, the commemoration of slavery, the commemoration of military events (for example, the Great War in Canada, the Vietnam War in the United States), and history and the tourist gaze.

POLS 3241   Canadian Foreign Policy   3 ch (3C) [W]
An analysis of the foreign policy formulation process and a consideration of sectors other than the Canadian-American relationship.

POLS 3242   Canadian-American Relations   3 ch (3C) [W]
An analysis of the political aspects of sectoral relations between Canada and the United States.Restriction: Credit may not be obtained for both POLS 3242 and HIST 3364 (History of Canadian-American Relations).

POLS 3247   Trudeau's Canada   3 ch (3C) [W]
This course will focus on Canadian and Quebec politics in the Trudeau era. Topics will include the Quiet Revolution, constitutional renewal, the 1980 referendum and the Charter of Rights and Freedoms. The course will also focus on the Charter era through an examination of key legal decisions. Finally, the course will examine Trudeau as a cultural icon in English Canada.

POLS 3251   Canadian Federalism   3 ch (3C) [W]
Considers theories of federalism, the development of the Canadian federal system, and the impact of current issues.

POLS 3257   Law and Politics in Canada   3 ch (3C) [W]
Analyzes the relationship between law and politics in Canada, with an emphasis on the impact of judicial decisions on Canadian politics. Topics covered include the Rule of Law in the Canadian Constitution, the judicial process, the Canadian Court system, judicial recruitment and selection, judicial independence, judicial review, and judicial decision-making.

POLS 3263   Canadian Provincial Politics   3 ch (3C) [W]
Designed to provide the student with an overall grasp of the nature of government and political processes in the Canadian provinces.

POLS 3267   Quebec Politics and Government 3 ch (3C) [W]
A survey of the political and social evolution of Quebec from the 17th century to the present day. Emphasis is placed on 20th century events and on the nationalist dimension of Quebec politics, particularly its modern incarnation in the period since 1960. Recommended prior course: POLS 2202.

POLS 3271 Community Culture in Canadian Politics 3 ch (3C) [W]
A consideration of the impact of cultural and regional differences on prospects for political unity and political change in Canada. Topics will include: English-French differences in political culture and their policy implications; Indian and Inuit culture and its relevance for the political process; the growth and political impact of regionalism and provincialism; the politics of Canadian multiculturalism in comparative perspective.

POLS 3282   The Canadian Political System   3 ch (3C) [W]
An analysis of the Canadian political system with emphasis on the constitution, federalism, parliamentary government, and the Canadian political culture.

POLS 3284 The Concentration of Power in Canadian 3 ch (3C) [W]
Politics (A)
In recent years, there has been considerable focus on the role of Prime Minister in Canadian politics. Many believe power has become excessively concentrated in the hands of the Prime Minister and a handful of close advisors, with important implications for the democratic quality of our political system. This course examines the concentration of power in Canadian politics, looking at both theoretical and historical dimensions of the issue, as well as its manifestation in current political debates.

POLS 3292 Self-Governm ent and Aboriginal Community 3 ch (3C) [W]
A systematic analysis of the principles, structures and institutions of traditional and contemporary Indian self-government in Canada.

POLS 3312   Political Sociology (Cross-Listed: SOCI 3312)   3 ch (3C)
Examines the relations between society and the state by comparing traditional political sociology with the contemporary approach. Issues include the nation state as the center of political activity, how power is exercised through institutions, social groups, class, the production of identity or subjectivity, how globalization and social movements de-center state political activity, the impact of these changes on citizenship and democracy.

POLS 3323   Cities in the 'Urban Century'   3 ch (3C) [W]
In the 21st century, half of the world's population will be urban dwellers. The importance of enhancing our knowledge of cities has never been greater. This course will address cities within the context of globalization, economic change, state reform, citizenship, and social justice. While emphasis will be placed on Canadian examples, comparisons with other countries also will be made.

POLS 3343   The European Union in Transition 3 ch (3C) [W]
This course examines the economic, political, and legal aspects of the EU and its member states. Topics included are money and finance and government institutions and further political/economic integration with Eastern Europe. This course is an elective in the Law and Society program.

POLS 3361   Eastern Europe in Transition   3 ch (3C) [W]
This is an introduction to the politics and economics of Eastern Europe. The course examines how the countries of Eastern Europe, Eurasia and the former Yugoslavia emerge into a market system and integrate with Western Europe and the rest of the world. Money, banking, trade, and government policies will be emphasized.

POLS 3363   Contemporary Germany   3 ch (3C) [W]
This course deals with both the internal and external politics of unified Germany. It examines Germany's place in the European Community, studies the wide political spectrum of Germany's multi-party system, and focuses on its cultural and political influence over the rest of Europe.

POLS 3374 An Introduction to the Politics & Society   3 ch (3C) [W]
                        of the Middle East
This course focuses on only two parts of what we call the Middle, or Near, East: the first is the Fertile Crescent or Mashrek, which includes Israel, Palestine, Lebanon, Egypt, Jordan and Syria; the other deals with the states of the Persian Gulf with particular concentration on Iran and Iraq. Students cannot hold credit for both POLS 2373 and POLS 3374.

POLS 3391   Governance   3 ch (3C)
Investigates shifts that are occurring in the rationales, strategies, and practices of governance, with a particular focus on contemporary transformations. Students will be introduced to traditional tools of public administration analysis as well as new analytical tools that have emerged at the turn of the 21st century. They will also be asked to explore how new governing mechanisms take shape through shifting discourses, programs, and techniques.

POLS 3392 Comparative Public Administration3 ch (3C) [W]
A detailed study of contemporary public administration in selected countries in Europe and North America with the emphasis on a comparative study of selected issues and topics.

POLS 3410   Survey of Political Thought   6 ch (6C) [W]
A survey of the most important writers and the main currents of political thought from Ancient Greece to the beginning of the 20th century.

POLS 3413   Modern Theories of the State   3 ch (3C) [W]
Examines the emergence of the modern conception of the state, and discusses some of the important theoretical arguments concerning the scope and justification of the state.

POLS 3415   Liberalism (O)   3 ch (3C) [W]
The historical and textual foundations of the liberal tradition and its contemporary variants. Central concepts and problems in the development of liberal thought to be examined will include: rights, property, liberty, toleration, and political participation.

POLS 3418 Politics and Protest Music (A)   3 ch (3C) [W]

This course surveys political protest music. Themes covered may range from Mozart's The Magic Flute to the ballads of Woody Guthrie through to anti-war songs over the last century.

POLS 3423   The Politics of Repression   3 ch (3C) [W]
Examines a variety of thinkers and movements that are concerned with the question of repression. Attempts to answer such questions as: what is repression and what causes it? Are some groups in society particularly repressed? What are the varieties of repression?

POLS 3433   Late Modern Political Thought 3 ch (3C) [W]
This course surveys recent political thinkers from the celebrated critic of modernity Friedrich Nietzsche to the post-modernist Jean-François Lyotard. It coheres thematically by focussing on their implicit and explicit responses to the three grand questions of the 20th century: What is wrong with modernity? What happened to the proletarian revolutions of Europe? How can the Holocaust be explained? Other thinkers examined include Lukács, Weber, Gramsci, Cassirer, Horkeimer, Arendt, de Beauvoir, Voegelin and Foucault.

POLS 3441   Women Political Thinkers   3 ch (3C) [W]
Examines women's contributions to the history of Western ideas on politics, rationality, autonomy and the body, and violence and war. Key women thinkers include Mary Wollstonecraft, Virginia Woolf and Simone de Beauvoir.

POLS 3443   Feminist Issues in Political Thought 3 ch (3C)
Examines critical issues in feminist theory. Its central focus is on the understanding of women's political and social roles found in the history of political thinking and the response to these arguments presented by contemporary feminist theorists.

POLS 3446   Subjects, Citizens, Individuals: 3ch (3C) [W]
          Politics of the Early Modern World (O)
Upheaval, change and disorder, a "world turned upside down": these are all terms associated with political life in seventeenth-century England. How did political writers, from Thomas Hobbes and Margaret Cavendish, to the Levellers and John Locke, conceive of this flux, and what roles did they envision for subjects, citizens and individuals in the early modern world? In this lecture/seminar course, we will map the rise of modern liberalism, individualism, notions of property, the state and the body.

POLS 3461   Public Policy Analysis 3 ch (3C) [W]
A critical examination of the institutions that form public policy, as well as the policy process in relation to a number of selected areas.

POLS 3473 Marxism and Anarchism: Alternative   3 ch (3C) [W]
                  Political Communities
Surveys the organization, political and social rationale, and critiques of alternative political communities. Topics may include the utopian socialist societies and anarchist experiments of the nineteenth century, the Israeli kibbutzim, European co-operative networks, and the North American counter-culture communities of the twentieth century.

POLS 3475   The Political Left (A) 3ch (3C) [W]
This course surveys the dominant currents on the political left after Marx and the International Workingmen's Association. Lecture focus is on the 2nd International, the Comintern, the permutations of Trotskyism, Marxist humanism, the social democratic tradition and socialist reformism, the New Left, eco-socialism, World Social Fora and the politics of Occupy.

POLS 3533 Research Methods in Political Science 3 ch (3C) [W]
Intended to familiarize students with processes, methods and techniques of inquiry in political science. Required for all Honours students. Strongly recommended for Majors students.

POLS 3614   Ethics and International   3 ch (3C) [W]
            Politics (O)

The course explores the importance of moral values, ethical reasoning, and reflection in international relations. It presents the concepts, theories, methods, and traditions of ethical analysis, and applies them to a wide range of transnational and global issues such as political reconciliation, human rights, war, foreign intervention, and economic sanction. It also examines the justice of international structures, institutions, and rules, as well as their impact on issues such as the moral obligation on the part of wealthy states to provide economic assistance to poor nations or to admit a large number of refugees, the challenge of climate change and energy conservation, and the prosecution of crimes against humanity.

POLS 3615 International Relations Theory (O) 3 ch (3C) [W]

Examines the evolution of international relations theory to the present. Attention is given to the socio-philosophical foundations of the Realist paradigm, and to recent challenges to Realism emanating from modern and post-modern critical schools.

POLS 3633   International Public Law   3 ch (3C) [W]

Examines the sources of law such as custom and treaties and addresses specific issues in the international system: the law of armed conflict, human rights, dispute settlement, intergovernmental and supranational organizations, intellectual property rights, the environment, and the relationship between business corporations, sovereign states and private citizens.

POLS 3713 The Global Economy: Production, 3 ch (3C) [W]
            Profits, Power and People

Surveys the primarily theoretical and empirical literature on the global political economy. Issues addressed include imperialism, dependency, U.S. hegemony, the internationalization of production, global finance, and the evolution of the Fordist production regime. Recommended prior course: POLS 2303 , POLS 2703 or IDS 2001 .

POLS 3714   Imperialism and Crisis (A)   3ch (3C) [W]

This course examines the analytical writings on capitalist imperialism down to the 2008 global crisis. Classical and contemporary writers surveyed may include Marx, Luxemburg, Hilferding, Lenin, Baran, Amin, Wood, Harvey and Callinicos. Topics addressed will range from militarism and warfare through to dependency, underdevelopment, cultural homogenisation, and 21st- century austerity.

POLS 3715 Work in the World Economy (A) 3 ch (3C) [W]

 This course surveys the social relations of power in the workplace in the 21st century. Topics covered may include the global division of labour, workplace restructuring, the feminisation of work, global unemployment and underemployment, migrant labour, falling rates of unionization, low-wage work, contract work, temp work, precarious labour, homework and employment in the informal sector.

POLS 3717 The Politics of Nationalism   3 ch (3C) [W]

A general examination of nationalism as an ideology and political force, with some focus on specific nationalist movements in both the developed and developing worlds. Topics include: competing definitions of nations and nationalism, the underlying causes of nationalist unrest and secessionism, and methods of conflict management in ethnically divided societies. Recommended prior course: POLS 2303 or POLS 2603 .

POLS 3721 Beverages and International   3 ch (3C) [W]
            Development in Historical Perspective

This course explores the politics of international development by investigating the historical development of international processes and markets for beverages such as coffee, tea, cola, juice, wine, rum and water. The course uses these case studies to ground theoretical analysis of development strategies, trade institutions, corporate practices, worker struggles and consumer initiatives.

POLS 3725   The Political Economy of   3 ch (3C) [W]
            Latin American Society (O)

Surveys the social and economic foundations of South and Central American politics. Specific issues examined include the relationship of the region to the global economy, state/military relations, state repression, U.S. regional hegemony, political reform and revolutionary movements.

POLS 3731   Governments and Their Spies   3 ch (3C) [W]

This is a course about a nation's covert and secret intelligence activity aimed against both internal and external enemies, which is distinct from law enforcement. We examine the many types of intelligence and their bureaucracies: human intelligence, signals, satellites, military, and special ops. The main countries examined will be: the U.S., Russia, U.K., Germany, France, China, Iran, Arab States and Israel.

POLS 3831   Contemporary China   3 ch (3C) [W]

The course studies various macro-economic and political aspects of a modern China in transition. China's global position (defence and foreign policies) will also be examined.

POLS 3900 Independent Study in Political Science   6 ch (6C)

Upon application through the co-ordinator of honours and majors programs, students pursuing an honours or majors degree in Political Science may undertake independent studies with a member of the department. It is expected that students will have a clear idea of their intended area of study and will submit a written proposal justifying it as an independent studies course.

No student will be allowed to take more than 6chs of independent study in completing the requirements for a majors or honours degree in political science. Independent studies courses will NOT count as meeting the honours thesis requirements.

POLS 3903   Independent Study in Political Science 3 ch (3C)

Upon application through the co-ordinator of honours and majors programs, students pursuing an honours or majors degree in Political Science may undertake independent studies with a member of the department. It is expected that students will have a clear idea of their intended area of study and will submit a written proposal justifying it as an independent studies course.

No student will be allowed to take more than 6chs of independent study in completing the requirements for a majors or honours degree in political science. Independent studies courses will NOT count as meeting the honours thesis requirements.

POLS 3905   Independent Study in Political Science   3 ch (3C)
Upon application through the co-ordinator of honours and majors programs, students pursuing an honours or majors degree in Political Science may undertake independent studies with a member of the department. It is expected that students will have a clear idea of their intended area of study and will submit a written proposal justifying it as an independent studies course.

No student will be allowed to take more than 6chs of independent study in completing the requirements for a majors or honours degree in political science. Independent studies courses will NOT count as meeting the honours thesis requirements.

POLS 4000   Directed Reading and Research in   6 ch (6C) [W]
                           Political Science
A compulsory reading and research course for fourth year honours students. The student prepares a research program in consultation with a professor in the field concerned and is expected to present a research essay after regular consultations with the professor concerned who will be assigned to the student by the chair of the department.

HONOURS SEMINARS

POLS 4416   Canadian Political Thought   3 ch (3C) [W]
Historical and comparative examination of the various strands of thought that make up the Canadian political tradition: liberalism, conservatism, socialism and nationalism. (Students cannot earn credit for this course and POLS 3416).

POLS 4463   Eros and Leadership: The   3 ch (3C) [W]
         Philosophy of the Good Ruler Through the Ages (A)
This course surveys the intellectual and philosophical criteria for political leadership as they were established by past thinkers. Some of the intellectual material addressed may include the assessment of Pericles by the ancients, Plato's nations of philosophical rule, Aristotle's conception of class rule, Plutarch's biographies, Marcus Aurelius reflections, Machiavelli's counsels, Marx's critique of bourgeois rule, Lenin's conception of vanguardism, Weber's observations regarding charisma and Gramsci's defence of the organic intellectual. Throughout the course the standards set in the past are applied to current political leaders, and the concerns raised by contemporary intellectuals like Christopher Lasch and Neil Postman are broached and assessed. (Students cannot earn credit for this course and POLS 3463).

POLS 4483   Hegel & Marx (A)   3 ch (3C) [W]
Examines the theories of history and the historical process in Hegel and Marx, paying particular attention to the question of the causes of historical change. It then discusses these theories in their relation to Hegel's and Marx's political thought. (Students cannot earn credit for this course and POLS 3483.)

POLS 4495 Gender and War: Historical and 3ch (3C) [W]
              Contemporary Perspectives (O)
Exploring a range of topics from women's experiences as soldiers to the social construction of masculinities to suit the war system, and drawing upon a range of sources, including historical writings by women on war, drama, poetry and fiction, as well as recent political theorizing and analysis, this course puts the gendered aspects of war under the microscope. Writers considered include Margaret Cavendish, Virginia Woolf, Sara Ruddick, Judith Butler, R.W. Connell and Michael Kimmel.

POLS 4496   Thucydides: War and Empire (A)   3 ch (3C) [W]
This course will examine The History of the Peloponnesian War as the founding text of International Relations. The course will also focus on the various readings of the History.

