Biochemistry in the 21st century will continue to uncover the biochemical basis for life itself. Emerging knowledge in biochemistry will help unravel the molecular basis for diseases such as cancer and hypertension, and in turn, lead to the development of new tools for disease detection and new therapies for treatments and cures. Biochemists apply the basic principles of chemistry, mathematics, physics, and biology to the study of cellular processes; thus, a good grounding in these subjects is an integral part of the program.
**BIOCHEMISTRY SPECIALIZATION**

**BACHELOR OF SCIENCE (HONOURS)**

**FOR LIFE AFTER**

**GET THINKING**

- Consider joining professional associations like the Canadian Society for Biochemistry and Molecular Biology and the International Union of Biochemistry and Molecular Biology.
- Join groups on LinkedIn reflecting specific careers or topics of interest in Biochemistry.

**GET CONNECTED WITH THE COMMUNITY**

- Volunteer on or off campus with different community organizations, such as Science Rendezvous and the Queen's Synthetic Biology Organization.
- Get involved with the BCHM Student Council. Connect with professors at socials or attend speaker events.

**GET RELEVANT EXPERIENCE**

- Consider taking more responsibility within different clubs or extracurriculars, like Queen's LifeBeat Newspaper. Look into summer jobs by talking to the department or Career Services about work through SWEET or NSERC. Consider entrepreneurial opportunities via programs like the Queen's Innovation Connector Summer Initiative (QICSI).
- Go to conferences such as the Queen's Undergraduate Conference on Healthcare if interested.
- Do targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen's Connects. Connect with professors at events or workshops hosted by the ISC.

**GET THE COURSES YOU NEED**

- In first year you will have the chance to explore the foundations of Biochemistry in biology, chemistry, geography 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.
- Consider taking more responsibility within different clubs or extracurriculars, like Queen's LifeBeat Newspaper. Look into summer jobs by talking to the department or Career Services about work through SWEET or NSERC. Consider entrepreneurial opportunities via programs like the Queen's Innovation Connector Summer Initiative (QICSI).
- Get involved with the BCHM Student Council. Connect with professors at socials or attend speaker events.

**GET THINKING GLOBALLY**

- Is an exchange in your future? Start thinking about where you would like to study abroad. Apply in January for a 3rd year exchange through the International Programs Office.
- Build your intercultural competence by getting involved with other cultures or by practicing and improving your language skills.
- Go to conferences such as the Queen's Undergraduate Conference on Healthcare if interested.

**GET READY FOR LIFE AFTER GRADUATION**

- Grappling with program decisions? Go to Majors Night or get some help considering career options from Career Services. Attend Biochemistry Information Night in October and Q & A Night in March offered by the DSC. Attend Information Sessions in November and January offered by the Associate Dean.
- Explore different careers of interest by reading books in the Career Services Information Area, such as Opportunities in Medical Technology Careers. For more information check out Career Cruising or by finding and connecting with alumni on LinkedIn. Attend Canadians Studying Medicine Abroad offered by the Associate Dean, Life Sciences and Biochemistry.
- Start focusing on areas of interest. Research education requirements for careers of interest. If needed, prepare to take any required tests (like the MCAT or GMAT) and get help thinking about Grad School from Career Services.
- 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. Attend Town Hall meetings offered by the Associate Dean and provide input into the Program.

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

- Knowledge of the chemical and biological processes within the human body and other organisms
- Understanding of organic, analytical and physical chemistry and biology (genetics)
- Understanding of general physics and mathematics
- Ability to use statistics and computer programs for data processing
- Familiarity with a laboratory environment and ability to troubleshoot laboratory equipment and instruments
- Knowledge of quality control and safety regulations
- Quantitative skills to solve quantitative problems
- Oral and written communication to write and summarize reports, along with giving oral presentations
- Time and resource management
- Work experience to help identify careers of interest (through co-op program)

### Where can I go?
A degree in Biochemistry 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
- Epidemiology
- Food science and technology
- Forestry
- Genetics
- Medicine
- Nutrition & dietetics
- Public health
- Textile industry
- Veterinary medicine
- Taking time to explore career options, build experience and network can help you have a smooth transition to the world of work after graduation.

