Welcome to Graduate Studies in the Department of Mathematics and Statistics!

We are an active department with 20 faculty advisors and over 60 graduate students engaged in research in a wide variety of fields. As a graduate student, you have the opportunity to make a contribution to solving important scientific and societal problems.

Our proximity to the Fields Institute, the Institute for Quantum Computing, the Perimeter Institute and countless government, industry and academic partners make us an ideal place to engage in collaborative mathematical and statistical research.

Funding Opportunities

Our Graduate students are typically supported through a combination of four sources of funding.

- **Graduate Teaching Assistantships (GTAs)** are provided to give you teaching, marking and tutoring experience.
- **Graduate Research Assistantships (GRAs)** are designed to allow you to collaborate with your faculty advisor on your research project.
- **Scholarships and bursaries** are available from the University of Guelph and the College of Physical & Engineering Science.
- Many of our students receive **external**

Admission Requirements

- **For the MSc Degree Program:** an **honours degree with the equivalent of a major or minor** in the intended stream (mathematics or statistics). Strong applicants with more diverse backgrounds will also be considered but are encouraged to contact a potential advisor before applying.
- **For the PhD Degree Program:** typically, a **recognized master's degree obtained with high academic standing**.

To increase your visibility among applicants, you are encouraged to contact a potential Faculty Advisor before applying. Visit our website below to learn more about our graduate faculty and see examples of recent graduate projects.

www.mathstat.uoguelph.ca
Research Highlights

Applied Analysis  Biostatistics  Computational Statistics  Evolutionary Computation  Quantum Information
Bioinformatics  Operations Research  Data Science  Survival Genetics
Biomathematics  Dynamical Systems  Machine Learning  Research Areas

Departmental Graduate Faculty with Research Areas

STATISTICS

Ayesha Ali - Graphical Markov models; Pollination networks; Multivariate statistics; Causal inference; Survival analysis; Bioinformatics; High performance computing; Artificial intelligence; Ecological modelling; Machine learning
Tony Desmond - Survival analysis; Reliability modelling; Statistics in finance; Statistical learning (Big Data); Stochastic processes; History of statistics
Zeny Feng - Statistical genetics; Statistical bioinformatics; Sequencing data analysis; Big data analysis; Infectious disease modelling; Longitudinal data analysis
Jeremy Balka - Survival analysis; Cure rate models; Statistics education; Statistics in finance; Statistics in sports
Julie Horrocks - Longitudinal and Survival data, with missing values and zero-inflation; Spatial models for epidemiology and animal abundance
Jeremy Balka - Survival analysis; Cure rate models; Statistics education; Statistics in finance; Statistics in sports

Ed Carter - Multivariate analysis; Robust mixture models; Bioassay; Application of new statistical techniques to multivariate data
Peter Kim - Bioinformatics; Biostatistics; Clinical trials; Machine learning; Microbiology
Gerarda Darlington - Statistical methods for correlated observations; Methods for epidemiologic and genetic epidemiologic studies; Design and analysis of cluster randomized trials
Gary Umphrey - Biostatistics; Evolutionary biology; Biodiversity conservation; Systematics; Myrmecology

MATHMATICS

Dan Ashlock - Evolutionary computation; Exploratory bioinformatics data analysis; Bioinformatics tool development; Game theory; Health policy analysis; Stochastic processes in biology; Automatic content generation for games
Monica Cojocaru - Dynamical systems; Game theory and Applications; Emergent dynamics in models of populations; Network and equilibrium problems; Diverse topics with applications to Engineering, Management Science, Population Behavior and Health Policy
Hermann Eberl - Mathematical Biology; Engineering Mathematics; Applied Differential Equations; Scientific Computing; Interdisciplinary application areas include: Microbiology and biofilms; Aquiculture and honeybees, Agriculture and Food; Environmental, Chemical, Bioprocess Engineering
David Kribs - Quantum information; Quantum computing; Quantum cryptography; Quantum error correction; Operator theory; Operator algebras; Matrix theory; Mathematical physics

Herb Kunze - Applied analysis; Fractal-based methods in analysis; Inverse problems; Mathematical imaging
Anna Lawniczak - Mathematical Modeling, Simulation, & Analysis of Dynamics of Complex Natural, Engineering & Social Systems; Individually Based Simulation Models; Multi-agent Based Simulations; Statistical Analysis of Simulation Data; Computational Intelligence; Cognitive Agents; Cellular Automata & Lattice Gas Cellular Automata
Mohamed El-Ghazawi - Matrix Analysis; Classical Calculus; Mathematical Physics; Theory of Polynomials

Rajesh Pereira - Matrix Analysis; Classical Analysis; Analytic Theory of Polynomials
Allan Wilson - Mathematical biology; Bifurcation with symmetry; Parameter estimation; Neuronal ion channel modelling; Dynamical systems

Steve Gismondi - Mathematical modelling; Linear Programming; Graph Theory; Computational Complexity
Bei Zeng - Mathematical Physics; Theory of Quantum Entanglement; Quantum Information Theory; Coding Theory; Quantum Computation; Quantum Cryptography; Foundations of Quantum Mechanics

Emily Caulfield, Mathematics

Emily works as a technical trainer for ION Concept Systems in Scotland, a software company that develops navigation software for seismic exploration vessels. Emily specializes in teaching the mathematics involved in positioning the seismic equipment being towed behind the vessel. Last year, she spent some time on one of these vessels sailing off the northwest coast of Australia, using the software to predict the behaviour of the currents to improve the efficiency of the survey.