POLS 4534   Quantitative Approaches in   3 ch (3C) [W]
              Political Science (A)
This course provides a basic grounding in methods of quantitative commonly used in political science. In addition to statistical theory and techniques, the course also focuses on interpretation of quantitative political science literature and provides students with instruction in conducting statistical analysis using public opinion and election data sets. Recommended prior or concurrent course: POLS 3533. (Students cannot earn credit for this course and POLS 3534.)

POLS 4637   Capitalism and War (A)   3 ch (3C) [W]

This course examines the scholarly literature on the link between warfare and world capitalism over the last century. Themes raised may include the extent of US arms spending, Western military doctrines, the Cold War, regional warfare, humanitarian crises and UN intervention. Specific focus is given to the wars in Vietnam, Central America, the Horn of Africa, Iraq and Afghanistan. (Students cannot obtain credit for both POLS 3637 and 4637.)

POLS 4703 Seminar in Contemporary Issues in 3 ch (3C) [W]
                   World Politics (A)
This course deals with current trends and developments on the international science including the global balance of power, relations between the superpowers, ideological conflicts, the Third World and North-South tensions: war, revolution and coups d'etat as these occur. (Students cannot earn credit for this course and POLS 3703.)

POLS 4722 Women, Gender and Development (A) 3 ch (3S) [W]
This course introduces students to critical issues in the study of women, gender and socio-economic development. The course presents contending theoretical approaches, and applies them through case studies that explore how women are affected by and in turn shape socio-economic development processes in Asia, Africa, Latin America and the Caribbean. (Students cannot earn credit for this course and POLS 3722).

POLS 4724 Topics in Environment History and Politics (O) 3 ch (3C) [W]
This course surveys topics in North American environmental politics and history, including climate change, resource development, and water management. It examines the role of governments, the environmental movement, and industry. Finally, it examines how the environment as an idea has changed over time.

POLS 5345 Natural Resources, Industrialization and the   3 ch (3C)
Environment in Atlantic Canada (Cross-Listed: HIST 5345)
Explores the political, economic and environmental implications of the dependence on natural resources in Atlantic Canada, through an examination of the historical development of the forest, fishing, agricultural and mining industries from the eighteenth century to the post-Second World War Period.

PSYCHOLOGY

Note: See beginning of Section H for abbreviations, course numbers and coding. Students should consult the Timetable for the latest listing of courses to be offered in each term.

PSYC 1013   Introduction to Psychology - I 3 ch (3C)
A general survey of perspectives and methods in selected areas of psychology including learning, memory, cognitive and biological psychology. Students will be asked to participate in various learning and research activities. Some course credit may be earned by participation in these activities.

PSYC 1023   Introduction to Psychology - II   3ch (3C)
A general survey of perspectives and methods in selected areas of psychology including personality, developmental, clinical and social psychology. Students will be asked to participate in various learning and research activities. Some course credit may be earned by participation in these activities.

PSYC2103   Quantitative Research Methods   3 ch (3C) [W]

This course provides an introduction to experimental Psychology as an empirical science. Students learn about the steps involved in research, such as designing and conducting experiments. Basic applications of statistical methods are broached. Additionally, students learn how to report formally on their research projects. Students are involved in a research project as participants and as researchers. This course is required for students planning to Minor, Major or Honour in Psychology. Prerequisites: Introductory Psychology (6 ch). Students who have received credit for PSYC 2123 cannot receive credit for PSYC 2103.

**PSYC 2113 Introduction to   3 ch (3C) [W]
Statistical Methods in Psychology**   An
introduction to research methodology and statistical analysis for psychologists. Topics include analysis techniques relevant to correlational, observational and experimental research designs, relevant statistical theory and hypothesis testing. Required for students planning to Major or Honour in Psychology. Prerequisite: Introductory Psychology (6 ch) and PSYC 2103/PSYC 2123

PSYC 2203 Foundations of Developmental Psychology 3 ch (3C) [W]
Covers physical, cognitive, language, and social/emotional development from a variety of theoretical perspectives. The interrelatedness of these domains also will be discussed. Several themes which underlie the study of development (e.g., nature/nurture; continuity/discontinuity) will be reviewed and students will explore how these themes permeate developmental research. Prerequisite: Introductory Psychology (6 ch).

PSYC 2313 Foundations of Clinical Psychology 3 ch (3C) [W]
An introduction to the main theories, research approaches, and intervention perspectives of clinical psychology. Topics dealt with include professional issues in clinical psychology, concepts and history of abnormality, assessment and diagnosis of psychological disorders, research perspectives in clinical psychology, and modes of psychotherapy. The course is intended to expose the student to the basic concepts, theories and issues in psychopathology and psychotherapy for more advanced courses in the clinical domain. Prerequisites: Introductory Psychology (6 ch).

PSYC 2403 Foundations of Social Psychology 3 ch (3C) [W]

Examines individual personality and behaviour in relation to other individuals, society and culture. Topics include social perception, attitudes and values, conformity and obedience, prejudice and discrimination, aggression and violence, etc. Prerequisite: Introductory Psychology (6ch).

PSYC 2603 Foundations of Memory and Cognition 3 ch (3C)

An introduction to the fundamental principles of human memory, cognition and information processing in the laboratory and everyday world. Topics include basic cognitive processes, the representation and organization of knowledge, reasoning, problem solving, etc. Prerequisite: Introductory Psychology (6 ch).

PSYC2613   Foundations of Learning   3 ch (3C) [W]

Examines the psychological theories of learning, including cognitive, social, and behavioural theories of learning. These are discussed in terms of their interrelatedness and the research supporting each. Topics include principles of human behaviour, conditioning, and non-associative and associative learning. Prerequisite: Introductory Psychology (6ch).

PSYC 2703 Foundations of Biological Psychology   3 ch (3C) [W]
An introduction to basic neurophysiology, neurochemistry and neuroanatomy for humans and other animals. The course will cover the methods used to discover the fundamental processes underlying neural function and provide basic knowledge for an understanding of how the nervous system is able to produce and control behaviour. Prerequisite: Introductory Psychology (6 ch) or permission of instructor.

PSYC 3033 Health Psychology   3 ch (3C)

This course introduces students to the biopsychosocial approach to health and disease including prevention, development, course, and adaptation to illness. Students will develop an understanding of the mind/body connection, the influence of social and physical environments on our health, cognitive processing of health information, health belief models, and the link between personality traits and health. Psychological approaches to the promotion of health and behaviour change will be examined. A personal health promotion project will be required. Prerequisite: Introductory Psychology (6 ch). Please note that no more than three of PSYC 3033, PSYC 3043, PSYC 3053 and PSYC 3063 may be counted toward a Major or Honours In Psychology.

PSYC 3043 Human Sexuality   3 ch(3C)[W]
Provides a broad introduction to the psychology of human sexuality, including examination of such specific topics as sexual anatomy, sexual behaviour throughout the lifespan, sexual response, sexual dysfunction and therapy, sexual variation, and pregnancy and child birth. Emphasis on placing empirical findings within physiological, personal, interpersonal and social frameworks.

PSYC 3053 Personality   3 ch (3C) [W]

An introduction to classic and contemporary theoretical and scientific approaches to the study and assessment of personality, with a focus on developing an integrated understanding of human personality within its biological, social, historical and cultural contexts. Prerequisite: Introductory Psychology (6 ch). Please note that no more than three of PSYC 3033, PSYC 3043, PSYC 3053 and PSYC 3063 may be counted toward a Major or Honours In Psychology.

PSYC 3063 Psychology and the Internet   3 ch (3 C)

In this course we will examine the unique psychological features of cyberspace and how human behaviour is shaped in this new social realm. Topics related to human interaction, children and the Internet, sexuality on the Internet, computer-mediated communication, Internet addiction, and global consciousness, etc. will be covered. Prerequisite: Introductory Psychology (6 ch). Please note that no more than three of PSYC 3033, PSYC 3043, PSYC 3053 and PSYC 3063 may be counted toward a Major or Honours In Psychology.

**PSYC 3113 Introduction to Statistical Inference 3 ch (3C 1L) (LE)
                in Experimental Psychology**

Introduces experimental design and statistical inference in psychological research. Design decision-making and computational procedures up to analysis of variance are presented. Labs involve collection and analysis of psychological data. PSYC 3113 is required of Honours students in Psychology. Prerequisite: PSYC 2103/PSYC 2123 and PSYC 2113 or PSYC 2103/PSYC 2123 and PSYC 2903.

**PSYC 3123 Introduction to Measurement   3 ch (2C 2L) (LE)
                Theory**

Introduces traditional problems in the measurement of psychological concepts. Labs will involve the development and evaluation of student designed tests and measures. Prerequisite: PSYC 2103/PSYC 2123 ans PSYC 2113

PSYC 3151 Basic Research Seminar I   3 ch (3S) (LE) [W]

Involves active participation in several of the activities related to an empirical research project including planning and development of research, conducting a study, and collection and analysis of data. Students will be required to prepare a formal research paper. The actual program will be determined by the student and a faculty supervisor. Normally restricted to students in their third year whose academic performance would allow them to enter the Honours program during their fourth year. Prerequisite: PSYC 2103/PSYC 2123 and PSYC 2113 and two Psychology foundation courses, permission of a faculty supervisor and Basic Research Coordinator, and a cumulative grade point average of at least 3.3 in Psychology courses.

PSYC 3152 Basic Research Seminar II   3 ch (3S) (LE) [W]

Involves active participation in several of the activities related to an empirical research project including planning and development of research, conducting a study, and collection and analysis of data. Students will be required to prepare a formal research paper. The actual program will be determined by the student and a faculty supervisor. Normally restricted to students in their third year whose academic performance would allow them to enter the Honours program during their fourth year. Prerequisite: PSYC 2103/PSYC 2123 and PSYC 2113 and two Psychology foundation courses, permission of a faculty supervisor and Basic Research Coordinator, and a cumulative grade point average of at least 3.3 in Psychology courses.

PSYC 3213 Language Development   3 ch (3C 1T)

Examines current views on language development and discusses the interaction between cognitive, social, and linguistic development. Possible topics include critical period for language, preverbal communication, gestural communication, and vocabulary and grammar development. Prerequisite: PSYC 2203.

PSYC 3215   Development of Individuals with   3ch (3C) [W]
                 Exceptionalities

A discussion of issues that may arise for individuals with various exceptionalities at different points in the lifespan. Topics may include prenatal testing, academic/vocational placement, independent living, and parenting. The causes, characteristics, and challenges of specific cognitive, language, sensory and physical exceptionalities may be reviewed. Prerequisites: PSYC 2203. **Note**: Credit may not be obtained for both PSYC 3215 and PSYC 4215.

PSYC 3233   Social Development   3 ch (3C) [W]

A review of theories and research examining how various social contexts contribute to individual development. The role of family, peers, and individuals involvement in school, paid or unpaid work, and community settings will be explored. Content may focus on social development in children and adolescents, adults, the elderly, or across the lifespan, depending on the expertise of the instructor. Prerequisite: PSYC 2203.

PSYC 3243   Cognitive Development   3 ch (3C)

Examines cognitive development from a variety of theoretical perspectives. Topics covered include mental representation, attention, memory, and perception. Content may focus on cognitive development in children, adults, the elderly, or across the lifespan, depending on instructor availability. Prerequisite: PSYC 2203

PSYC 3253   Family Processes   3ch (3C) [W]
Examines the theoretical and empirical research on family relationships, the factors that influence functioning, and how families change over time. Topics include intimacy relationships, trangenerational processes, family rituals and rules, and interpersonal communication and boundaries. Relevant case examples are discussed to illustratethe complexity of family realtionshipsand the stressors that families may face. Prerequisite: PSYC 2203.

PSYC 3263   Psychology of Women   3ch (3C) [W]

A lifespan approach to the lives of girls and women, examined in the content of traditional and alternative roles, life events, and status in society . Provides an overview of theories and research on female development, behaviour, and personality. Prerequisite: PSYC 2203.

PSYC 3273   Adolescent Development   3ch (3C) [W]

A review of theories and research examining physical and psychological development during adolescence. Specific topics include puberty, identity, sexuality, and health. Emphasis is placed on normative behaviour and how adolescents' characteristics interact with their contexts (e.g., family, school, peers) to shape development. Prerequisite: PSYC 2203.

PSYC 3313   Psychological Testing   3ch (2C 1T) [W]

The creation of tests that measure psychological phenomena is a major endeavour within the discipline of psychology. The administration, scoring and interpretation of psychological tests is a significant aspect of the work of researchers and practicing clinical psychologists. This course examines existing tests that measure phenomena such as cognition and personality. The course introduces principles of psychological testing, relevant statistical concepts, and the methods by which tests are developed. Prerequisite: PSYC 2113 and PSYC 2313.

PSYC 3323   Approaches of Psychotherapy   3ch (3C) [W]

Surveys prevailing theories and methods of psychotherapy, such as psychoanalysis, client-centred therapy, Gestalt therapy, cognitive-behavioural therapy, family systems approaches, etc. Emphasis is on the techniques used in psychotherapy, and various techniques will be contrasted. Each theory and method is evaluated in terms of research examining therapeutic process and outcome. Prerequisite: PSYC 2313.

PSYC 3343   The Psychology of Crime   3 ch [W]

The purpose of this course is to provide an overview of the area of the psychology of crime with a special focus on Clinical Criminology, also referred to as Forensic Psychology. Issues pertaining to the following topics will be explored: 1) the nature and definition of the crime, 2) the development of the offender (theoretical perspectives), 3) the intersection of crime and mental health, and 4)the victim. Prerequisite: PSYC 2313.

PSYC 3353   Adult Abnormal Pyschology   3ch (3C) [W]

This is an advanced course which adopts a scientist-practitioner perspective on the understanding, assessment, and treatment of adult psychological disorders. Topics can include psychological theories and treatment of depression, anxiety disorders, schizophrenia, eating disorders, substance use disorders, stress and physical health, dissociative disorders and personality disorders. The course will take an integrative, problem-oriented approach by simultaneously examining the theory, research and treatment literature that is pertinent to each disorder. Prerequisite: PSYC 2313.

PSYC 3373   Child and Adolescent Psychopathology   3ch (3C) [W]

Survey of major categories of behavioural and emotional problems of childhood and adolescence. Topics may include depression, anxiety, attention deficit-hyperactivity disorder, learning disabilities, and eating disorders. Prerequisite: PSYC 2203 and 2313.

PSYC 3383   Women and Mental Health   3ch (3C)

Explores and critically evaluates theory and research on mental health problems in girls and women from a feminist perspective. Topics addressed include premenstrual syndrome (PMS) and the role of hormones in girls' and women's mental health problems; depression; eating disorders; dissociative disorders and other sequelae of abuse; and feminist approaches to therapy. Prerequisite: PSYC 2313 or permission of instructor.

PSYC 3403   Applied Social Psychology   3ch (3C) [W]

This course explores the application of social psychology to understand everyday life experience and to solve current social problems. Topics may include improving interpersonal relationships, promoting team cohesion, evaluating media influence, enhancing job satisfaction, promoting community health, and addressing the issues of social justice and equality. Prerequisite: PSYC 2403.

PSYC 3415   Community Psychology   3ch (3C) [W]
This course is designed to introduce students to the science and practice of community psychology, which is the study of psychological solutions to community based problems. Community psychology extends psychology's role beyond a focus on the individual towards a greater understanding of groups, organizations, and communities. Topics may include prevention, under-served populations, cultural diversity, political action, effects of stress on mental health, community organization, empowerment, and mutual help. There will be a focus on how research and science intersect with the practical aspects of working successfully with people in their own communities. Prerequisite: PSYC 2403.

PSYC 3423   Group Processes   3ch (1C 2L) [W]
An exploration of the social psychology of group dynamics. Topics may include group formation and functioning, prejudice, discrimination, leadership, social identity, conformity, group problem solving and decision-making, and inter-/intra-group conflict and cooperation. Emphasizes the theoretical and experiential understanding of relevant concepts. Prerequisite: PSYC 2403.

PSYC 3433   Social Cognition   3ch (3C) [W]
A review of research and theories examining how people make sense of their social world: How they perceive, represent, interpret, and remember information about themselves and about other individuals and groups. Topics may include representation, recall, and use of social knowledge, controllability of thought processes, effects of feelings and desires, and stereotype activation and use. Experimental and quasi-experimental methodologies employed in social psychology will also be discussed. Prerequisite: PSYC 2403.

