Understanding the evolution of drug resistant diseases draws upon knowledge of genetics, genomics, epidemiology and population ecology. These are all areas of study steeped in both Biology and Mathematics, and this example just one of many that could be used to highlight the growing need for quantitative literacy in academics, medicine, and industry. The Biology and Mathematics Specialization incorporates courses from both departments and combines them with specialized courses in “BioMath” to provide an exceptional learning experience in this emerging field.

**TOP 5 REASONS to study BIOLOGY**

1. SWEP jobs provide students with true research opportunities, and start after first year.
2. QUBS: an off-site field station that provides students with opportunities to learn hands-on from their environment.
3. Courses are focused on cutting-edge topics in biology.
4. Interact closely with professors in class and during our many events held throughout the year.
5. Apply for an internship, with specific jobs for all types of biological study and research.

**ALUMNI JOBS**

- 10% of alumni work in **GOVERNMENT & NON-PROFIT**
- 13% of alumni work in **BUSINESS & LAW**
- 16% of alumni work in **HEALTH CARE**
- 35% of alumni work in **EDUCATION**

**alumni STORY**

“The Queen’s Biology program was very well-rounded and definitely played a major role in helping to get where I am today. Not only did I learn a lot from the courses, but I also had the opportunity to do an independent research project and spend a summer doing fieldwork at Queen’s University Biological Station.”

- Sharon Zhang, BScH ’13

**2018-19 thresholds**

- **NO AUTOMATIC ACCEPTANCE**
- **1.6 cGPA**
- **PENDING LIST**
  - min C- in BIOL 103
- **thresholds**
  - *Thresholds are made on a competitive basis and are updated annually. For the latest information please visit: QUarts.com*

**DEPARTMENT OF BIOLOGY**

Faculty of Arts and Science
Biosciences Complex
116 Barrie Street
613-533-6344
biology.queensu.ca
**1ST YEAR**
In first year you will have the chance to explore the foundations of Biology and Mathematics in biology, chemistry, geography, math and geology along with some electives.

See the back page for specific courses to consider.

Attend Majors Night in the Winter term to learn more about Plan options.

**GET THE COURSES YOU NEED**

**GET RELEVANT EXPERIENCE**
Join teams or clubs on campus such as Queen’s First Aid, the Queen’s Association for Technology in Medicine and Biology (QATMB), the Queen’s Genetically Engineered Machine Team (QGEM) and the Queen’s Synthetic Biology Organization (QSYNBIO).

See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.

Volunteering is a great way to get practical experience and build your CV towards getting Biology jobs during your degree.

Look into summer jobs by talking to the department or Career Services about work through SWEF or NSERC.

**GET CONNECTED WITH THE COMMUNITY**
Volunteer on or off-campus with different community organizations, such as Queen’s Health Outreach, Let’s Talk Science, and Women in Science & Engineering at Queen’s University (WISE).

Get involved with the Departmental Student Council (DSC). Start or continue volunteering with organizations.

If interested, attend conferences and talks like the Canadian Undergraduate Conference on Healthcare (CUCHC).

**GET THINKING GLOBALLY**
Prepare for work or studies in a multi-cultural environment by taking QUIC’s Intercultural Competency Certificate, and research possible immigration regulations.

Speak to a QUIC advisor to get involved in their programs, events, and training opportunities.

**GET READY FOR LIFE AFTER GRADUATION**
Grappling with program decisions? Go to Majors Night or get some help considering career options from Career Services.

Build your transferable skills in time management, problem-solving, writing and more with Student Academic Success Services.

**2ND YEAR**
Start going deeper into the discipline of Biology and Mathematics, while considering a minor and/or certificate such as Media Studies, Attend Degree + in the Fall term to learn more about Certificates and Internship options.

Want to make sure your academics are where you want them to be? Visit SASS (Student Academic Support Services) and the Writing Centre for some help.

**3RD YEAR**
A chance to start grouping courses in areas of interest, or to keep it more general and explore many areas of Biology and Mathematics. Meet with an Academic Advisor to make sure you are on track and have planned out your courses for next year — for some ideas, see the back page.

Consider applying to research opportunities at Queen’s University Biological Station or through the Biology Undergraduate Summer awards.

Consider applying to do a 12-16 month Quip internship between your third and fourth year.

**4TH OR FINAL YEAR**
In fourth year you will have the chance to participate in research-based courses that can lead to Graduate School or to your future career path. Make sure to finish up all your courses for your degree and your optional certificate(s).

Investigate requirements for full-time jobs or other opportunities related to careers of interest. Assess what experience you’re lacking and fill in gaps with volunteering, clubs, or internships – check out the Career Services skills workshop for help. Participate in Inquiry at Queen’s undergraduate student conference.

Consider joining professional associations like Canadian Society for Molecular Biosciences, BIOTECanada, and the Canadian Society for Ecology and Evolution.

Join groups on LinkedIn reflecting specific careers or topics of interest in Biology.

International students interested in staying in Canada can speak with an International Student Advisor.

Apply to jobs or future education, or make plans for other adventures. Get help from Career Services with job searching, resumes, interviews, Grad School applications, or other decisions.

**What will I learn?**
A degree in Biology can equip you with valuable and versatile skills, such as:
• 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

**Where can I go?**
A degree in Biology can take your career in many directions. Many students choose to continue their academic inquiry with a Master’s. Our students are equipped with a strong foundation for careers in:
• Agricultural Sciences
• Analytics
• Bioinformatics
• Environmental conservation
• Environmental sustainability
• Epidemiology
• Fisheries science
• Government regulators
• Marine biology
• Medical technology
• Medical research
• Pharmaceutical sales
• Pharmacology
• Protection and law
• Teaching
• Toxicology

Taking time to explore career options, build experience and network can help you have a smooth transition to the world of work after graduation.
Sample Year by Year

1ST YEAR
- BIOL 102/3.0
- BIOL 103/3.0
- MATH 110/6.0 or MATH 111/6.0
- CHEM 112/6.0
- 6.0 units from MATH 120/6.0, MATH 121/6.0 or (MATH 123/3.0 and MATH 124/3.0)
- 6.0 units of electives

2ND YEAR
- BIOL 201/3.0
- BIOL 202/3.0
- BIOL 205/3.0
- BIOL 206/3.0
- BIOL 243/3.0 or STAT 269/3.0
- MATH 221/3.0 or MATH 280/3.0
- MATH 225/3.0 or MATH 231/3.0
- STAT 268/3.0 or STAT 351/3.0
- 6.0 units of electives

3RD YEAR
- BIOL 300/3.0
- BIOL 330/3.0
- BIOM 300/3.0
- MATH 339/3.0
- 3.0 units from BIOL 339/3.0, BIOL 334/3.0, BIOL 341/3.0
- 3.0 units from MATH or STAT at the 300 level or above
- 12.0 units of electives

4TH YEAR
- 6.0 units from BIOL at the 300 level or above or from BIOL options
- 3.0 units of BIOL
- 3.0 units of MATH or STAT at the 300 level or above
- 6.0 units of MATH or STAT
- 12.0 units of electives

Note that degree requirements are revised regularly. The most current requirements, including course lists and options, are available in the Academic Calendar at: QUartsci.com/academic-calendar