Why GRADUATE STUDIES in BIOLOGY?

There is no end to the fascinating questions we can ask about how the natural world functions, from dissecting the molecular mechanisms at play in cells to understanding the complexity of interactions in the biosphere, the beauty and mystery of nature astounds. It is an incredibly exciting time to do biological research and we are learning about the natural world at a rate unprecedented in history. The remarkable power of modern research tools, from powerful gene-editing techniques to bioinformatics to ecosystem modelling, is driving exciting discoveries daily. These discoveries are made by graduate students. Regardless of your area of interest, there is something in biology for you, questions waiting to be answered, and riddles of natural to be solved.

“When I started my Biology graduate degree at Queen’s, all of a sudden I had this new network of friends who were interested in the same biological questions that I was- it was a ton of fun.”

– Roslyn Dakin, PhD

Why QUEEN’S?

The Biology Department at Queen’s is one of the largest departments on campus with approximately 100 graduate students supervised by 32 faculty with research opportunities in a range of disciplines. Our faculty are world leaders in several research fields, including many Canada and Queen’s Research Chairs and winners of national and international awards for research and teaching excellence.

We offer a broad and challenging program in one of the top Biology departments in the country. We have an impressive range of sophisticated infrastructure for cell biology, biochemistry, molecular biology, ecology, and evolutionary research including: a confocal microscopy suite, DNA and RNA sequencing services, aquatic research facilities, and a state-of-the-art phytotron. Our field station, comprising more than 3200 hectares of woodland, fields and lakes is a short drive away and has excellent research facilities and living quarters.

Program STRUCTURE

PhD (4 years): research thesis and defense. (Some courses may be required).

RESEARCH Areas

- Animal Physiology
- Cell and Molecular Biology
- Ecology, Evolution and Behaviour
- Plant Sciences
- Mathematical Modeling & Bioinformatics

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

Visit the Biology Department 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.

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2020-2021

**PhD Map**

*DOCTOR OF PHILOSOPHY (PhD)*

**YEAR I**

- Key priorities include forming your committee, coursework, field exams, and language exams.
- Meet early with your supervisor to discuss and set expectations, roles, responsibilities, program requirements, resources, research/occupational goals, timelines, and any required accommodation plans.
- Attend and participate in Departmental Seminars such as the EEB, Limnology, MCB, and AI Downe Lecture series.

**YEAR II**

- Write and defend your thesis proposal.
- Embark on your substantive research.
- Set up regular meetings with your supervisor to discuss progress and obstacles to timely completion.
- Find your way through the academic process with the help of Expanding Horizons and the SGS Habitat.
- Seek experiential/professional development opportunities.

**YEAR III**

- Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out SGS writing camps such as 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 defence examiners.
- Complete the Annual Research Progress Report (1/2).

**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.
- Complete the Annual Research Progress Report (2/2).

**WHAT WILL I LEARN?**

- A graduate degree in Biology can equip you with:
  - 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
  - Perseverance
  - Independence and experience as a collaborative worker
  - Awareness and understanding of sound ethical practices, social responsibility, responsible research and cultural sensitivity
  - Professionalism in all aspects of work, research, and interactions
  - Leadership: initiative and vision leading people and discussion

**WHERE CAN I GO?**

A PhD in Biology 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. Our PhD students are equipped with the foundation for careers in:

- Academia and teaching
- Agriculture
- Pharmacy and medicine
- Environmental law, patent law
- Government research centres and the many discipline-specific societies that host annual meetings
- Professionalism in all aspects of work, research, and interactions
- Leadership: initiative and vision leading people and discussion

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

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*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.
Graduate Studies FAQs

How do I use this map?

Whether you are considering or have embarked on graduate studies at Queen’s, use this map to plan for success in five overlapping areas of your career and academic life. The map helps you explore possibilities, set goals and track your individual accomplishments. Everyone’s journey is different – the guide offers options for finding your way at Queen’s and setting the foundation for your future. To make your own customized map, use the online My Grad Map tool.

Where can I get help?

Queen’s provides you with a broad range of support services from your first point of contact with the university through to graduation. Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming environment offers the programs and services you need to be successful, both academically and personally. Check out the SGS Habitat for available resources.

What is the community like?

At Queen’s, graduate students from all disciplines learn and discover in a close-knit intellectual community. You will find friends, peers and support among the graduate students enrolled in Queen’s more than 130 graduate programs within 50+ departments & research centres. With the world’s best scholars, prize-winning professional development opportunities, excellent funding packages and life in the affordable, historic waterfront city of Kingston, Queen’s offers a wonderful environment for graduate studies. Queen’s is an integral part of the Kingston community, with the campus nestled in the core of the city, only a 10-minute walk to downtown with its shopping, dining and waterfront. For more about Kingston’s history and culture, see Queen’s University’s Discover Kingston page.

Application FAQs

What do I need to know to APPLY?

ACADEMIC REQUIREMENTS
- MSc in Biology or direct entry from B.Sc for exceptional candidates.

ADDITIONAL REQUIREMENTS
- Correspond with potential supervisors (may require C.V.).
- 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: 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: March 1 (domestic students), February 15 (international students).
- Notification of acceptance: Students are accepted on a rolling basis as applications are reviewed.

Before you start your application, please review the Graduate studies application process.

What about FUNDING?

The minimum funding guarantee for Biology PhD students is $24,800 per year, throughout years 1-4. The funding package may be comprised of graduate awards and teaching assistantships.

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