PSYC 3443   Culture and Pyschology   3ch (3C) [W]

A survey course of theory, methods and research in culture and psychology. Examines the role of culture across a range of psychological areas, including perceptual and cognitive processes, human development, language, gender, and social behaviour. Topics may include cultural variations and similarities in social psychological functioning, how some cultural patterns get established and maintained, individuals' application of cultural knowledge in concrete situations, and how individuals negotiate cultural identities in multicultural contexts. Prerequisite: PSYC 2403.

PSYC 3453   Close Relationships   3 ch (3C) [W]
This course provides an overview of the psychology of close relationships from a social psychological perspective, with a particular emphasis on romantic relationships and friendships. The major theories of close relationships are emphasized, including examinations of evolutionary, attachment, and cognitive approaches, with a strong emphasis on empirical evidence. Research related to topics such as attraction, love, shyness, relationship formation and maintenance, common problems (jealousy, conflict, deception), satisfaction, commitment and well-being are explored, with methodological concerns discussed within the context of each topic. Prerequisite: Introductory Psychology (6 ch).

PSYC 3613   Laboratory in Learning,   3ch (3L)
                   Memory and Cognition (O)
Empirical investigation of current issues in Learning and Memory. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2603 and permission of instructor. Restriction: Credit may not be obtained for both PSCY 3613 and PSYC 4613.

PSYC 3315   Applications of Cognitive   3ch [W]
                   Behavioural Techniques
Empirically based cognitive behavioural techniques derived from the clinical psychology and psychiatric traditions are explored in detail and applied to the management of anxiety and fear, treatment of medical and psychological disorders, and the management of home and classroom environments. A self-management project is required.Prerequisite: PSYC 2313 or PSYC 2603. Students who have received credit for PSYC 3615 cannot receive credit for PSYC 3315.

PSYC 3325   Topics in Behaviour Assessment   1 ch
Focus on research literature related to conducting functional behaviour assessments. Topics include indirect and direct behaviour assessments, functional analysis, and needs assessment. Co-requisite: PSYC 2613, PSYC 3663. Offered online only. Available only to students enrolled in the certificate program.

PSYC 3335   Topics in Behaviour Intervention   1 ch
Focus on the research literature pertaining to advancements in behaviour interventions to decrease aberrant behaviour and increase appropriate behaviour. Topics include antecedent intervention strategies, consequence based intervention strategies, and group contingencies. Co-requisite: PSYC 2613, PSYC 3663. Offered online only. Available only to students enrolled in the certificate program.

PSYC 3345   Skills in Applied Behaviour Analysis   1 ch
This course complements the material covered in other certificate courses by offering hands-on training and practice in the applications of Applied Behaviour Analysis. Students learn how to conduct various behaviour assessments and implement intervention strategies through instruction, demonstration, and practice. Prerequisite: PSYC 2613, PSYC 3663 Co-requisite: PSYC 3325, PSYC 3335. Offered online only. Available only to students enrolled in the certificate program.

PSYC 3365   Topics in Behaviour Analysis: 1 ch
                   Ethical Consideration
Discussion of ethical considerations in conducting research and clinical activity in Applied Behaviour Analysis. Co-requisite: PSYC 3663. Offered online only. Available only to students enrolled in the certificate program.

PSYC 3623   Cognition   3ch (3C)
Covers the basic cognitive processes of memory, problem solving and reasoning, concept formation, and decision making. Prerequisite: PSYC 2603.

PSYC 3633   Motivation and Emotion   3ch (3C) [W]
This course is an introduction to the basic principles of applied behaviour analysis (ABA) and its various applications. The first part of the course gives students a foundation in the basic principles of learning. The second part of the course covers how these principles can be used to explain and modify human behaviour. Topic areas include autism and intellectual disabilities, psychiatric disorders, school psychology, organizational behaviour management, sports, and large-scale social issues.Prerequisite: Introductory Psychology (6 ch).

PSYC 3643   Adult Development and Aging   3ch (3C)
This course considers the study of adult development and aging. Possible topics include the changes in physical development, learning, memory, cognition, personality, and social cognition that are associated with aging. Prerequisite: PSYC 2603 or permission of the instructor.

PSYC 3663   Introduction to Applied Behaviour Analysis   3 ch (3C) [W]
This course is an introduction to the basic principles of applied behaviour analysis (ABA) and its various applications. The first part of the course gives students a foundation in the basic principles of learning. The second part of the course covers how these principles can be used to explain and modify human behaviour. Topic areas include autism and intellectual disabilities, psychiatric disorders, school psychology, organizational behaviour management, sports, and large-scale social issues.Prerequisite: Introductory Psychology (6 ch).

PSYC 3713   Physiological Psychology   3ch (3C) [W]
Examines the physiological bases of behaviour as determined by genetic, neurophysiological, neurochemical and neuroanatomical experimentation. Prerequisite: PSYC 2703

PSYC 3723   Physiological Psychology Laboratory   3ch (3L) [W]
Use of psychophysiological methods, instrumentation and techniques (e.g., event-related potential brain recordings, behavioural observation) in the study of the physiological bases of behaviour in humans and other animals. Students will conduct research experiments and learn the basics of human electrophysiological recording, data collection, and analysis. Prerequisite: PSYC 3713.

PSYC 3733   Neuropsychopharmacology   3ch (3L)
Basic principles of the study of drugs that influence neural systems and induce changes in behaviour. The course will address psychotropic drug assessment, from molecular and biochemical characterization, to behavioural effects in animal test paradigms and finally to clinical applications. Prerequisite: PSYC 2703.

PSYC 3743   Drugs and Behaviour   3ch (3C)
Examines sedatives, hypnotics, stimulants, anaesthetics, analgesics, paralytics, psychotogenics and psychotherapeutics. Includes history of use, presumed mechanisms of action, and effects on human and animal behaviour. Emphasis on how drugs affect the quality of human experience through relief of pain, addiction, treatment of mental illness, etc. Prerequisite(s): PSYC 2703 or permission of instructor. Students who have receive credit for PSYC 3023 can not received credit for PSYC 3743.

PSYC 3745   Principles of Perception   3ch (3C) [W]
Provides a broad introduction to the field of perception and the necessary background for PSYC 3753 or PSYC 4743. Emphasizes issues relevant to psychophysical measurement, visual processes, and hearing. Discussion is in the context of the central traditions of perceptual research such as empiricism and Gestalt. Prerequisite: PSYC 2703.

PSYC 3753   Laboratory in Vision and Hearing   3ch (3C)
Individual laboratory exercises in visual and auditory processes. To familiarize the student with the experimental methodology of sensory psychology, and the introductory assessment of sensory deficits (visual defects, hearing loss, etc.). Prerequisite: PSYC 3745

PSYC 3773   Experimental Human Neuropsychology   3ch (3C) [W]
Emphasis will be on studies that help us to understand the relationship between behaviourally observable phenomena and corresponding brain function. The course will examine what has been revealed about human brain function through the use of specialized types of psychological tests and measures, through biophysical imaging techniques that give us a view of human brain function, and finally through damage to the human nervous system and research on its effects. Prerequisite: PSYC 2703.

PSYC 3783   Experimental Neuropsychology Laboratory   3ch (3L) [W]
Current issues in research in neuropsychology will be examined. Prerequisite: PSYC 3773.

PSYC 4003   Topical Seminar in Psychology (O)   3ch (3S) [W]
An advanced seminar on a topic not represented by one of the Teaching Areas in Psychology. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4123   Special Topics in Qualitative   3 ch (3S) [W]
                    Psychology (O)
An advanced course on a topic in Qualitative Psychology. Open to upper-level students in the Majors or Honours programs in Psychology. Prerequisites: PSYC 2113 and permission of the instructor. Please note that students should consult the Department for current offerings.

PSYC 4203   Topical Seminar in Developmental   3ch (3S) [W]
                    Psychology (O)
Discussion of current issues in Developmental Psychology. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2203 and permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4223   Topical Seminar in Sex and Gender 3ch (3C) [W]
Provides a critical appraisal of the theories and research methods in the area of sex and gender differences and similarities. Specific topics include morality, stereotypes, feminist perspectives, role of the media, scientific method, and epistemological tendencies. Examines the construction of knowledge, and the development of positions, with regards to sex and gender. Prerequisite: 2203 or 3263 or permission of instructor.

PSYC 4303   Topical Seminar in Clinical   3ch (3S) [W]
                    Psychology (O)
Discussion of current issues in Clinical Psychology. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2313 and permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4313   Applied Behaviour Analysis Practicum   6 ch
                    I/Independent Study I
This practicum is a field placement for students, they are required to complete 250 hours of practical service experience in Applied Behaviour Analysis. These placements combine formal education with community service by providing work experience useful for their career and professional profile. Open only to students in the certificate program. A Board Certified Behaviour Analyst supervises a total of 10% of the hours either in individual or group format to meet the BCaBA clinical requirements. Distance based students receive transfer credit upon completion of a 500 hour supervised independent field placement pre-approved by the Faculty Representative of the Applied Behaviour Analysis Certificate program. Co-requisite: PSYC 2613, PSYC 3663. Available only to students enrolled in the certificate program.

PSYC 4323   Applied Behaviour Analysis   6 ch
                    Practicum/Independent Study II
This practicum component is a field placement for students, they are required to complete 250 hours of practical service experience in Applied Behaviour Analysis. These placements combine formal education with community service by providing work experience useful for the career and professional profile. Open only to students in the certificate program. A Board Certified Behaviour Analyst supervises a total of 10% of the hours either in individual or group format to meet the BCaBA clinical requirements. Distance based students receive transfer credit upon completion of a 500 hour supervised independent field placement pre-approved by the Faculty Representative of the Applied Behaviour Analysis Certificate program. Prerequisite: PSYC 4323 Co-requisite: PSYC 3345. Available only to students enrolled in the certificate program.

PSYC 4403   Topical Seminar in Social   3ch (3S) [W]
                    Psychology (O)
Discussion of current issues in Social Psychology. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2403 and permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4603   Advanced Applied Behaviour Analysis   3ch (3S) [W]
Discussion of current issues in Learning, Memory and Cognition. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2603 and permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4713   Topical Seminar in   3ch (3S) [W]
                    Physiological Psychology (O)
An in-depth exploration of current issues in Physiological Psychology. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: one of PSYC 3713, PSYC 3743, PSYC 3773 or permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4053   History of Pyschology   3ch (3C)
Critically examines the content, concepts, techniques and issues of the historical antecedents of modern psychology. Primary as well as various secondary sources are consulted.

PSYC 4103   Special Topics in Quantitative 3ch (3S) [W]
                    Pyschology (O)
An advanced course on a topic in Quantitative Psychology. Open to upper-lLevel students in the Majors or Honours programs in Psychology. Prerequisites: PSYC 2103/PSYC 2123 and PSYC 2113 , and PSYC 3113 or permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4110   Honours Thesis in   6ch (3S 3S) (LE)
                    Research Seminar
Organization and discussion of Honours Thesis research projects. Normally available only to students who have been admitted to a Psychology Honours Program and who are in their final year. Required of Honours students in Psychology during their fourth year. Prerequisite: PSYC 3151 or PSYC 3152, permission of a faculty supervisor and Honours Research Coordinator, and a cumulative grade point average of at least 3.6 in Psychology courses.

PSYC 4743   Topical Seminar in   3ch (3S) [W]
                    Sensation-Perception (O)

Coverage of various issues in Sensation and Perception in a seminar format. Emphasis is on visual and auditory processes, with some coverage of taste, smell, and touch. Laboratory work is included. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2703 and permission of instructor. Please note that students should consult the Department for current offerings.

PSYC 4773   Topical Seminar in   3ch (3S) [W]
                    Neuropsychology (O)
Current issues in research in Neuropsychology will be examined. Open to Upper Level students Majoring or Honouring in Psychology. Prerequisite: PSYC 2703 and permission of instructor. Please note that students should consult the Department for current offerings.

RECREATION AND SPORTS STUDIES

Note: KIN 1001 is considered to be a prerequisite or co-requisite to all RSS and KIN courses for students enrolled in one of the degree programs offered by the Faculty of Kinesiology

RSS 1042   History of Sport and Recreation   3 ch (3C) [W]

This course is designed as an introductory examination of the historical roots of sport, recreation and human movement in western civilization. Significant events and personalities will be highlighted to provide an overview of the sub-discipline of the history of human movement phenomena. Prerequisite: KIN 1001 or consent of the instructor.

RSS 1213   Leisure, Recreation, and Sport Concepts   3 ch (3C)

This course will examine the meanings of and relationships among leisure, recreation, and sport in society. Ideas and philosophies that have shaped contemporary society related to time use, work, and associated concepts will be explored. Prerequisites: KIN 1001.

RSS 2011 Management of Sport and   3 ch (3C) [W]   Recreation Organizations

Introduces the students to the concepts and skills required to successfully manage current and future sport and recreation organizations in a variety of settings in the public, private, and not-for-profit sectors. Includes both theoretical and practical perspectives to help the students understand not only the WHAT and HOW of management, but also the WHY. Prerequisite: RSS 1213 or permission of the instructor.

RSS 2023   Sociology of Sport, Physical Activity & Leisure 3ch (3C)

This course encourages students to explore sport, physical activity, and leisure as social phenomena and important aspects of modern society. We will examine many of the same sociological issues within the framework of sport, physical activity, and leisure that exist in society as a whole. More specifically, we will consider the cultural aspects of sport, physical activity and leisure, how they are related to social institutions (such as education, politics, and economics) and how they affect and are affected by social inequalities.

RSS 2032   Recreation and Sport Programs and Events 3 ch (3C) [W]

Provides students with an understanding of some theoretical concepts related to programming and the techniques and procedures used to develop and implement programs and events in the recreation and sport context. Deals with the underlying principles of planning recreation programs and events and the techniques and procedures used to develop and implement these, and relates these principles to a variety of recreation settings to meet the needs of different interest levels. Prerequisite RSS 2011.

RSS 2052 Foundations of Tourism   3 ch (3C) (A)

Presents both the conceptual and the operational aspects of the tourism industry from a number of points of view including motivations for travel, economic impact, product development, market analysis and future trends.

RSS 1061   Recreation and Sport Delivery Systems   3 ch (3C) [W]

This course will examine the structures, processes and issues that are associated with the delivery of recreation, leisure and sport services in the public, not-for-profit, and commercial sectors. Particular attention will be paid to identifying similarities and differences among the sectors and the relationships that exist among them.

RSS 2062   Psycho-Social Aspects of Leisure   3 ch (3C)

This course will examine current social psychological theory about leisure behaviour and experience. In other words, how do people's personalities and social situations that they encounter during their daily lives shape their perceptions, experiences, and responses to leisure, and how does leisure influence personality and behaviour in other life domains. This course will examine the influence of psychological and sociological impact of leisure on the individual. Specifically, this course will examine, with regard to leisure, the following areas: gender, race, violence, disability, mass media, politics, attitudes, crowd effects, youth sport, coaching leadership, and student athletes. Prerequisite: KIN 1001 or consent of the instructor.

RSS 2081   Health and Wellness I   3 ch (3C)

An examination of health behaviours of individuals, encompassing social, physical, emotional, and intellectual aspects of health and wellness. The course will use health research to address health concerns, trends, risks, and repercussions associated with health decision-making.

RSS 2113   The Use of Computers in Sport and Recreation   3 ch (3C) Management

Designed to provide students with conceptual knowledge and technical competence to comprehend the role of computers in the administration of sport and recreation organizations. The content deals mainly with microcomputer applications with some mention of sport-specific software that operate only on mainframe computers.

RSS 3001   Assessment and Evaluation in   3 ch (3C)   Recreation & Sport

This course focuses on the concepts and methods relevant to the collection and analysis of data needed to address criteria and make informed decisions about the worth or improvement of systems, services, programs and facilities. Topics include understanding context, community and stakeholders, measuring user satisfaction, determining needs, attitudes, opinions and interests. Both qualitative and quantitative methods are considered and applied to actual situations. Prerequisites: Completion of 57 ch towards BRSS or BScKin degrees or with instructor's permission.

RSS 3011   Comparative Programs in Physical Education 3 ch (3C) Recreation and Sport (A)

Examines the evolution, significant influences, current practice, trends and issues that are shaping sports, recreation and physical education in a variety of selected countries around the world compared to Canada. Students will gain an understanding of sports, recreation and physical education systems in Canada and selected countries in the world. Students develop techniques that permit a logical, systematic investigation and comparison of sports, recreation and physical education. Prerequisite: RSS 2023, RSS 1042.

RSS 3051   Advanced Management   3 ch (3C) [W]   of Sport Recreation (A)

An examination of current management concepts and issues facing sport and recreation organizations. Topics include: Risk Management, Contracting of Services, Retrenchment Management, Resource Generation, Advanced Budget Systems, Quality Management, and Managing in a Political Environment. Prerequisite: RSS 2011.

