Biology

Get to know BIOLOGY

There has never been a more exciting time to study Biology, with subjects ranging as broadly as climate change and the conservation of biodiversity, the origin and evolution of life, the form and function of organisms, and the ongoing “omics” revolution at the molecular level.

Our program emphasizes interactive learning with hands-on laboratories, small senior seminar modules and field courses. Our department also offers opportunities for field study around the globe — from Argentina to Africa.

New to Biology is the Biotechnology program that works with living organisms and other biological systems to help us improve our lives by discovering new drugs, improving crop production, and helping to develop novel forms of sustainable energy. Recognizing the interdisciplinary nature of biotechnology, the program will encourage students to take courses from several departments at Queen’s, everything from law to civil engineering to biomechanical and molecular sciences. There is also an option to combine this degree with a diploma in Biotechnology from St. Lawrence College.

Queen’s ADMISSION

Students apply to Queen’s Science (QS) through the OUAC (Ontario Universities’ Application Centre) website (ouac.on.ca). Secondary School prerequisites include English 4U, Advanced Functions 4U, Calculus and Vectors 4U, plus two of Physics 4U, Chemistry 4U or Biology 4U. Visit queensu.ca/admission for additional information regarding requirements and admission to Queen’s.

Biology is the science of life – and through our living teaching spaces such as the Queen’s University Biology Station (QUBS) and our Phytotron greenhouse our students live it every day.

Degree PLANS

Bachelor of Science (Honours)
Major / Minor in Biology / Specialization in Biotechnology, Biology and Mathematics, Biology and Psychology, Environmental Biology
Internship option available

A Year to CHOOSE

We often say that our students are like explorers. In Arts and Science, your first year is all about making choices and exploring new paths. Whether you are in Arts, Science or Computing, you will choose your courses from a wide variety of subjects as you settle into university life and become familiar with new styles of learning. By the end of your first year, you will have discovered your areas of interest, passion and success, and then declare your major. Your first year, whether you consider it to be undeclared, undecided or simply a time for exploration, is bound to be a year full of adventure.

Course HIGHLIGHTS

The courses in Biology are very diverse from Ecology and Evolution, Animal and Plant Physiology to Biotechnology. Those interested in understanding biology at the cellular level can choose courses in Cell Biology, Genetics, Comparative Biochemistry and Analytical Genomics. If understanding whole ecosystems is your interest, we have courses in Population and Evolutionary Ecology, Conservation Genetics, Limnology and Aquatic Ecology and several field courses in Canada and abroad. If you are primarily interested in more human focused topics we have Human Genetics and Evolution, Plants for People, Evolution and Human Affairs, and Evolutionary Medicine.

That is a degree from Queen’s.

QUartsci.com
### Biology Major Map

#### 1st Year
- In first year take BIOL 102, 103, CHEM 112 and MATH 120 or 121. Interested in the Biology and Psychology Specialization? Take PSYC 100. Interested in the Biology and Mathematics Specialization? Take MATH 110 or 111.
- Each Science Plan will have several required first-year courses, including minors. For details see the Arts and Science Academic Calendar.

#### 2nd Year
- In second year you can enrol in the Biology Honours Plan or one of our three specialized Plans (Biology and Psychology, Biology and Mathematics or Biotechnology). Core courses such as Diversity of Life, Genetics, and Biostatistics lay the foundation for 3rd and 4th year. Please see the Academic Calendar to ensure you are taking the correct courses.
- Want to enhance your degree? Consider a certificate in Media Studies or explore other certificates available.

#### 3rd Year
- In third year take core courses in Ecology (BIOL 302 or BIOL 303), Physiology (BIOL 341 or BIOL 339), and Cell Biology (BIOL 330).
- You can focus your study into thematic areas; view suggested courses on the Department website. Check out our field courses (BIOL 307, 308, 317 and 327).
- Need help mapping all of your core, option, supporting and elective courses (including those not listed above) to make sure you will have what you need to complete your degree? Use the Course Mapping Tool on the Arts and Science website.

#### 4th or Final Year
- Thinking about graduate programs? Check out our Honours Thesis courses (BIOL 537 or BIOL 541) and Research Mentorship courses (BIOL 538-540). If you’re looking for a unique study experience, check out our Honours Seminar courses (BIOL 501-536) and 4th year labs (BIOL 401-404).
- By fourth year you should be working on your remaining option and elective courses. Make sure to map your minor and/ or certificate(s) as well.
- Apply to graduate in SOLUS.

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**Where could I go after graduation?**

- Academic and applied research
- Agricultural Sciences
- Bioeconomics
- Bioethics
- Bioinformatics
- Biomechanics
- Biotechnology
- Chiropractic
- Community health
- Dentistry
- Environmental conservation
- Epidemiology
- Fisheries science
- Food industry
- Forensic science
- Genetic counselling
- Health administration
- Marine biology
- Medical research
- Medical technology
- Medicine
- Nursing
- Occupational therapy
- Oceanography
- Optometry
- Pharmaceutical sales
- Pharmacology
- Physical therapy
- Protection and law
- Teaching
- Toxicology
- Veterinary medicine

Some careers may require additional training.

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**Add Biology as your Minor**

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**Biology MAJOR MAP**

What can I learn studying BIOLOGY?

- Develop knowledge of biological functions
- Use laboratory equipment and instruments
- Gain hands-on experience studying biology in the field
- Comply with quality control and safety regulations
- Collect and preserve organisms
- Design experimental studies
- Present literature and research findings in posters and seminars
- Observe and make measurements
- Write, review, and summarize reports/scientific writing
- Analyze and evaluate information
- Statistical analysis of biological data
- Solve quantitative problems

**Succeed in the workplace**

**What employers want**

The Canadian Council of Chief Executives list the top 6 skills sought by employers as:

1. People skills
2. Communication skills
3. Problem-solving skills
4. Analytical abilities
5. Leadership skills
6. Industry-specific knowledge

Take the time to think about the unique skills you have developed at Queen’s, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out the Career Services skills workshop.

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**Why study in Kingston?**

For over 175 years, the Kingston community has been a collection of bright minds. We are proud that our city was named one of the top Intelligent Communities across the globe, an accolade largely due to the thousands of students who study here every single year. In fact, the BBC has identified Kingston as one of the GREATEST UNIVERSITY TOWNS in the world, which might be why Instagram named the city ‘the happiest place on the planet’. Just a quick drive to Toronto, Montreal, Ottawa and even New York, Kingston is a safe and liveable city. Not only are we known as the freshwater sailing capital of the world, Kingston is arguably the birthplace of hockey. Wondering what to do while you’re attending school? Queen’s has more clubs per capita than any other university in Canada, and Kingston has more restaurants per capita than any other city in North America; your time here is guaranteed to be ‘fresh made daily’.