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**1ST YEAR**

- Attend Majors Night in the Winter term to learn more about Plan options.
- Join teams or clubs on campus such as Let’s Talk Science and Queen’s First Ad.
- See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.

**2ND YEAR**

- Start going deeper into the discipline of Biochemistry, while considering a minor and/or certificate such as French for Professionals. Attend Degree + in the Fall term to learn more about Certificates and Internship options.
- Consider joining professional associations like the Canadian Society for Biochemistry and Molecular Biology and the International Union of Biochemistry and Molecular Biology.
- Join teams or clubs on campus such as Let’s Talk Science and Queen’s First Ad.

**3RD YEAR**

- A chance to start grouping courses in areas of interest, or to keep it more general and explore many areas of Biochemistry. 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.
- Stay during the summer as an assistant to a faculty member or apply for an external summer research opportunity. Contact the Life Sciences and Biochemistry Program Office for information. Consider applying to a 12-16 month QUIP internship between your third and fourth year.
- Get involved with the BCHM Student Council. Connect with professors at socials or attend speaker events.

**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.
- 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 taking more responsibility within different clubs or extracurriculars, like Queen’s LifeBeat Newspaper. Look into summer jobs by talking to the department or Career Services about work through SWEET or NSERC. Consider entrepreneurial opportunities via programs like the Queen’s Innovation Connector Summer Initiative (QICSI).
- Go to conferences such as the Queen’s Undergraduate Conference on Healthcare if interested.

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**CONSIDER A 12-16 MONTH QUIP INTERNSHIP**

- International students interested in staying in Canada can speak with an International Student Advisor.
- National students interested in opportunities outside of Canada can speak with an International Student Advisor.
- Investigate opportunities for data processing and improving your language skills.
- Build your intercultural competence by getting involved with other cultures or by practicing and improving your language skills.

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**SPECIALIZATION MAP**

### 1ST YEAR

- Attend Majors Night in the Winter term to learn more about Plan options.
- Join teams or clubs on campus such as Let’s Talk Science and Queen’s First Ad.
- See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.
- Volunteer on or off campus with different community organizations, such as Science Rendezvous and the Queen’s Synthetic Biology Organization.
- 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.

### 2ND YEAR

- Start going deeper into the discipline of Biochemistry, while considering a minor and/or certificate such as French for Professionals. Attend Degree + in the Fall term to learn more about Certificates and Internship options.
- Consider joining professional associations like the Canadian Society for Biochemistry and Molecular Biology and the International Union of Biochemistry and Molecular Biology.
- Join teams or clubs on campus such as Let’s Talk Science and Queen’s First Ad.
- See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.

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### 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.
- 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 taking more responsibility within different clubs or extracurriculars, like Queen’s LifeBeat Newspaper. Look into summer jobs by talking to the department or Career Services about work through SWEET or NSERC. Consider entrepreneurial opportunities via programs like the Queen’s Innovation Connector Summer Initiative (QICSI).
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- Build your intercultural competence by getting involved with other cultures or by practicing and improving your language skills.
Sample Year by Year

1ST YEAR
- CHEM 112/6.0
- BIOL 102/3.0
- BIOL 103/3.0
- 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 from PHYS 104/6.0; PHYS 106/6.0; PHYS 117/6.0
- 6.0 units of electives

2ND YEAR
- BCHM 218/3.0
- CHEM 211/3.0
- CHEM 212/3.0
- CHEM 222/3.0
- CHEM 223/3.0
- BIOL 243/3.0
- 12.0 units of electives

3RD YEAR
- BCHM 313/3.0
- BCHM 315/3.0
- BCHM 316/3.0
- BCHM 317/6.0
- 3.0 units of BCHM Options
- 12.0 units of electives

4TH YEAR
- BCHM 410/3.0
- BCHM 411/3.0
- BCHM 421/6.0
- BCHM 422/6.0
- BCHEM 432/3.0
- BCHEM 442/3.0
- 6.0 units of electives

* Please note if you were admitted to the Plan prior to May 2018 your requirements are slightly different.

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