RSS 3052   Recreation, Sport and Law   3 ch (3C) (A)

This course provides an introduction to the law of negligence with emphasis on professional liability and risk management, as well the course includes an introduction to criminal law and contracts. Studied through lecture, case law and selected readings all related to recreation and sport. Prerequisite: RSS 2011.

RSS 3100   Professional Internship   12 ch [W]

A full-time, full-term placement in a professional position with a community agency. An opportunity for the student to relate theory to practice through professional career and field experiences. Students must complete a minimum of 87ch prior to placement with an agency. Specific pre-requisites are determined according to degree option.

Management Option: Pre-requisites include: ADM 2313, RSS 2011, RSS 2032, RSS 1061, RSS 3001, 12ch of Business Minor , and successful participation in all preparatory activities preceding the internship.

Wellness Option: Pre-requites include: BIOL 1711, BIOL1782, KIN 3081, KIN 3282, KIN 3481, RSS 2011, RSS 2032, RSS 1061, RSS 2081, RSS 1213, RSS 3001, KIN 3093, RSS 4083.

RSS 3213   Leisure Education and   3 ch (3C)   Facilitation Techniques (A)

This course is designed to introduce students to leisure education concepts, theories, and related facilitation techniques. Various leisure education models, assessment tools, and intervention strategies will be explored. Consideration will be given to different settings in which leisure education can be implemented. Prerequisites: RSS 2032 or permission of instructor.

RSS 3223   Youth Development through   3 ch (3C)
                 Recreation and Sport

Understanding developmental stages of youth and the impact of recreational and sport programs and services on character, identity, self-esteem, and personal growth. Focus is on facilitating positive youth development and changes in leisure behavior. Prerequisite: RSS 2032 or RSS 3213 or permission of the instructor.

RSS 3311   Leadership Principles and Practices   3 ch (3C) [W]

Provides students with an understanding of the theoretical concepts related to the phenomenon of leadership and an appreciation of the practical application of leadership within a variety of sport, recreation and physical activity settings. Prerequisite: Student must have completed 57 ch toward their degree. Note: Credit will not be given for both RSS 3311 and 4412.

RSS 3913   Practicum I   3 ch (3C/L)

Relates theory to practice through professional career and field experiences. Faculty approval is required prior to any service commitment or registration procedures. Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

RSS 3914   Practicum II   3 ch (3C/L)

Relates theory to practice through professional career and field experiences. Faculty approval is required prior to any service commitment or registration procedures. Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

RSS 4011   Facility Planning and Design for Physical   3 ch (3C) [W]
               Education and Recreation   Provides the

senior student with the most up-to-date data on sport facility design, construction and renovation. Students participate in practical projects. Field trips are required.

RSS 4012   Recreation and Sport Facility Operations   3 ch (3C)

This course provides an overview of the organization, regulations, policies and procedures necessary to operate recreation and sport facilities in the public, private and not-for-profit sectors. It introduces options and important components of facilities from a macroscopic perspective including different levels of management, integration of operations, risk management and the application of technology. This course enhances facility management skills and knowledge to support individuals working within the sport and recreation field. Students will visit a variety of facilities and experience their operations first hand. Prerequisite: RSS 2032 or permission of the instructor.

RSS 4023   Critical Perspectives on Sports/Media   3 ch (3C)

This course takes a critical media studies approach to the production and consumption of sports media. It examines the construction of narratives within and through sport in various forms of mass media, including television, radio, newspapers, the internet and film, and attempts to consider the personal, social and cultural implications of such narratives. The analysis of the sport and the media will be grounded in the context of the working world of sports journalism, consumer engagement with the sports media, and wider sociological processes such as nationalism, globalization and corporate involvement in sport. Prerequisites: Either RSS 2023 or RSS 1042.

RSS 4024   Canadian History of Pucks,   3 ch (3C)
               Parks and Playgrounds

This course examines sport, recreation and physical cultures throughout Canadian history, with particular focus on the period from the 19th Century onwards. Students will gain an understanding of the development and connections of sport and recreation in Canada, through diverse topics such as the playground movement, amateur and professional sport systems, the development of national and provincial parks, the institutionalization of specific sports, and the historical trajectory of physical education and fitness activities. Prerequisites: Either RSS 2023 or RSS 1042.

RSS 4025   Modern Olympic Studies   3 ch (3C)

In this course, the modern Olympic movement is considered in light of historical and sociological approaches. Students will study and debate major issues suchs as competitiveness, politics, nationalism, and commercialization, and assess the influence of significant individuals and events, both inside and outside of the Olympic movement, on the shape of the Olympic Games.

RSS 4032   Event Management   3 ch

Provides senior students with a facilitated experiential learning opportunity to plan, implement and evaluate programs and events in the recreation and support context. This course is designed to build on the foundations from prior experiences and courses. A variety of content delivery methods will be used in addition to an applied experience. Prerequisites: RSS 1213, RSS 2032, and RSS 3072, or permission of the instructor.

RSS 4053   Financial Management of Recreation   3 ch (3C)
and Sport Organizations

This course will provide students with an in-depth examination of the financial issues and challenges facing public and not-for-profit recreation and sport organizations. The course will examine traditional revenue sources such as property taxes, and bonds but will also explore newer concepts of resource generation such as exactions, less-than-fee simple acquisitions, private-public partnerships, contracting out of services, sponsorship, donations and foundations. Various budgeting and financial control systems will also be examined. The course will utilize a variety of delivery methods including lecture, class discussion, guest speakers, individual and small-group work. Prerequisite: RSS 3051 with a "C" or better

RSS 4063   Strategies for Health Promotion   3 ch (3C)

This course examines strategies that enable people to increase control over and improve their health at the individual, community, organizational, and policy levels. It addresses health promotion principles and the change process, including needs identification, planning, and evaluation. Prerequisites: RSS 2081 Health and Wellness I, RSS 4083 Health and Wellness II.

RSS 4081   Marketing and Sponsorship in   3 ch (3C) [W]
           the Recreation and Sport Industry

This course involves the application of marketing and sponsorship concepts, theories, and strategies with regards to sport and recreation in the private, commercial, voluntary and public sectors. Marketing and sponsorship policies, strategies and tactics in terms of product, price, place, promotion, and public relations will be explored.Prerequisite: ADM 1313 or permission of instructor.

RSS 4083   Health and Wellness II 3 ch (3C)

An examination of community and societal factors that influence health, including: income and social status, social support networks, education and literacy, employment and working conditions, social and physical environments, health services, gender, and culture. Prerequisites: RSS 2081 Health and Wellness I.

RSS 4092   Senior Integrative Course   3 ch

This course is intended as an integrating and culminating experience for senior students in Recreation and Sport Studies. It will involve class discussions, guest speakers, case studies, etc. that will enable students to draw on their knowledge and experience to critique current issues, trends and challenges in the field. Students will be responsible for helping to identify issues to be discussed and for preparing and presenting issues in class. Prerequisites: 90 ch and a C or better in all required 1000 and 2000 level RSS/KIN courses.

RSS 4093   Directed Studies in Recreation and   3 ch
               Sports Studies I

Provides opportunities to explore a number of special topics in recreation and sport. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Prerequisite: completion of 57 ch towards BRSS degree.

RSS 4094   Directed Studies in Recreation and   3 ch
               Sport Studies II

Provides opportunities to explore a number of special topics in recreation and sport. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Prerequisite: completion of 57 ch towards BRSS degree.

RSS 4096   Selected Topics in Recreation and   3 ch
               Sports Studies

Selected topics of special interest in the areas of recreation and sport are examined in detail. Special emphasis will be placed on current issues. Topics will be specified by the Faculty. Title of the topic chosen will appear on the student's transcript. Faculty approval is required prior to registration. Open only to students in third year and above.

RSS 4097   Selected Topics in Recreation and   3 ch
                    Sports Studies
Selected topics of special interest in the areas of recreation and sport are examined in detail. Special emphasis will be placed on current issues. Topics will be specified by the Faculty. Title of the topic chosen will appear on the student's transcript. Faculty approval is required prior to registration. Open only to students in third year and above.

RSS 4223   Community Development   3 ch (3C)
This course is an examination of the nature of community and the concept and practice of community development in relation to sport and recreation behaviour and services. It reviews differing interpretations and approaches to community development and investigates current initiatives and projects that encourage citizen engagement and community mobilization. Attention is also given to potential problems and common strategies for addressing the challenges. Prerequisites: Completion of 57 ch towards BRSS or BScKin degrees or with instructor's permission.

RSS 4242   Gender, Sport and Leisure   3 ch (3C)
This course will focus on recent theoretical and empirical research on, and the relationship among gender, sport, and leisure. Topics to be covered include an analysis of men's and women's experiences, attitudes, constraints, challenges and behaviours related to leisure and sport. Emphasis will be placed on understanding ways in which gender relations and gender role expectations affect and are affected by sport and leisure. Prerequisite: must have completed 57 ch.

RSS 4800   Directed Studies in Recreation   6 ch (6C)
                    and Sport Studies
Provides opportunities to explore a number of special topics in recreation and sport. Faculty approval is required prior to registration. Title of the topic will appear on the student's transcript. Prerequisite: completion of 57 ch towards BRSS degree.

RSS 4900   Honours Research Project   6 ch [W]
BRSS Honours students must complete a research project under the supervision of a faculty member. The project can take the form of a thesis, report, or case study as determined by the faculty member. A presentation is required. Prerequisite: Students must be accepted into the BRSS Honours program (see Honours program degree requirements).

RSS 4910   Advanced Practicum   6 ch (6C/L)
Continuation of RSS 3913/3914. Prerequisites: must have completed 48ch and have an agpa of at least 2.5.

RSS 5071 Careers and People Management in   3 ch (3C)
                    Recreation and Sports Organizations
This course is an examination of potential career paths for students looking to enter into the recreation and sport field. In addition, this course provides practical components regarding Human Resource Management. Some of the topics covered include: recruitment and retention of volunteers, developing and implementing performance appraisals, understanding personalities and abilities, job design, interviewing applicants, creating reward systems, staffing, and human resource policies. Prerequisite: This course is primarily for grad students, but upper year undergraduate students with a 3.3 agpa or higher, and an interest in people management are encouraged to enrol.

RENAISSANCE COLLEGE

Note: See beginning of Section H for abbreviations, course numbers and coding.

Codes for Renaissance College Courses are as follows:

RCLP 1001   Leadership Foundations   3 ch (M/C/S)

Students are introduced to the philosophical and historical foundations of leadership theory and practice. Furthermore, they will study theories and models of leadership. Finally, they will explore their own as well as others potential to contribute to leadership processes. The course will focus on developing student skills in academic reading and writing, self management and presentation in order to enhance their leadership abilities.

RCLP 1005   Integrative Leadership Forum   3 ch (S/P/LE) [W]

This forum provides an opportunity for integrative dialogue and study of contemporary issues and their complex relationships from a critical interdisciplinary perspective. Includes a combination of group discussion and problem-solving as well as individual study. (Limited to students registered in the Renaissance College Interdisciplinary Leadership Studies Minor or Bachelor of Integrated Studies)

RCLP 1010   Formative Learning Portfolio I   1 ch (M/S 2T)

Portfolio I introduces students to the role and purpose of learning portfolios, the concept and development of self-analysis and its application to the notion of growth and competency within each of the six Renaissance College Learning Outcomes. Students create formative portfolios using the evidence from their RC courses, elective, elective courses, their extra-curricular activities and their formal learning activities. RC Faculty members assess Portfolios and a mark of CR/NCR is awarded in the second term of the first year.

RCLP 1011   Worldviews, Religions and Cultures 3 ch (M/S)
This course explores various religious and secular worldviews or philosophies of life, what they are, how they come to expression in our everyday actions and their formative influence on cultures, communities, individuals and particularly people in positions of leadership. To enhance knowledge of self and others, students visit sacred places, explore the worldviews of others and gain critical awareness of their own.

RCLP 1021   Concepts of Enhancing Personal   3 ch (M/P S/L)
                    Well-Being

Introduces the learner to theories and practices of developing a person's well-being. Readings, discussions and experiential learning activities focus on the physical, emotional, intellectual, social, and spiritual aspects of wellness.

RCLP 1052   Mathematical and Economic Approaches   3 ch (M/PS)
                    to Problem-Solving

Knowledge of the languages of mathematics and economics is important for public policy problem-solving. This module will provide an initial exposure to mathematical and economic reasoning, primarily through a problems-based approach using finite mathematics and basic economic principles.

RCLP 1062   Citizenship and Community Issues 3 ch (M/P S)

An interdisciplinary examination of the social, ethical and political dimensions of citizenship. In addition to surveying the rights and duties of citizenship in a democratic society, the course reviews different forms of civic engagement in the public domain and key issues surrounding social equality and diversity among citizens. These topics are examined in the context of leadership, focusing on the critical understanding of the various roles that citizens play as members of local, national and global communities. Emphasis is placed on developing and maintaining a broad social and political awareness of the forces and events that shape these communities.

RCLP 1111   Renaissance College Integrative   6 ch (M/P S) (LE)
Forum 1

This forum provides an opportunity for integrative dialogue and study about contemporary issues and their complex relationships from an interdisciplinary perspective. Students will learn strategies to assess the congruence of a person's ideas and actions as well as to evaluate and debate the ethical implications of both. Co-requisite: RCLP 1001, RCLP 1011, RCLP 1052; or permission of the instructor.

RCLP 1112   Renaissance College Integrative   6 ch (M/P S) (LE)
Forum II

This forum continues the interdisciplinary and integrative dialogue and study of RCLP 1111. Special emphasis is placed on the contributions of science, technology, economics and mathematics. Prerequisite: RCLP 1111. Co-requisite: RCLP 1021, RCLP 1042, RCLP 1062; or permission of the instructor.

RCLP 2001   Practicing Leadership in   3 ch (M/P C/S)
Community Projects

Students study and practice leadership in the context of diverse communities and national organizations. Initiating, planning, executing, controlling and closing a leadership project in an organization of the student's choice as well as continuous reflection on and evaluation of this project are at the core of this course. The course focuses on developing student skills in project management, communication, and cooperation.

RCLP 2014   Public Policy Special Topics   3 ch (M/P S)
Forum I

This forum addresses contemporary Canadian public issues in social, political or cultural life from an interdisciplinary perspective. Participants demonstrate leadership by discerning the key issues and their complex relationships; bringing to bear their knowledge, problem solving ability and values to engage in dialogue and study and to formulate viable solutions with stakeholders.

RCLP 2020   Formative Learning Portfolio   2 ch (C/M/S 1T,C/M/S 2T)
Module II

Portfolio II enhances students' understanding and use of learning portfolios as they apply self- analysis to their growth and competency in each of the six Renaissance College Learning Outcomes relative to their developing understanding of leadership. Students create formative learning portfolios using evidence from their RC courses, disciplinary minor, extra-curricular activities, Canadian internship, and their informal learning activities. RC faculty members assess portfolios and a mark of CR/NCR is awarded in the second term of the second year.

RCLP 2023   Canadian Internship   12 ch (M/P) (LE)

A full-time limited term placement in an agency provides an opportunity for the student to relate theory to practice through a field experience. The internship includes a mentor at UNB and a mentor in the agency, a reflective log, and a presentation during the subsequent fall term.
Location: variable and for a period of time that may be between 12 to 16 weeks. Prerequisites: RCLP 1001, 1010, 1011, 1021, 1042, 1052, 1062, 1111, 1112; or permission of the instructor

RCLP 2042   Natural Science,   3 ch (M/P/C/S)
Technology and Society

Introduces the learner to the great ideas of natural science and explores their impact on our thinking, attitudes, models, technologies and society. Topics will include: the scientific method and ways of knowing about our world; philosophical implications of science; important technical innovations, their scientific basis, and their impact on society. Students cannot receive credit for both RCLP1042 and RCLP2042.

RCLP 3002   Practicing Leadership in Cross-Cultural   3 ch (M/S)
Contexts

Students study leadership in global and cross-cultural contexts. They engage in cross-cultural projects and study and reflect on the impact of cultural differences and diversity on leadership processes. The course focuses on developing skills in cross-cultural communication and cooperation.

RCLP 3015   Public Policy Special Topics   3 ch (M/P/S)
Forum II

This forum, a continuation of RCLP 2014 , addresses international public policy issues in social, political or cultural life from an interdisciplinary perspective. Participants demonstrate leadership by discerning the key international issues and their complex relationships; bringing to bear their knowledge, problem solving ability and values to engage in dialogue and study and to formulate viable solutions with international stakeholders.
Prerequisite: RCLP 2014 or permission of the instructor

RCLP 3030   Integrated Learning Portfolio   3 ch (3C 2T)

Students graduating from the Bachelor of Integrated Studies are required to construct personal learning portfolios to demonstrate achievement in each of the program's articulated learning outcomes. This course introduces the learning outcomes, the theory and practice of experiential learning, and reflective writing, as students work toward constructing their understanding of the role and purpose of a personal learning portfolio. May be taken only by students registered in the BIS program or the Certificate in Leadership Studies.

