Why GRADUATE STUDIES in MATHEMATICS and STATISTICS?

A doctoral degree in Mathematics and Statistics is essential for anyone aspiring to a research or academic position, and is very useful for those who want to assume a leadership role in government, business and industry. The Doctor of Philosophy is a research degree, and doctoral studies are an essential step in the preparation of a research scientist.

Why QUEEN’S?

Queen’s is an ideal place to pursue graduate study in Mathematics and Statistics. We have an outstanding group of faculty researchers who are internationally recognized in their fields of specialization. They represent a wide variety of areas including pure mathematics (number theory, algebra, algebraic geometry, combinatorics, operator algebras, random matrices and dynamical systems), mathematical physics, mathematics applied to engineering (control theory, communication theory), mathematical biology, and both theoretical and applied statistics.

“The graduate mathematics community at Queen’s is vibrant, international, and intellectually stimulating.”

– John Treilhard, MSc

Program STRUCTURE

Course work, qualifying exams, thesis prospectus exam, and thesis.

RESEARCH Areas

• Algebra and Number Theory
• Analysis, Geometry, and Topology
• Applied Mathematics
• Mathematics & Engineering
• Probability and Statistics

We encourage you to identify an area of research interest and contact a potential supervisor before applying.

Visit the Department of Mathematics and Statistics website to read faculty profiles and learn more about faculty members’ research areas. When you find a faculty member with similar research interests to yours, contact him/her and tell them about your interest in graduate work and related experience.
DOCTOR OF PHILOSOPHY (PhD)

Mathematics & Engineering, Mathematics & Statistics

2019-2020

Achieve Your Academic Goals

YEAR I

- Key priorities include your relationship with your supervisor and forming your supervisory committee, coursework, preparing for, and passing qualifying exams.
- Meet early with your supervisor to set expectations and discuss roles, responsibilities, program requirements, resources, research/occupational goals, timelines, and any required accommodation plans.
- Look to Student Academic Success Services for a variety of supports.
- Attend weekly seminars of interest, the Graduate Student seminar, and the departmental Colloquium.

YEAR II

- Write and defend your thesis prospectus.
- Embark on your substantive research.
- Find your way through the academic process with help from departmental and Expanding Horizons professional development workshops, the department Grad Chair, and the SGS Habitat.
- Continue to attend seminars, and seek experiential/professional development opportunities.

YEAR III

- Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out the SGS Dissertation Boot Camp or Dissertation on the Lake.
- Use conference presentations to create, discuss, and explore ways to disseminate research findings. Learn from the Expanding Horizons: Publishing workshop.
- Begin discussion of potential thesis defense examiners.

YEAR IV & TRANSITIONING

- Plan date of thesis submission for examination.
- Present your research to graduate students and faculty or at conferences and work with supervisor to prepare for defence.
- Review submission and examination guidelines.
- Secure necessary oral defence accommodations.
- Discuss career pathways, references letters, and publication options with your supervisor.

Maximize Research Impact

- Think about audiences for your research.
- Complete CORE online module on research ethics if doing research with living people or sensitive topics.
- Apply to NSERC, OGS, and other funding.
- Attend conferences in your field.

Build Skills and Experience

- Serve on departmental, faculty or university committees.
- Consider positions in student services, the SGPS, or media outlets like the Queen's Journal, QRC TV, and the SGS Blog. Look in the AMS Clubs Directory.
- Use a Teaching Assistant or Research Assistant position to develop your skills and experience.

Engage With Your Community

- Explore how you can connect with your community through experiential opportunities on- and off-campus.
- Consider volunteering with community organizations such as Math Quest, a math camp for girls.
- Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups.

