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 nature 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.”

– Rosyln 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.
**WHAT WILL I LEARN?**

A graduate degree in Biology can equip you with valuable and versatile skills, such as:

- **Knowledge and technical skills**
- **Effective communication skills**
- **Research methodology**
- **Critical thinking and problem-solving**
- **Collaboration and teamwork**
- **Project management**
- **Time management**
- **Creativity and innovation**
- **Perseverance**

**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.

- **Academia and teaching**
- **Agriculture**
- **Pharmacy and medicine**
- **Environmental law, patent law**
- **Government research centres**
- **Biotechnology industries**
- **Wildlife conservation and environmental consulting**

**ACHIEVE YOUR ACADEMIC GOALS**

- 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 graduate seminars such as Departmental Seminars, EEB, Limnology, and MCTB Seminars, as well as the Al Downie Lecture.

**BUILD SKILLS AND EXPERIENCE**

- Serve on departmental, faculty, or university committees. Talk to the Biology Graduate Student Council for tips on getting involved.
- Consider positions in student services, the SGPS, or media outlets like the Queen’s Journal, CFRC Bob, or the SGGS 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**

- Consider volunteering with different community organizations such as Science Rendezvous.
- Consider volunteering with different community organizations, museums, and cultural studies groups, such as the Kingston Field Naturalists.

**LAUNCH YOUR CAREER**

- Finding a career that fits starts with knowing yourself. Get help by taking a Career Services career planning workshop or meeting with a career counsellor. Check out books like So What Are You Going to Do With That? or Planning a Scientific Career in industry 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 Graduate Student Career Fairs to explore your career pathways.

- **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 graduate seminars such as Departmental Seminars, EEB, Limnology, and MCTB Seminars, as well as the Al Downie Lecture.

- **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.
  - Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out the SGGS Dissertation Boot Camp or Dissertation on the Lake.

- **YEAR III**
  - Attend or present at a graduate conference such as those hosted by the Canadian Society for Ecology and Evolution, Society for Experimental Biology, Canadian Society of Plant Biology, or many other organizations that host graduate research.
  - Hone skills for non-academic employment by continuing involvement on committees and in the community.
  - Attend and participate in graduate seminars such as Departmental Seminars, EEB, Limnology, and MCTB Seminars, as well as the Al Downie Lecture.

- **YEAR IV & TRANSITIONING**
  - Attend or present at a graduate conference such as those hosted by the Canadian Society for Ecology and Evolution, Society for Experimental Biology, Canadian Society of Plant Biology, or many other organizations that host graduate research.
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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 $24,300 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 $10,000 award 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.