RCLP 3046   International Internship   12 ch (M/P) (LE)

Small teams of students embark on international placements with cooperating agencies in order to: contribute as a team member to a community effort; appreciate multiple perspectives on issues; understand how others who have different circumstances, values and visions of life would experience situations and decisions; learn a basic level of fluency in another language; and to evaluate how leadership functions in other cultures and societies.

Prerequisites: RCLP 2023 and RCLP3002 or permission of the instructor.

RCLP 3701   Special Topics in Leadership   3 ch (3S)

An in-depth examination of a specific leadership topic. Each topic will be given an appropriate title that will appear on the student's transcript. Each course will also help students develop competence in one or more of the Renaissance College learning outcomes. Students may take more than one topic for credit.

RCLP 3775   Science & Religion - Understanding   3 ch (C/S) [W]
Through Dialogue

This course seeks to develop a deeper understanding and appreciation of the relationship between science and religion through dialogue. Students examine major paradigm shifts and philosophical beliefs and assumptions held by both disciplines. Significant light will be shed on certain major issues through the mutually enriching dialogue between science and religion. The course focuses largely, but not exclusively, on Western science and religion in the modern period.

RCLP 4001   Directed Studies in Interdisciplinary   3 ch (M/P) [W]
Leadership

Individualized study of a topic of interest to the student developed in consultation with a faculty member. and with approval of the Dean. This course engages students in applied or basic research activities.

RCLP 4002   Change Leadership and Social   3 ch (M/P/C/S) [W]
Entrepreneurship

Students study the challenges of leading and facilitating change in complex environments. Furthermore, they explore how the concept of social entrepreneurship and public policy approaches may help them to initiate, set up and maintain sustainable community initiatives and organizations. The course focuses on developing student skills in facilitation and portfolio and program management,

RCLP 4031   Images and Insights   3 ch (M/P S/L)

Questions surrounding how images educate, how they make visible emotional and intellectual content, the effects of the visual on human beings, and the visual as interdisciplinary provide a philosophical basis from which the relationship of visual literacy to leadership is explored and developed. There will be a nominal studio fee associated with this course. Students cannot receive credit for both RCLP1031 and RCLP4031.

RCLP 4040   Summative Learning Portfolio   2 ch (C/S M 1T, Module III   C/S M 2T)

In portfolio Module III, students submit a summative learning portfolio to demonstrate their growth and competency in the RC learning outcomes and connect this with their long range career and life plans. Final presentations highlight their learning using all course work and other experiences, including the national and international internship programs. RC faculty members assess the Final Summative Portfolios and a mark of CR/NCR is awarded in the second term of the third year. Prerequisite: RCLP 2020.

RCLP 4997   Directed Studies in Interdisciplinary 1, 2, or 3 ch (M/P) [W] Leadership

The opportunity to gain leadership skills, training and experience through significant involvement in leading, directing, coaching and/or managing groups or individuals in the community or on campus. Each credit hour requires at least 40 hours of leadership and learning activities. Students must receive Dean's approval.

RUSSIAN

Note: See beginning of Section H for abbreviations, course numbers and coding.

For a description of an interdisciplinary major/minor program in Russian and Eurasian Studies see the "Russian and Eurasian Studies" section found in the Faculty of Arts program information contained in Section G of this calendar.

RUSS 1013   Introductory Russian I   3 ch

Closed to students with any knowledge of Russian. Sound system of Russian and elementary structures. Emphasis on the four basic skills of listening, speaking, reading, and writing. Prerequisite: No prerequisite.

RUSS 1023   Introductory Russian II   3 ch

Continuation of RUSS 1013. Prerequisite: RUSS 1013.

RUSS 1043   Russian Culture I   3 ch (3C) [W]
(Cross Listed: WLCS 1043)

Significant aspects of Russian culture from the 10th to the end of the 19th century. Topics include Russian Icon Painting and Architecture, Russian culture between Europe and Asia; Ivan the Terrible as cultural type; women in Russian culture; serfdom and slavery; Russia's contribution to the development of terrorism and revolution; the reforms of Peter the Great; Russian Orthodoxy, etc. Conducted in English. Open to students of all years.

RUSS 1053   Russian Culture II   3 ch (3C) [W]
(Cross Listed: WLCS 1053)

Significant aspects of Russian and Soviet culture in the 20th century. Topics include Russian avant garde painting; the Bolshevik Revolution and apocalyptism; class and corruption; Socialist Realism; Stalin and Stalinism; women's roles under the Soviets; Eisenstein and Soviet cinema; the artificial famine and the Gulag; literature and censorship; Soviet sport and society; Glasnost and culture; etc. Conducted in English. Open to students of all years. No prerequisites.

RUSS 2013   Intermediate Russian I   3 ch

More complex grammatical structures and more advanced texts. Prerequisite: RUSS 1023.

RUSS 2023   Intermediate Russian II   3 ch

Continuation of RUSS 2013. Prerequisite: RUSS 2013.

RUSS 3013   Advanced Russian I   3 ch

Through the study of advanced grammar, oral discussion of contemporary topics and written assignments, the students' competence in Russian is improved and their skills in idiomatic and written usage are developed. Prerequisite: RUSS 2023 or equivalent. Offered in alternate years.

RUSS 3023   Advanced Russian II   3 ch

Continuation of RUSS 3013. Prerequisite: RUSS 3013 or equivalent. Offered in alternate years.

RUSS 3051   Introduction to 19th-Century Russian 3 ch (3C) [W] Literature in Translation
(Cross Listed: WLCS 3051)

Includes the Golden Age of Russian Literature (Pushkin, Lermontov); the great realists (Dostoevsky, Tolstoy, Turgenev); and the emergence of Russian Drama (Chekhov). Themes followed include the superfluous man; nihilism and politics in literature; the Russian female protagonist from Karamzin's Poor Liza to Dostoevsky's prostitute Sonya; etc. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor.

RUSS 3052   Introduction to 20th Century Russian 3 ch (3C) [W] Literature in Translation
(Cross Listed: WLCS 3052)

Includes Futurism, Symbolism, Acmeism and Russia's Silver Age; literature and Revolution; housing and homelessness in Soviet literature; women's writing; Socialist realism (boy meets girl, boy gets tractor); censorship and oppression; experimental prose of the 20s; aspects of Soviet cinema; Russia's New Wave' meets America's Beatniks; Bulgakov's magical fable; etc. Conducted in English. Open to students who have completed at least 30 ch of university courses or by permission of instructor.

RUSS 3083   Seminar I: Genre   3 ch [W]
(Cross Listed: WLCS 3083)

The development of a particular genre in Russian literature and an examination of various works in that area. Prerequisite: Departmental approval.

RUSS 4003   Topics in Russian and Eurasian   3 ch Studies
(Cross-listed: WLCS 4003)

Allows students to pursue special questions in an area of Russian and Eurasian Studies of particular interest to them.

RUSS 4043   Literature and Religion in 19th and   3ch (3C) [W] 20th Century Russia and Spain (O)
(Cross Listed: SPAN/WLCS 4043)

Studies religious works of Spanish and Russian writers such as Unamuno and Tolstoy. Examines their religious thought and their criticism of the established Spanish Roman Catholic Church and Russian Orthodox Church respectively. Outlines the situation of the Eastern Orthodox Church in Russia as well as the situation of the Catholic Church in Spain in the 19th and the 20th Centuries. Analyzes the position of these writers towards their respective Churches and the creation of their own moral codes through the texual analysis of some of their most relevant works. The course will be offered in English an is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

RUSS 4053   Seminar II: Author   3 ch [W]

An intensive study of the life and work of a particular author or a number of authors. Prerequisite: Departmental approval.

RUSS 4061   Russian Women Writers   3 ch (3C) [W]
(Cross-Listed: WLCS 4061)

Despite their enormous contributions at many historical points, women writers still struggle for full acceptance in the Russian literary canon, witness special sections even today in most Russian bookstores for "Feminine Literature". This course will examine the work of a range of better and lesser known Russian women writers from the late 18th to the early 21st centuries, in poetry, prose, drama and memoir. Writers to be studied include Catherine the Great, the" Russian Amazon", Nadezhda Durova a cross-dressing cavalry maiden during the Napoleonic campaign, the giants of the Silver Age Anna Akhmatova and Marina Tsvetaeva, ostensible socialist-realists like Vera Panova, Natalia Baranskaia and I. Grekova, dissident figures such as Evgeniia Ginzburg and Natalia Gorbanevskaia, and older and younger contemporary writers such as Ludmila Petrushevskaia, Tatiana Tolstaia, and Marina Palei. Works and authors will be studied in historical and cultural context, and connections to other arts, in particular visual arts, film and popular music will also be explored. The course and all readings are in English. Open to students who have completed at least 30 ch of university courses or by permission of the instructor. Students with credit for RSST 4003 Russian Women Writers may not take this course for credit.

SCIENCE

Note: See Courses->Saint John of Fredericton->Standard Course Abbreviations in the online undergraduate calendar for an explanation of abbreviations, course numbers and coding.

SCI 1001   Exploring Topics in Science   0 ch(1C 0.5L)
The course is designed for entering Science students wishing to explore all disciplines offered in the Faculty of Science. Laboratory and lecture instructions will draw from topics in Biology, Chemistry, Earth Sciences, Physics and Mathematics.

SCI 2611   Life Science For Educators   3 ch (3C 3L)
This course is designed for undregradues preparing for entrance to an elementary teacher education program. It is an introductory level courses for students having a limited science background. The topics selected are based on the Atlantic Provinces Science Curriculum, 1995. Included are: properties of living things, life processes and organization of living things , populations, energy flow and cycles within systems, the earth its atmosphere. This course is not open to science majors.

SCI 2622   Physical Science For Educators (Grades K-8)   3 ch (3C 3L)
This course is designed for undergraduates preparing to entrance to an elementary teacher education program. It is an introductorylevel course for students having limited science backgrounds. Demonstrations, activities and labs will be integrated into the lectures. The topics selected are based on the Atlantic Provinces Science Curriculum, 1995. These include topics in chemistry and physics for the grades K-8 science curriculum. This course is not open to science majors.

SOCIOLOGY

Note: See beginning of Section H for abbreviations, course numbers, and coding.

SOCI 1503   Sociological Perspectives   3 ch [W]
Introduces the basic concepts, theories, perspectives, and approaches of sociology and their application to the study of society and the relationship between the individual and society. Specific topics used to illustrate these sociological perspectives will include some combination of issues concerning socialization, sex and gender, family, community, population and aging, urban life, religion, race and ethnicity, work and occupations, inequality, education, environment, globalization, politics and social movements, technology and social change.

SOCI 1513   Picturing Society: Image, Meaning,   3 ch [W]
and Memory in the Photographic Era
How do photographs affect the way we think of ourselves (e.g., our body image) and of others (e.g., the "primitives" pictured in National Geographic)? How do photographs create desire (e.g., in advertising and pornography)? Why do people take photographs of friends and family but rarely photograph complete strangers? These questions explore the nature of a "picturing society", one where individuals are surrounded by photographic images and, as a result, the ability to capture realistic representations of the world around us influences image, meaning, and memory. The term "picturing society" also refers to the process of using visual information to understand the characteristics of society - social class and gender divisions, social structure, the process of social change, etc. Photographs from a wide variety of contexts - personal, commercial, scientific, artistic, and others - will be used to explore both aspects of picturing society.

SOCI 1523   Youth Culture and Society   3 ch
This course provides an introduction to the sociological imagination by allowing you to make the sociological connections between your personal world and the social world. Sociological perspectives and approaches are introduced through examination of such aspects of youth in contemporary Western societies as identity and sub-cultures, sexual behaviour, music, consumerism, religion, in schools, employment, crime and violence, and other issues affecting youth and their transitions to adulthood.

SOCI 1543   Men and Women – Then and Now   3 ch [W]
Life is gendered from the moment of birth. Throughout the various developmental stages, girls and boys are exposed to a variety of messages that in some ways are represented by the fairytales read in childhood. Adolescents learn the price of deviating too far from the roles or expectations placed upon young men and women in our culture through formal and informal sanctions upon their behaviour. The choices, opportunities, and obstacles that we face as adults, are in large measure built upon the gender messages of childhood. Strategies for identifying the gendered nature of work, leisure, advertising, parenting, and aging will be amongst the topics discussed.

SOCI 1563   Violence and Society 3 ch
Introduces a broad range of crimes of violence from sociological perspectives. Includes a survey of political violence such as genocide, holocaust, state and anti-state terrorism; analysis of hate crimes and different types of homicide such as serial murder, mass murder, and thrill killings; examination of various manifestations of violence against women such as mass and date rape; exploration of kinds of assault such as physical assault, spousal battery, and child abuse; and robbery.

SOCI 1583   Current Social Issues   3 ch [W]
Focuses on selected social issues in such areas as Aboriginal/non-aboriginal relations, the environment, and gender; inequality and poverty; the media; racism, ethnic relations, and language; schooling and jobs; cities; urbanization; deviance and crime; as well as globalization.

SOCI 1593 Hooked on Religion   3 ch [W]

Whether it is a prayer said in times of sorrow, grace at a meal, a religious ritual to celebrate adolescence, fasting, advice from a faith leader, or a spiritual blessing for a long-term intimate relationship, contact with religion comes in many different forms. Some Canadians "believe without belonging" while others belong to religious organizations but are unsure of their beliefs. Topics include patterns of spirituality in Canadian society, new religious movements, gender and family issues within contemporary religions, violence, and the impact of immigration and multiculturalism on the journey of faith. The impact of changing socio-cultural conditions on religion in Canadian society will be highlighted.

SOCI 2203   Interpersonal Relations   3 ch
An introduction to a variety of perspectives designed to provide insight into social interaction on the interpersonal level. Attention is also given to some of the methodological problems involved in achieving a better understanding of this area of social life.

SOCI 2223 Introduction to Mass Communications   3 ch
A critical overview of mass communications within Canadian society: media institutions and audiences; processes and the impact of the media; media control and policy; social problems and the media; and social issues in an information society.

SOCI 2303   Sociology of Families   3 ch [W]
Examines sociological perspectives on marriage and family life: changing forms and functions of the family in the context of the growth of capitalism and industrialism in Western society, women, liberation and the family, patterns and ideologies of family formation and dissolution, changes in family law, and future prospects and alternatives.

SOCI 2313   Sociology of Women I   3 ch
Focuses on the role of women within a historical and contemporary context, including women's position in the family, and in educational, political, and economic institutions. The nature, perpetuation, consequences, and the ideology of sexism in capitalist and non-capitalist societies will also be examined.

SOCI 2345   Sociology of Aging   3 ch [W]
An introduction to the basic physical, psychological, and demographic changes which occur in aging. Emphasis is given to understanding the everyday world of the young old, their participation in family life, personal life style and community activities after retirement, and with the restrictions created by limited financial resources.

SOCI 2355   Social Gerontology   3 ch [W]
An introduction to the world of the frail elderly, this course looks at the challenges of more advanced age, declining health, the loss of spouse and friends, and the need for either informal or formal care in the community.

SOCI 2365   Sociology of Dying and Death   3 ch
Examines the process of dying and death through a consideration of the cultural and institutional expectations and interpretations which surround this final stage in the human experience. The focus is on the North American context although other social and historical contexts will provide insights and background to the course work.

SOCI 2374   Sociology of Science and Technology   3 ch
Examines the importance of science and technology in contemporary society. Emphasis is placed on scientific rationality and the shaping of technology; political and economic forces; ideology and cultural values; gender and stratification; and on techno-science's effect on colonialism, biotechnology, intellectual property ownership, and digital information technology inequality.

SOCI 2375   Sociology of Health, Illness and Medicine   3 ch [W]
Examines the social nature and consequences of health and illness and looks at medicine as an institution and a form of social control. Areas to be covered include the delivery of health care, the social construction of medical knowledge, social inequality and its impact on health and disease, the medical profession, the medical industrial complex, and sexism and patriarchy in the medical system.

SOCI 2403   Contemporary Canadian Issues   3 ch
An introduction to current social issues in Canada such as social inequality, regionalism, unemployment, media concentration, the role of multinationals, and the state of the Canadian economy. The impact of these in shaping our everyday actions and beliefs will be examined.

SOCI 2433 Social Problems (O)   3 ch [W]
This course is designed to provide students with an opportunity to develop an understanding of various sociological approaches to the study of social problems and to focus on a selection of substantive issues such as the role of social movements in the construction of social problems.