Launch Your Career

- Finding career fit starts with knowing yourself. Take a Career Services workshop or meet with a career counsellor for help. Check out books like So What Are You Going to Do With That? or The Academic Job Search from the Career Resource Area for advice on various career options.
- Start reading publications like University Affairs and the Chronicle of Higher Education. Browse non-academic labour market websites.
- Stay on the lookout for special events like the School of Graduate Studies Career Week to explore your career pathways.
- Start building your teaching portfolio including student evaluations, and seeking mentorship.
- Explore different careers of interest by reading alumni profiles on the SGS website, and using Queen’sConnects on LinkedIn to connect with Queen’s alumni, or find alumni in various careers through “Ask an Alum.” For more information check out Career Cruising.
- Investigate requirements for professional positions or other opportunities related to careers of interest.

Consider joining professional associations like the Canadian Mathematical Society or the Canadian Applied and Industrial Mathematics Society.
- Join groups on LinkedIn reflecting specific careers or topics of interest.
- Consider publishing in your field and with community partners.
- Continue public outreach through social media and the Queen’s Media Centre.
- Set up a meeting with the School of Graduate Studies for a Grad Chat to discuss your research interests.
- Consider putting an article in The Conversation.

Practice articulating the skills you have been developing in settings outside the university, such as casual conversation, networking, and interviews. Get help from a Career Services workshop.

WHERE CAN I GO?

A PhD in Mathematics and Statistics or Mathematics and Engineering can equip you with valuable and versatile skills, such as:
- Knowledge and technical skills
- Effective communication skills in multiple forms for diverse audiences
- Information management: prioritize, organize and synthesize large amounts of information
- Time management: meet deadlines and manage responsibilities despite competing demands
- Project management: develop ideas, gather information, analyze, critically appraise findings, draw and act on conclusions
- Creativity and innovation
- Professionalism
- Independence and experience as a collaborative worker
- Awareness, an understanding of sound ethical practices, social responsibility, responsible research and cultural sensitivity

A graduate degree in Mathematics and Statistics or Mathematics and Engineering can take your career in many directions. In Canada, less than 40% of all PhDs will work in post-secondary education — the majority will work in industry, government, or non-profits.

- Academia
- Government
- Business
- Finance
- Consulting
- Law
- Non-profit
- Teaching
- Research
- Innovation
- Engineering
- Policy
- Public Sector
- Publishing
- Academic Publishing
- Publishing
- Any other field of interest

Visit careers.queensu.ca/gradmaps for the online version with links!

* This map is intended to provide suggestions for activities and careers, but everyone's abilities, experiences, and constraints are different. Build your own Grad Map using our online My Grad Map tool.
What do I need to know to APPLY?

ACADEMIC REQUIREMENTS
Master's degree in Mathematics and/or Statistics or related field with a minimum B+ standing and demonstrated research potential and clear interests. Applicants interested in Mathematics and Engineering will also have an undergraduate degree in an engineering field.

ADDITIONAL REQUIREMENTS
• Two official transcripts for all post-secondary studies.
• At least 2 letters of reference.
• Curriculum vitae.
• If English is not a native language, prospective students must meet the English language proficiency requirements in writing, speaking, reading, and listening. The School of Graduate Studies requires the following minimum scores: (1) TOEFL (paper-based): 550, (2) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30), for a total of 88/120 (applicants must have the minimum score in each test as well as the minimum overall score), or (3) IELTS: 7.0 (academic module overall band score), or (4) PTE Academics: 65.

KEY DATES & DEADLINES
• Application due: January 15 to receive full funding consideration. There is no deadline to apply for admission.
• Notification of acceptance: Rolling acceptances.

What about FUNDING?
The minimum funding guarantee for Mathematics and Statistics PhD students is $25,000 per year, throughout years 1–4. The funding package may be comprised of teaching assistantships or fellowships, research fellowships, internal and external awards and/or scholarships.

We encourage all students to apply for external funding from OGS, NSERC and other sources. Queen’s will automatically issue a one time $10,000 top-up to incoming PhD students who have won federal government tri-council awards. For more information, see the School of Graduate Studies’ information on awards and scholarships.