

Vita

Candidate's name: Larisa Tamjidi

Universities
Attended: Islamic Azad University (2006)
Associate degree in Math

University of New Brunswick (2024)
Masters of Science, Report

Publications:

Delaram Jarchi, Pope, J., Lee, T., Tamjidi, L., Mirzaei, A., and Sanei, S., (2018), "A review on accelerometry-based gait analysis and emerging clinical applications", IEEE reviews in biomedical engineering, 11:177–194

Stability And Bifurcation Analysis Of Three Species In Yellowstone Park Consisting Of Prey, Predator And Competitor And The Effects Of Predator Reduction On Living Species In The Ecosystem

UNIVERSITY OF NEW BRUNSWICK

REPORT DEFENCE AND EXAMINATION

in Partial Fulfillment

of the Requirement for the Degree of
Master of Science

by

Larisa Tamjidi

in the Department of Mathematics & Statistics

U.N.B., Fredericton, N.B.

**Tuesday, October 8th, 2024
10:00 a.m.**

Tilley Hall rm 124 & via MS TEAMS

Examining Committee

Dr. James Watmough
Dr. Lin Wang
Dr. Ben Newling
Dr. Viqar Husain

Supervisor
Internal Examiner
External Examiner
Chair of Oral Examination

Abstract

The interactions among wolves, deer, and beavers in Yellowstone National Park demonstrate intricate dynamics with implications for population growth and decline. By applying bifurcation theory, we analyze how subtle environmental or population changes can significantly impact ecosystem stability. Wolves, as apex predators, influence deer populations, which, in turn, affect the behaviour and habitat of beavers. Understanding these complex interconnections is crucial for effective ecosystem management and conservation. Through mathematical biology and bifurcation analysis, we gain insights into the coexistence and mutual influence of different species in natural environments. This research sheds light on the intricate relationships that shape ecological communities, emphasizing the importance of studying predator-prey and competitor interactions to comprehend and protect these ecosystems.