SOCI 2503   Social Movements and Social Revolutions   3 ch [W]
An analysis of twentieth century social movements and revolutions from a sociological perspective. Emphasis is on a critical understanding of why they arise, why some fail, and why others succeed.

SOCI 2513   Routes to Community   3 ch
Explores the concept of community and belonging today, and introduces some of the important sociological studies of community, including many variants that are not commonly recognized. Considers ideas about the perceived loss of, and the attempts to reclaim, community in society.

SOCI 2523   Social Organization   3 ch
Introduction to the study of general patterns and processes of social life. Attention is given to the basic forms of organization at the individual, group, and institutional levels.

SOCI 2533   Information Society   3 ch [W]
Investigates 'the information society' debate by focusing on the major contributors who argue that the information society is new and revolutionary. Other scholars accept the important role of information technologies in contemporary society but maintain that these technologies help broaden and extend existing social, cultural, economic, and political relations.

SOCI 2534   Technology and Social Change   3 ch [W]
Examines the relationship between technology and social change, such as the sources and effects of technical change, the control of technology, and the origin and nature of controversies involving modern technologies.

SOCI 2603   Sociology of Deviance   3 ch [W]
Examines the elements and patterns of deviance, basic principles of both normative and deviant behaviour, and the institutionalization of each. Examples of specific areas and types of deviance are studied in some detail.

SOCI 2613   Delinquency   3 ch
An examination of the history of juvenile delinquency, its incidence, its causes, and the methods of investigation. Also deals with agencies involved in the adjudication and treatment of the juvenile and youthful offender.

SOCI 2703   Population Studies   3 ch
An examination of world and Canadian population variation and change through consideration of underlying fertility, mortality, and migration patterns. Also explores the rise and development of modern population theories, models, and policies.

SOCI 3004   Theoretical Foundations of Sociology   3 ch [W]
A critical review of the first and second generations of sociology in Europe and the United States, with special emphasis upon the ideas of thinkers such as Comte, Spencer, Marx, Weber, Durkheim, Mead, Cooley, Merton, and Parsons.

SOCI 3006   Intervention Strategies and Programs for   3 ch [W]
        People who Batter (O)
This course will examine the major theories related to violence in intimate relationships and explore the different intervention strategies and programs which evolved from these theories. Credit cannot be obtained for both FVI-3006 and SOCI-3006. Prerequisite: 3 ch from any SOCI 1000-level course; or permission of the instructor.

SOCI 3014   Major Developments in Contemporary   3 ch [W]
        Sociological Theory
An overview of major developments in late 20th century sociological theory: the critique of functionalism and the rise of conflict theory; feminism and the critique of male-stream sociology; the revitalization of interpretive sociology; the emergence of neo-functionalism; and the debate over post-modernism. Prerequisite: SOCI 3004 .

SOCI 3023   Theories of Human Nature   3 ch
Examines the basic assumptions of different social theorists' conceptions of human nature and the implications of these models for the social sciences.

SOCI 3100 Research Strategies   6 ch [W]
Introduction to the logic and forms of social research and statistical analysis. Examines the basic concepts and procedures required to understand and participate in the research process. Prerequisite: SOCI 3123 to be taken prior to or during the same academic year (concomitantly) as SOCI 3100. Students who have completed SOCI 3103 or its equivalent may not receive credit for SOCI 3100.

SOCI 3103 Understanding Sociological Research   3 ch
Introduction to the nature and forms of social research with emphasis on reading, interpretation, and evaluation. Students who have completed SOCI 3100 or its equivalent may not receive credit for SOCI 3103.

SOCI 3123 Statistics in Sociology 3 ch
Introduction to the statistical analysis of sociological data, emphasizing the selection, application, and interpretation of statistical techniques.

SOCI 3223 Ethnic Relations in Canada   3 ch
Examines the interactional and institutional processes involved in ethnic and intercultural relations. Focuses on group experience, status and identity, communication and language, and the historical and contemporary conditions of social change, tension, and conflict.

SOCI 3243 Sociology of Culture 3 ch
Studies cultures as idea and value systems. Examines how cultural meanings are interpreted and used by individuals and groups in the course of everyday living.

SOCI 3252 International Media, Culture,   3 ch [W]
        and Communications
An investigation of the issues, institutions, and actors related to international media, communications, and culture. Emphasis is placed on conflicting views surrounding the new world information and communication order (NWICO), flows of information, internationalization, globalization, sovereignty, and democracy.

SOCI 3253 Sociology of the Media   3 ch
Examines the place of media (such as film, television, and newspapers) in contemporary social life. Analyzes how media have emerged and developed, the organizational forms they have taken, and how they reflect and influence shared social experience.

SOCI 3303 Religion in Western Society   3 ch [W]
Explores the role of religion in the Western World. Examines sociological theories about the nature of religion, the debate concerning secularization in modern society, and the contemporary relationship between religion and the state. Considers the impact of new religious movements.

SOCI 3312 Political Sociology (Cross Listed: POLS 3312)   3 ch
Examines the relations between society and the state by comparing traditional political sociology with the contemporary approach. Issues include the nation state as the center of political activity, how power is exercised through institutions, social groups, class, the production of identity or subjectivity, how globalization and social movements decenter state political activity, the impact of these changes on citizenship and democracy.

SOCI 3335 Religion, Gender & Society   3 ch [W]
An examination of the relationship between religion and gender in various interpersonal and societal contexts. Emphasis is placed upon understanding how modern religion both contributes to and challenges traditional notions of masculinity and femininity.

SOCI 3370   Formal Care of the Elderly   6 ch
This two term course offers to the student a placement with an organization which provides service to seniors. The student will explore, as well, critical issues in the social organization and culture of formal care in Canada through research and monthly seminar participation. Enrolment is limited.

SOCI 3371 The Institution of Health Care   3 ch [W]
Examines the institution of health care with particular emphasis on the Canadian health care system. Topics to be covered include: theoretical approaches to the sociological study of health care; the history and development of Canada's Medicare system; the pharmaceutical industry; alternative/complementary health care; the socialization and legitimation of health care professionals; and the patient/practitioner relationship.

SOCI 3373   Sociology of Science 3 ch [W]
A comparative analysis of the changing social role and significance of science in the East and West. Emphasis on the conditions of scientific work and development, on science as an institution, form of interaction, and world-view.

SOCI 3383   Military Sociology   3 ch
A comparative analysis of the nature and purpose of military institutions in different kinds of societies. Studies the military as a calling and an occupation, the role of the military in the rise of the state and the industrialization of society, and the social causes and consequences of the use of military means.

SOCI 3403 Social Interaction   3 ch
Examines social interaction and communication in society as it occurs in social encounters and gatherings. Explores the presentation and projection of self in everyday life.

SOCI 3472 Sociology of Music   3 ch
Examines the wider socio-cultural context in which music is produced, distributed, and listened to (macro perspective), and how performers create and make music together (micro perspective). Also explores music as a social text.

SOCI 3523 Sociology of International Development   3 ch [W]
Examines the process of social transformation in the third world. Includes discussion of ties between developed and under-developed countries, patterns of industrialization, urbanization, changing class structure including its relation to the state.

SOCI 3533   Social Stratification   3 ch [W]
Examines the nature of social stratification from both a historical and a comparative perspective. Attention is given to current controversies in this area.

SOCI 3543 Sociology of Gender Relations   3 ch [W]
Examines the social construction of masculinity, femininity, and changes in gender relations over time and in different societal contexts.

SOCI 3553 Sociology and the Environment   3 ch [W]
A sociological examination of the way humans perceive and relate to their physical environment. Potential topics include: environmentalism as a social movement, the social dynamics of environmental controversies, and public policy toward the environment.

SOCI 3563 Global Perspectives in Environmental   3 ch [W]
             Health (O)
Explores the broad conditions that shape environmental health, with special emphasis on both sociological analysis and political ecology. We will examine questions of science, public policy and social justice. This course will bridge the gap in understanding between policy and social perspectives and examine emerging strategies, from community-based monitoring to international negotiations concerning health and environment.

SOCI 3603 Criminology   3 ch [W]
This course explores the subject matter of criminology and its relationship to other academic disciplines. Examines different concepts and terms commonly used in criminology, the specificity of criminology, relationship between theory and practice, the history and evolution of criminological thought, and the methods of investigation into criminal behaviour. The practical applications of criminology and the foundations of a modern criminal justice policy will also be discussed. Students who completed SOCI 3610 or its equivalent may not receive credit for SOCI 3613 .

SOCI 3613   Theories and Perspectives in Criminology   3 ch
An examination of the historical development of criminological theory and the causes of crime. Deals with criminal causation theories and with an evaluation of the theories and purposes of punishment. Prerequisite: SOCI 3603 or with permission of the Department. Students who completed SOCI 3610 or its equivalent may not receive credit for SOCI 3613 .

SOCI 3623 White Collar Crime   3 ch
Emphasizes that organizations, not just individuals, act and therefore can commit deviant acts. An analysis of the organized abuses of institutionalized power, particularly on the part of corporations and governments. The problem of controlling corporate and governmental deviance will also be discussed, as organizations pose prevention and control problems differentLY from individual deviants.

SOCI 3634 Violence Against Women   3 ch
Examines issues pertaining to violence against women in Western society, including gender socialization, gender dynamics in dating and family relationships, private versus public, the contributions of social institutions (e.g., sports; the media; schools; the workplace; the military; the medical, legal and criminal justice systems) and the special vulnerability of women in marginalized groups.

SOCI 3635   Conflict Resolution   3 ch
The course explores the nature of social and professional responses to conflict and conflict resolution. It critically assesses, contrasts, and compares theoretical literature and research studies on processes such as adjudication and arbitration, negotiation, restorative justice, circle sentencing, and mediation in the context of gender, culture and social-economic power. Students will have an opportunity to explore how conflict resolution processes, and the skills and techniques associated with them, affect how conflict is perceived and resolved.

SOCI 3636 Restorative Justice   3 ch
This course examines the paradigms of both restorative and transformative justice. Reviews criminal justice systems in post-industrial societies with a focus on punishment as the principal response to crime. Contrasts restorative justice with the current paradigm of retributive justice. Discusses victims, offenders, and the community within the context of the failure of the retributive system in meeting its responsibilities towards them. Critically analyzes prisons, limitations of restorative justice models and programs, and aboriginal traditions in community justice.

SOCI 3703 Social Demography   3 ch
An examination in both historical and contemporary settings of the demographic correlates of urbanization and industrialization. Attention will be given to how patterns of fertility, mortality, and migration both reflect and influence social change.

SOCI 3706   Sociology of Colonialism and   3 ch [W]
                Post-colonialism (O)
This course examines the transformation of societies from the colonial to the post-colonial period, a process still going on today. It explores how both colonial powers and colonized peoples have been importantly affected by colonialism, understood as a mode of power. It discusses how norms, rights, privileges, and interested have been articulated in colonial law, state processes, and social relations and looks at the difficulties that post-colonial societies have faced in trying to move beyond the colonial past.

SOCI 3801 Food Studies in a Sociological Context

This course provides students with a general understanding of the role of food in contemporary societies by exploring the socio-cultural aspects of food production and consumption in a cross-cultural context. It also analyzes the economic and political landscape of farming in an international context by examining food politics over regulatory measures in food labelling and safety, genetically modified food, organic and sustainable agriculture, and the future of the world food system.

SOCI 4005 Feminist Theory   3 ch
This course examines feminist theories. It provides analysis of writing, theories, and debates regarding the development of contemporary feminist thinking. This includes critiques of traditional sociological theory and contributions to contemporary theoretical debates.

SOCI 4106 Qualitative Research Approaches 3 ch
A hands-on approach to qualitative research methods. The course also considers the classical and contemporary sources of and trends in qualitative methodology.

SOCI 4113 Sociological Research 3 ch
Discussion and evaluation of issues in contemporary sociological methods with exercises to develop skills in selected research procedures. Directed to the needs of individual students. Prerequisite: At least 3 ch in methodology or approval of the Department.

SOCI 4114 Communications in Society   3 ch [W]
A critical examination, for advanced students, of the social impact of communication technologies and electronic networks on society. Topics include communication technology and democracy, the politics of communication technology reform as well as the myths and power of cyberspace. Prerequisite: SOCI 3252 or permission of the instructor.

SOCI 4115   Strategies in Program Evaluation Research   3 ch [W]
Approaches to the formative, process and outcome evaluation of programs, and initiatives. Emphasis is on the development, design, practical and ethical problems and politics of evaluation research. Prerequisite: At least 3 ch in methodology or approval of the Department.

SOCI 4225 Language and Society 3 ch
Explores aspects of language, thinking, social interaction and social structure by examining how various theoretical perspectives in sociology and descriptive linguistics highlight (or obscure) probable and important relationships among these four basic components of group life.

SOCI 4253 The Sociology of Cyberspace   3 ch [W]
Examines the social and cultural implications of communication via computer network, with particular emphasis upon the similarities to and differences from other forms of electronic communication (e.g., television, telephone, radio). Prerequisite: SOCI 3253 .

SOCI 4263 Sociology of the Body 3 ch [W]
An examination of the socio-cultural forces which shape societal and individual attitudes toward self-body relations. Special emphasis on issues related to health, illness, and well-being.

SOCI 4264 Health Care in International Context   3 ch [W]
Explores the nature and delivery of health care in a variety of international settings. Emphasis will be placed on comparative analysis of health care systems in relation to prevailing patterns of health and disease as well as the broader socio-cultural contexts in which they are delivered.

SOCI 4313 Violence and Power   3 ch [W]
The sociological analysis of violence from a macro and/or a micro perspective. Potential topics include: war, family violence, and crimes such as assault and murder.

SOCI 4323 Religion and Culture   3 ch
The sociological study of varied world religions at both societal and interpersonal levels. Topics may include new religious movements, conversion, gender issues, and the relations between Eastern and Western belief systems.

SOCI 4325 Sociology of Work   3 ch [W]
A seminar concerned with studying the relationship between the people and the institutions involved with the production of goods and services. Focus is placed on the shift from an industrial economy to the growth of the service economy, the increase of technological advances and the impact this has had on work and work-life balance. The impact of changing work conditions on jobs, occupations, labour organizations, knowledge workers, labour markets, skill/up-skilling/deskilling, and globalization will be examined.

SOCI 4334 Education and Society 3 ch
Studies critical social and educational processes and structures, and the rapport of educational institutions with other social institutions, using comparative concepts and theories of sociology.

SOCI 4336 Families, Law and Social Policy   3 ch
A critical examination for advanced students of theoretical, legal and policy issues related to selected aspects of changing patterns of families and familial relationships in Canadian and other Western societies.

SOCI 4337   Legal Responses to Family Violence   3 ch
This course explores the successes, challenges, and failures of legal responses to domestic violence. Why has the legal system had difficulty responding effectively to domestic violence? Does it have something to do with the nature of law; the nature of gender; the nature of social science and social change? What happens when law is confronted by changing social conceptions of gender, of children, of the roles of men and women? Does culture matter? Do new multi-disciplinary, collaborative judicial initiatives offer promise or peril? Students will review legal cases and socio-legal research in order to search for answers to such questions.

SOCI 4345   Sociology of Women II: Selected Topics   3 ch
An in-depth look at Canadian feminist scholarship in sociology, examining both classical works and new developments in the field. Prerequisite: SOCI 2313 .

SOCI 4355   Sociology of Law   3 ch
A sociological analysis of law in modern society, including discussion of: legal theory, sociological and feminist criticisms of law, law as a means of social control and change, socio-legal research into the processes used by the legal system and its alternatives (such as mediation, restorative justice models, victim-offender reconciliation programs) to resolve disputes, and the abilities of the legal system and its alternatives to offer justice to the disadvantaged.

SOCI 4413 Individual and Society 3 ch [W]
Examines interrelationships between the individual and society, emphasizing issues and approaches within the interpretive traditions of the social sciences.

SOCI 4513 Inequality and Social Justice   3 ch
A sociological examination of current perspectives, responses, and debates about the meaning of equality and the just society. Possible topics include the shift from individual rights to collective rights; competition and cooperation at a macro and a micro level.

SOCI 4523 Work and Leisure in the 21st Century   3 ch
Examines some of the central problems and prospects for work and leisure now and in the immediate future. Potential topics include the continuing impact of technology, new modes of work organization, and the fate of occupations and professions.

SOCI 4610 Crime and Social Control   6 ch
A systematic examination of a variety of contemporary issues related to the criminal justice and correctional systems.

SOCI 4623   Human Rights: Comparative Perspectives   3 ch [W]
Explores the concept of human rights from a non-Western perspective by examining how the Western concept of human rights shapes and is shaped by its conceptualization and application in other cultures. Discusses the controversies and human rights implications of cultural practices such as female genital mutilation, child slavery, and servile marital arrangements. The focus will be on the eradication or transformation of these practices within the context of international human rights norms while at the same time making change acceptable to the practitioners. The course highlights the links between culture, religion, gender, and human rights.

SOCI 4803   Independent Study in Sociology 3 ch [W]
Course study to be of an advanced topic in sociology chosen jointly by student
and instructor with the permission of the Department Chair.

SOCI 5000   Seminar: Sociological Theory   6 ch [W]
A systematic analysis focusing upon the nature and development of
sociological theory and methodology in terms of major contributors and
problems.

SOCI 5200 Honours Paper   6 ch

SOFTWARE ENGINEERING

Note: See beginning of Section H for abbreviations, course numbers and coding.

*L - Laboratory periods on alternate weeks.

 * - Engineering electives. Not all offered every year. Consult Department as to availability of courses from year to year.

All courses must be passed with a grade of C or better.

SWE 4040   Software Engineering Design Project   7ch (1*C 6L) [W]

A software design and implementation experience involving a medium to large group. Students prepare requirements, specification, analysis and design documents as a team toward development of a useful software product and use the documentation to implement and test the product. The development process should consider a broad range of constraints including non-functional requirements to the software product, health and safety, sustainable development and environemental stewardship. Students manage their projects professionally, present their design work orally, and demonstrate formally that the product meets its requirements. Prerequisite: 100 ch in the software engineering program or permission from the instructor. Students may not take bothSWE 4040 and INFO 4900 for credit.

SWE 4103   Software Quality and Project   4 ch (3C 3*L) [W]
Management [A]

Software Quality: Requirements gathering techniques. Formal specification languages. Verification and validation techniques. Statistical software reliability engineering. Software metrics. Software process maturity models (CMM and ISO 9001). Software Project Management: Software project tracking, planning and scheduling. Organizing and managing software teams. Monitoring and controlling software development. Factors influencing productivity and success. Risk analysis. Planning for change. Note: alternating with SWE 4203. Prerequisite: CS 2043 or permission from the instructor.

SWE 4203   Software Evolution and Maintenance [A]   4 ch (3C 3*L)

Maintainability and reusability analysis. Approaches to maintenance and long-term software development. Change management and impact analysis. Release and configuration management. Reengineering and reverse engineering. Regression testing. Note: alternating with SWE 4103. Prerequisite: CS 2043 or permission from instructor.

SWE 4303   Performance Analysis of Computer Science   4ch (3C 3*L)
Computer systems performance analysis and benchmarking. Metrics for the performance of the processor, the memory system, the communication system and the I/O system. Theoretical tools, and industrial benchmark suites like the SPEC benchmarks. Prerequisite: permission from the instructor.

SWE 4403   Software Architecture and Design Patterns   4 ch (3C *2L)
(Cross-Listed: CS 4015)
Examines pattern-oriented software architecture and development, architectural styles and patterns, design patterns, pattern systems and applications, pattern languages, and implementation techniques in various programming languages. Prerequisite: CS 2043 or permission from the instructor.

SWE 4913   Independent Project   4ch [W]

An independent project or literature survey. Students work under the supervision of a chosen faculty member. Students are responsible for finding a supervisor and initiating the project or literature survey. Delieverables include a comprehensive report detailing the work. Prerequisite: successful completion of 100 ch in an undergraduate program in the Faculty of Engineering or Faculty of Computer Science.

SPANISH AND LATIN AMERICAN CULTURES

Note: See beginning of Section H for abbreviations, course numbers and coding.

SPAN 1201   Intensive Spanish I   3 ch (3C)

Students will acquire and develop listening, oral and writing skills in an intensive cultural immersion setting. Videos, music, dance, cooking and other cultural activities will facilitate the learning process. This course will normally be offered in, either the Spring or Summer session, and follows a two-week total immersion format. Closed to students with any knowledge of Spanish.

SPAN 1203   Introductory Spanish I   3 ch (3C)
Gives students solid background in the fundamentals of the Spanish language by engaging them in both classroom and computer laboratory settings in communicative use of the four language skills: listening, speaking, reading and writing. Multimedia materials will be used to provide a background in Hispanic culture. Closed to students with any knowledge of Spanish. Prerequisite: No prerequisite.

SPAN 1204   Introductory Spanish II   3 ch (3C)
Continuation of SPAN 1203. Students will build on the materials covered in SPAN 1203. Emphasis will be placed on improved listening, speaking, reading and writing. Multimedia approach to language and culture will be used. Students will be acquainted with background on Hispanic culture. Prerequisite: SPAN 1203.

SPAN 1304   Introductory Spanish II (Business)   3 ch (3C)

Intended for business students who have successfully completed SPAN 1003 or 1203. Enhances students' grounding in the basics of Spanish. Presents realistic situations and specialized vocabulary that administration and business professionals need to communicate in the course of their daily work in the Hispanic environment. Students also develop cultural and historical understanding of social etiquette in the Hispanic world. Multimedia materials will be used to provide background in Hispanic culture. Prerequisite: SPAN 1203. Credit will not be given for both SPAN 1204 and SPAN 1304.

SPAN 2203   Intermediate Spanish I   3 ch (3C)

Intended for students who have successfully completed Spanish Introductory courses. Enhances students' linguistic proficiency, allowing them to handle a variety of social situations. Students also develop cultural and historical understanding of the Hispanic world. By the end of SPAN 2203 students have insight into grammatical structures of the language, are able to sustain a conversation in real life situations and are able to discuss aspects of the Hispanic world. Multimedia materials will be used to provide a background on Hispanic culture. Prerequisite: SPAN 1204 or SPAN 1304.

SPAN 2204   Intermediate Spanish II   3 ch (3C)

A continuation of SPAN 2203, this course aims to further enhance students' linguistic proficiency and provide the concrete knowledge of more complex grammatical structures. Prerequisite: SPAN 2203.

SPAN 2303   Intermediate Business Spanish   3 ch (3C)

The main course objective is to continue introducing students to the main requirements for successfully conducting business in Spanish: 1. the cultural and practical aspects of business in Spain and Latin America, and 2. the vocabulary and structures needed to communicate in a business setting. In addition to a basic text, role-playing and case studies, the study of authentic documents will be used to advance both knowledge and skills in areas such as preparing a resume, communicating by phone, fax, letter, matters concerning banking, advertising, marketing and other topics of interest to business institutions as well as the household budget. Prerequisite: SPAN 1204 or SPAN 1304

SPAN 3015   Topics on Latin American Culture   3 ch (3C)
(Cross Listed: WLCS 3015)

Latin America after independence, placing an emphasis on the 20th Century. Films and other audiovisual materials will be used. This course is also listed under International Development Studies (IDS). The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3062   Caribbean and Latin American   3 ch (3C)
Women Artists
(Cross Listed: WLCS 3062)

A survey of selected readings of Latin American women writers from the Golden Age to the present. We examine works of Sor Juana Inés de la Cruz, Gertrudis Gómez de la Avellaneda, Alfonsina Storni, Gabriela Mistral, Isabel Allende, among others, from a socio-historical perspective. The seminar style course will explore the social conditions of the women in Latin America, issues of women's identity and gender construction. A multimedia approach will be used. The course will be offered in English and is open to students who have completed at least 30 credit hours of university level. Students who take this course to fulfill a Major or Honours in Spanish requirement will submit required work in Spanish.

SPAN 3113   Social Symbols in Latin American   3 ch (3C) [W]
Literature
(Cross-Listed: WLCS 3113)

Examines literary characters as social symbols that reflect socio-political realities in selected translated works. Social and historical documents as well as videos and films will be used for purposes of comparison. Students who take this course to fulfill Majors or Honours requirements, will be required to write their papers in Spanish. This course is also listed under International Development Studies (IDS). The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level.

SPAN 3202   Advanced Oral Spanish I   3 ch (3C)

This course will build vocabulary, increase fluency and enhance the style and fluidity of spoken Spanish through continued development and intensive use of oral Spanish skills. Students who have participated in any Spanish language study abroad program, are native speakers, or who have other immersion experience are not eligible. Prerequisite: SPAN 2204 or permission of the instructor.

SPAN 3203   Advanced Spanish I: Advanced   3 ch (3C)
Grammar

Intended for students who have successfully completed Intermediate Spanish. The main objective of the course is to improve linguistic competency (acquired by speaking and writing) through the exploration of issues in the contemporary Hispanic world. A variety of language models, including newspapers, magazine articles, interviews and classroom discussions will set the stage for the assimilation of the conversational function of the language. Audio-visual materials will also be used. Prerequisite: SPAN 2204.

SPAN 3204   Advanced Spanish II: Conversation   3ch (3C)
and Composition

Normally taken (as with SPAN 3203) with the first literature courses, thus complementing each other in improving the student's written and oral fluency through different types of class participation and assignments.   Prerequisite: SPAN 3203.

SPAN 3205   Advanced Translation (O)   3ch (3C)

Intensive translation from and into colloquial and more formal language for the acquisition of written and translating fluency. Besides the translation of a play from English into Spanish, it includes selections in both languages from the press and other sources, and practice of interpretation. Prerequisite: SPAN 2204.

SPAN 3414   Survey of Spanish Peninsular 3 ch (3C)
Literature II (O)
(Cross-Listed: WLCS 3414)

Examines Spanish Peninsular literature through representative works by major literary figures from Romanticism to the present such as: José de Larra, Pérez Galdós, Unamuno, García Lorca, Laforet, Matute, Benet among others. Literary movements of the period under study will be examined through readings that exemplify the various genres of narrative, drama and poetry. The course will be supported by the use of videos. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3423   Survey of Spanish American   3ch (3C)
Literature I (O)
(Cross-Listed: WLCS 3423)

Studies the development of Spanish American Literature from Columbus to Naturalismo. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3424   Survey of Spanish American   3ch (3C)
Literature II (O)
(Cross-Listed: WLCS 3424)   Studies the development of contemporary Spanish American Literature. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3455   Latin American Cinema (O)   3ch (3C)
(Cross-Listed: WLCS 3455)

This course will provide students with a background in Latin American cinema, emphasizing the most productive centres such as Mexico (Paul Leduc, María Novaro, Alejandro González Iñárritu, Guillermo Del Toro), Cuba (Tomás Gutiérrez-Alea, Sara Gómez, Fernando Pérez), Brazil (Walter Salles, Hector Babenco) and Argentina (María Luisa Bemberg, Fernando Solanas, Eliseo Subiela, Lucrecia Martel). Equal emphasis will be placed both on cinematographic and thematic analysis of the cinema, and, when appropriate, cultural and historic context will be provided. Films will be screened previous to class (most often with subtitles) and will be analyzed and discussed in class. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students taking this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3456 The Cinema of Spain (O) 3ch (3C)
        (Cross Listed: WLCS 3456)

This course will provide the students with a background in Spanish cinema, emphasizing the most productive eras such as the Surrealist Movement and the *Movida* of the 1980s. Films to be studied include those of directors such as Luis Buñuel, Pedro Almodóvar, Alejandro Amenábar, Elías Querejeta, Mario Camus, Bigas Luna, Carlos Saura, Victor Erice, Laura Mañá, and Iciar Bollain. Equal emphasis will be placed both on cinematographic and thematic analysis of the cinema, and, when appropriate, cultural and historic context will be provided. Films will be screened previous to class (most often with subtitles) and will be analyzed and discussed in class. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students taking this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3563 Directed Study Major 3ch (3C)

A reading and research course for Spanish Honours students in order to meet special needs and interests in one of the areas of study offered in the Department. By arrangement. Prerequisite: Departmental approval.

SPAN 3564 Directed Study Major 3ch (3C)

A reading and research course for Spanish Honours students in order to meet special needs and interests in one of the areas of study offered in the Department. By arrangement. Prerequisite: Departmental approval.

SPAN 3903 Background of Spanish Culture (O) 3ch (3C)
(Cross-Listed: WLCS 3903)

A chronological examination of the forces that have shaped Spanish culture. Studies the major historical periods and their characteristics from prehistoric caves of Altamira, through medieval Arab Spain, the voyages of discovery from 1492, Golden Age, Generation of 1898 to the present. The cultural components include: everyday experiences and value systems that shaped national identity, history of the family, perceptions of race and gender and divorce in Catholic Spain. A wide variety of sources will be used: the Internet, videos, music and magazine articles. This course is offered in Spanish. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3904   Background of   3ch (3C)
        Latin American Cultures (O)
        (Cross-Listed: WLCS 3904)

A chronological examination of the forces that have shaped the diverse Latin American cultures. This course studies major historical periods and their characteristics, from Pre-Hispanic Cultures, through the Conquest and the Colonization, the Independence movement, the formative period of the new nations to the present. The cultural aspects to be analyzed and discussed include: Catholicism and religious syncretism, the cultural legacy of colonial life, the struggles for independence, literary expression and the role of women. The use of videos, music, the Internet and literary texts, will provide a multimedia approach to Latin American cultures. This course is offered in Spanish. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3909 Three Cultures in Medieval Spain (A) 3 ch (3C) [W]
        (Cross-Listed: WLCS 3909)
For seven centuries (711 A.D. -1492), parts of the Iberian Peninsula (Spain and Portugal) fell under Muslim rule. Al-Andalus with its cultural diversity, unique architecture (Alhambra in Granada), art and intellectual activity became 'the ornament of the world.' There arose a contested state of coexistence (termed convivencia by Spanish historians) amongst Christian, Jewish and Muslim cultures. These three distinctive intellectual and religious communities bore witness to significant cultural achievements until the downfall of Al-Andalus. In this course, students will explore the multi-cultural world of Muslim Spain through the analysis of selected texts from literature and philosophy. The diversity of the artistic expression through dance, music, and architecture in all three cultures will also be studied. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3954 Spanish American Poetry (O) 3ch (3C) [W]
        (Cross-Listed: WLCS 3954)
Studies selected works of some major Spanish American poets. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3973 Latin American Narrative at the Movies (O) 3ch (3C)
        (Cross-Listed: WLCS 3973)
Many Latin American novels and short stories have been adapted by movie-makers around the world. In addition to studying these works as literature, this course will analyse their cinematic interpretations. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3974 Contemporary Spanish American)   3ch (3C)
        Narrative (O)
        (Cross-Listed: WLCS 3974)
Studies selected works of major Spanish American writers. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3975 The Nobel Laureates of Latin American (O) 3ch (3C)
        Literature   *(Cross-Listed: WLCS 3975)*
Examines the literary works of some of Latin America's Nobel laureates including García Márquez, Asturias, Neruda and Vargas Llosa. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3983 Afro-Latin American Literature (O) 3ch (3C) [W]
        (Cross-Listed: WLCS 3983)   Explores the literary representation and contribution of Afro-Latin American elements in Literature. This course may be taken as part of the International Development Program. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

SPAN 3984 The Native American in Latin American 3ch (3C) [W]
        Literature (O)
        (Cross-Listed: WLCS 4984)
Explores the literary representation and contribution of the Native American element in Latin American literature. This course may be taken as part of the International Development Program. The course will be offered in English and is open to students who have successfully completed at least 30 credit hours at university level. Students who take this course to fulfill a Major or Honours requirement in Spanish will submit required work in Spanish.

**SPAN 4043   Literature and Religion in 19th and 20th   3 ch (3C) [W]
Century Russian and Spain (O)   (Cross-Listed:
RUSS/WLCS 4043)**   Studies religious works of Spanish
and Russian writers such as Unamuno and Tolstoy. Examines their religious
thought and their criticism of the established Spanish Roman Catholic Church
and Russian Orthodox Church respectively. Outlines the situation of the Eastern
Orthodox Church in Russia as well as the situation of the Catholic Church in
Spain in the 19th and the 20th Centuries. Analyzes the position of these writers
towards their respective Churches and the creation of their own moral codes
through the texual analysis of some of their most relevant works. The course will
be offered in English and is open to students who have successfully completed at
least 30 credit hours at university level. Students who take this course to fulfill a
Major or Honours requirement in Spanish will submit required work in Spanish.

**SPAN 4062   Contemporary Spanish and Latin American   3 ch (3C)
Women Artists (A)
(Cross-Listed: WLCS 4062)**
This course is designed to explore the contributions of the contemporary Spanish
and Latin American women artists through literary and visual arts. We will
examine themes of cultural and political identity, sexual repression, class issues
and racism through the various genres including literature, film, dance and music.
The seminar style course will be offered in English and is open to students who
have successfully completed at least 30 credit hours at university level. Students
who take this course to fulfill a Major or Honours requirement in Spanish will
submit required work in Spanish.

**SPAN 4203   Colloquial Spanish: Grammer and   3 ch (3C)
Conversations (O)**
An advanced and intensive study and practice of the specific elements that
distinguish the style of the colloquial language as used in everyday situations by
native speakers, including a careful analysis of the subjunctive and idiomatic
structures. Prerequisite: SPAN 3204 and/or SPAN 3205 or permission from the
instructor.

SPAN 4204   Spanish Language of the Americas (O)   3ch (3C)
A contrastive study of the significant lexical and morphological characteristics of
colloquial Spanish in Latin America and the United States. Prerequisite: SPAN
3204 and/or SPAN 3205 or permission from the instructor.

SPAN 4901   Honours Thesis   3 ch [W]
A reading and research course open to students qualifying for Honours in
Spanish and Latin American Cultures. This is an in-depth independent research
project on a specific topic in Spanish or Latin American Literature or Culture. To
enrol in this course students must have already consulted a professor to
supervise their project. Students will then develop a project and do the required
research. The research project will lead to the writing of an Honours Thesis in
Spanish, normally 35-40 pages in length.

STATISTICS

See also "Mathematics"

Students should note that in the Science Faculty the minimum acceptable
grade in a course which is required by a particular program or is used to meet
a prerequisite, is a "C". Any student who fails to attain a "C" or better in such a
course must repeat the course (at the next regular season) until a grade of "C"
or better is attained. Students will not be eligible for graduation until such
deficiencies are removed. The only exception will be granted for a single
course with a "D" grade that is normal part of the final year.

STAT 2*** courses may not be taken by students who have passed a higher
level STAT course.

See Courses -> Saint John or Fredericton-> Standard Course Abbreviations in
the online undergraduate calendar for an explanation of abbreviations, course
numbers and coding.

STAT 2043   Statistics for Social Scientists I   3ch (3C)

Topics from survey statistics: simple random sampling; systematic
sampling; question composition; scaling techniques. Topics from basic
statistics: descriptive statistics; estimating/testing means, standard
deviations, proportions; paired data versus two independent samples;
chi-square tests. Prerequisite: Successful completion of at least one
year of program. NOTES: Credit can be obtained in only one of STAT
2043, 2253, 2263, 2264 or 2593. Not to be taken for credit by CS, MATH or
STAT majors.

**STAT 2253   Introductory Statistics For Forestry   3 ch (2C 2L)
Students**

Emphasis on applications to forestry and biology, using a statistical
package. Graphical and numerical summaries of data; Populations,
samples, sampling techniques; Normal distribution; Estimation and
tests for means, medians, proportions; Individual versus mean
behaviour; Matched pairs, independent samples, analysis of variance;
Regression; Chi-squared tests for categorical data. NOTE: Credit can
be obtained for only one of STAT 2043, 2253, 2263, 2264 or 2593.

**STAT 2263   Statistics for Non-Science   3 ch (3C)
Majors**

An introductory course in statistics. Experiments, sampling, basic
descriptive statistics. Probability, random variables, Normal
distribution. Confidence intervals for means and proportions. Tests of
hypotheses. Paired samples vs. two independent samples.
Contingency tables. Regression, correlation. Introduction to analysis of
variance. Examples drawn from the health sciences. Use of a
statistical computer package. Prerequisite: a New Brunswick high school
mathematics course, either Pre-Calculus 110 or Foundations of Mathematics
120, or equivalent. Note: Credit can be obtained for only one of STAT 2043,
2253, 2263, 2264, or 2593

STAT 2264   Statistics for Biology   3 ch (3C)

An introductory course in statistics. Probability, Bayes' Theorem,
applications of probability to genetics. random variable, expectation.
binomial and normal random variables, confidence intervals for
means and proportions, prediction intervals, tests of hypotheses,
paired data versus two independent samples, brief introduction to
analysis of variance, regression, correlation, contingency tables,
examples drawn from medicine and biology, use of a statistical
computer package. Prerequisite: A minimum grade of 60% in New Brunswick
high school course Pre-Calculus B 120, or equivalent. Note: Credit can be
obtained for only one of STAT 2043, 2253, 2263, 2264, or 2593.

**STAT 2593   Probability and Statistics for   3 ch (3C)
Engineers**

Probability spaces: combinatorial probability; conditional probability and independence. Random variables: discrete distributions; continuous distributions; expectation, variance, and covariance; linear combinations. Statistics: descriptive and graphical statistics; sampling distributions. Inference: point estimation; confidence intervals; hypothesis tests; paired data designs; two sample inference. Prerequisite: MATH 1013. Note: Credit can be obtained for only one of STAT 2043, 2253, 2263, 2264, or 2593.

STAT 3043   Statistics for Social Scientists II   3ch (3C)

Topics from survey statistics: stratified sampling; cluster sampling. Questionnaires: construction, administration, interpretation and reporting. Topics from basic statistics: regression; one way and two way analysis of variance. Prerequisite: STAT 2043. Not to be taken for credit by CS, MATH or STAT majors. Note: Credit can be obtained for only one of STAT 2253, 2263, 2264, 2593, or 3043.

**STAT 3083   Probability and Mathematical   3 ch (3C)
Statistics I**

The first half of a two-part sequence covering various topics in probability and statistics. This course provides an introduction to probability theory and the theory of random variables and their distributions. Probability laws. Discrete and continuous random variables. Means, variances, and moment generating functions. Sums of random variables. Joint discrete distributions. Central Limit Theorem. Examples drawn from engineering, science, computing science and business. Prerequisite: MATH 1013. Note: Credit can be obtained in only one of STAT 2593 or 3083.

STAT 3303   Methods of Operations Research I   3 ch (3C)

Linear programming, the simplex method, post optimal analysis, derivation of dual theorem, game theory, network analysis. Various applications will be discussed. Prerequisite: MATH 2003 or equivalent and 2213.

STAT 3373   Elementary Experimental Design   3 ch (3C)

Randomization, one and two way classifications. Latin squares, factorial experiments, nesting, incomplete blocks, linear regression. Emphasis on applications. Extensive use of a statistical computer package. Prerequisite: STAT 2263, 2264, 2593, or 3093. MATH 1503 or 2213.

STAT 3383 Introduction to Stochastic Processes (A)   3 ch (3C)

Exact contents may vary from year to year, e.g.: counting processes and Poisson processes; renewal processes (discrete); finite state Markov chains; stationary covariance processes. Prerequisite: STAT 2593 or STAT 3083 and one of MATH 2013 or MATH 2213.

STAT 4043   Sample Survey Theory   3 ch (3C)

Simple random sampling; stratified sampling; systematic sampling; multi-stage sampling; double sampling; ratio and regression estimates; sources of error in surveys. Prerequisites: STAT 3093.

STAT 4053   Regression Analysis   3ch (3C)

Simple and multiple linear regression. Regression diagnostics. Prediction and model testing. Qualitative variables as predictors. Transformation of variables. Analysis of collinear data. Variable Selection and model reduction procedures. Data analysis using software. Prerequisite: STAT 3093 and one of MATH 1503 or 2213.

STAT 4073   Categorical Data Analysis   3 ch (3C)

Logistic regression models for binary response variables, log-linear models for contingency tables, Poisson regression models for count response variables, multinomial regression models for categorical response variables, cumulative logit and continuation-ratio regression models for ordinal response varaiables, model selection, some special topics in generalized linear models. Emphasis will be on computer implementation and applications in social sciences, psychology, education, medicine, sciences and engineering.

STAT 4083   Introduction to Multivariate Statistics 3 ch (3C)

Multivariate normal distribution; estimation of the mean vector and covariance matrix; partial and multiple correlation coefficients; multiple regression; the T^2 statistics; tests of hypotheses; discriminant analysis; principal components; factor analysis. Prerequisites: 6 ch of Calculus, 3 ch of Linear Algebra and STAT 3093.

STAT 4100   Honours Project   6 ch [W]

Statistics Honours students must complete a project under the supervision of a faculty member. The project is to include a written report and an oral presentation. Prior to being admitted into STAT 4100, the student must have been admitted to the Honours Program and have submitted an acceptable project proposal to the department. Normally students would begin preparation and research for the project during their third year of study, submit the proposal by October of their fourth (final) year of study, and complete the written and oral presentation by the end of the winter term, to graduate in May of that year. Honours students in an interdepartmental program with statistics may choose to complete their honours project in statistics.

STAT 4333   Queuing Theory (A)   3 ch (3C)

Introduction, queuing models. Single and multiserver queuing models. Analysis of queuing models using differential difference equation, generating functions, distribution of busy periods. Transient behaviour, introduction to bulk queuing and other queuing models. Prerequisite: STAT 2593 or 3083.

**STAT 4443   Time Series Analysis and   3 ch (3C)
Applications (A)**

Discrete time series and stochastic processes; autocorrelation and partial correlation functions; white noise; moving averages; autoregressive, mixed and integrated processes; stochastic models, fitting, estimation and diagnostic checkup; forecasting; forecasting in seasonal time series; applications would include problems from Economics, Engineering, Physics. Prerequisite: STAT 3093.

STAT 4903   Independent Study in Statistics   3 ch

Advanced topic in Statistics to be chosen jointly by student, advisor, and Department Chair. May be taken for credit more than once. Title of topic chosen will appear on transcript. Prerequisite: Permission of Department.

TECHNOLOGY MANAGEMENT AND ENTREPRENEURSHIP

Note: See beginning of Section H for abbreviations, course numbers and coding.

TME 1001 Introduction to Technology Management 3 ch and Entrepreneurship

Provides students an opportunity to be introduced to TME topics and will serve as a foundation for subsequent TME courses. Topics addressed may vary based on faculty expertise and emergent issues.

TME 3013 Entrepreneurial Finance 3 ch

An introduction to fundamentals of finance in new ventures and/or high growth technology-driven businesses. Students will learn how to interpret and analyze financial statements and develop proforma financial statements. The course will enable students to enhance their knowledge of sound principles of finance and alternative sources of finance. Students will learn about venture capital financing and initial public offerings (IPO) and the role they play in financing high growth, high tech businesses. Students will also develop skills in financing negotiations. Prerequisite(s): 80 credit hours of approved courses or permission of the TME program Chair.

TME 3113 Business Planning and Strategy in an 3 ch [W] Entrepreneurial Environment

An introduction to business planning and strategy concepts in start-up and early stage technology-driven businesses. The course addresses a wide spectrum of functional activities in a dynamic business enterprise including finance, operations, human resource management, change management, sales/marketing, and customer relationship management. Business analysis, communication, and planning skills are developed and students are introduced to shifting business paradigms in the global, digital economy. Prerequisites: 80 credit hours of approved courses or permission of the TME program Chair.

TME 3213 Quality Management 3 ch

Designed to prepare participants for the management practices which they might expect to encounter in a progressive organization. Many of these practices involve the standardization and continuous improvement of business processes. The course explores implementation of Lean and Six Sigma, as well as -ISO 9000, the international standard on quality management. It also focuses on the use of continuous improvement and Statistical Process Control (SPC) concepts, which lead to fundamentally new ways of thinking about innovation and problem solving. Prerequisite: 80 credit hours of approved courses or permission of the TME program Chair.

TME 3313 Managing Engineering & Information 3 ch Technology Projects

The future of most organizations depends on successful projects. The participants will gain an understanding of the principles of project management including organizing, planning, scheduling and controlling projects to achieve a set of objectives. The course will enhance knowledge and skills of project managers in such topics as people management skills, managing project risks, controlling project changes and systems thinking. Emphasis is placed on technology-intensive projects which tend to have a high degree of specialized human resources skills/knowledge requirements. Prerequisite(s): 80 credit hours of approved courses or permission of the TME program Chair.

TME 3346 Marketing of Technological Goods and Services 3 ch (Cross-Listed: ADM 3375)

Provides an introduction to the marketing of technology focused on industrial goods and services. Includes essentials of marketing, such as product development, promotional design, distribution, pricing/budgeting determination, strategic analysis, communication skills, client/customer relations, and considerations for the small business environment. Prerequisites: 36 credit hours of approved courses, or permission of the TME program Chair.

TME 3386 Special Topics in Technology Management and 3 ch Entrepreneurship

Provides selected students an opportunity to complete an independent project course of study. Permission of both the instructor of the associated course and the program Chair is required. Students may register for this course only once during their degree.Prerequisite: 80 credit hours of approved courses, or permission of the TME program Chair

TME 3396 Special Topics in Technology Management and 3 ch Entrepreneurship

Provides selected students an opportunity to complete an independent or group-based course of study. Permission of both the instructor of the associated course and the program Chair is required. Students may register for this course only once during their degree. Prerequisite: 80 credit hours of approved courses, or permission of the TME program Chair.

TME 3413 Technological Creativity and Innovation 3 ch

An introduction to technological entrepreneurship from two perspectives: Creativity (the production of new technology-based business ideas/opportunities by entrepreneurs) and Innovation (the implementation of those ideas). Students will be presented entrepreneurship as a career alternative, the entrepreneurial process, creativity and its components, management of creativity and innovation in organizations, evaluation of entrepreneurial opportunities and the linkages between entrepreneurship, creativity and innovation, as well as the economic and social impacts of technology on society. Students generate new venture ideas or ideas for a social enterprise, evaluate the feasibility, pitch the merits, and create a business plan that they defend in a contest. The course is particularly aimed at students who aspire to launch their own startup, those who would like to investigate startup as a career option, or those who wish to familiarize themselves with the concepts, issues, and techniques of new venture creation and entrepreneurship to better prepare for the changing business environment. Prerequisite: 80 credit hours of approved courses or permission of the TME program Chair.

TME 3423 Technological Risk and Opportunity 3ch

An introduction to mature and emerging technologies and the entrepreneurial opportunities arising from these technologies. Topics include evolution of technology-intensive industry sectors, assessment of technological risk from an entrepreneurial perspective and the economic and social impacts of technology on society. Prerequisite: 80 credit hours of approved courses or permission of the TME program Chair.

TME 3913 Experiential Learning – Technology Management 3 ch And Entrepreneurship 3 ch

An opportunity for experiential learning related to the management of technology and/or technological entrepreneurship. Students co-design, develop and implement a project in collaboration with an external organization or a designated mentor. The project must be jointly supervised by a representative of the external organization or mentor, and a designated faculty member. Prerequisites: 80 credit hours of approved courses, normally 6 credit hours of TME courses and approval by the TME Chair of the project (prior to registration in the course).

TME 4025 Product Design and Development 8ch (2C 2T 4L) [W]

Full-year Product Design and Development course (fall and winter of same academic year) which may be taken in place of the final-year design course in most engineering program. The cornerstone is a project in which teams of 4 or 5 students conceive, design and prototype a product. The proposed solution would use modern tools and methods for product design and development, and should meet a broad range of constraints including health and safety, sustainable development and environmental stewardship. Weekly class sessions are conducted in lecture or workshop mode and employ cases and hands-on exercises to reinforce the key ideas. Topics include identifying customer needs, concept generation, product architecture, industrial design, and design-for-manufacturing.
Prerequisites: Restricted to students who have met the requirements of the capstone design course in their engineering program, and have received approval from both their degree program coordinator and the TME program Chair.
Note: TME 4025 is an 8 ch course and if the final-year design course in your degree program is assigned less than 8 ch, the additional credit hours may only be used to meet degree program requirements subject to approval of your program coordinator. Please consult your degree program coordinator for the position of your Department on this course.

UNIV

UNIV 0101   University Skills   0 ch (2C 1T)
This course is designed to promote and enhance student success at UNB. Stresses access to campus resources and provides practical demonstrations of effective study practices. Includes formal lectures as well as small group tutoring. Students normally enrol in the section oriented to their specific faculties. Degree credit for the course is at the discretion of individual faculties.

GENDER AND WOMEN'S STUDIES

Note: See the beginning of Section H for abbreviations, course numbers and coding.

REQUIRED COURSES

GWS 1003 Introduction to Gender and Women's Studies I   3 ch [W]

Provides an introduction to Gender and Women's Studies with an emphasis on contemporary perspectives from the humanities and social sciences. Examines various aspects of gender and the status of women in Canada and elsewhere.

GWS 2003   Introduction to Gender and Women's Studies II   3 ch [W]
Provides an introduction to Gender and Women's Studies with an emphasis on historical perspectives from the humanities and social sciences. Examines various aspects of women's experiences and the status of women in Canada and elsewhere.

GWS 4004   Seminar in Gender and Women's Studies   3 ch [W]

Critically examines the assumptions underlying existing disciplines as they relate to the study of women and men, and explores new theoretical and methodological perspectives for studying the gender-based aspects of society. Prerequisite: G1003 and GWS 2003.

GWS 4900   Honours Thesis in Gender and Women's Studies 6 ch

Involves directed reading and research leading to an Honours thesis on a topic in Gender and Women's Studies. Students will consult with the Coordinator in finding a suitable topic and thesis supervisor.

Prerequisites: Either GWS 1003 or GWS 2003 and GWS 4004.