BIOCHEMISTRY
Specialization, Bachelor of Science (Honours)

BIOCHEMISTRY
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.

1ST YEAR
- CHEM 112/6.0
- BCHM 112/3.0
- BCHM 132/3.0
- 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
- BCHM 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
- BCHM 432/3.0
- BCHM 442/3.0
- 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: Quartsy.com/academic-calendar**

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

BCHM-P-BSH Specialization (Science) Bachelor of Science (Honours)

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**2018-19 thresholds**

- **2.9 cGPA** Automatic Acceptance
- **2.5 cGPA** Pending List

**Top 5 REASONS to study BIOCHEMISTRY**

1. Gain knowledge of chemical and biological processes within the human body and other organisms.
2. Work directly in our laboratories to become familiar with all types of equipment.
3. Build specific skills that employers are looking for in the industry.
4. Learn from top professors, who conduct research on cancer, reproductive health, and infection and disease.
5. Our internship program (QUIP) offers a range of careers to explore and companies to learn from.

**5% of alumni work in GOVERNMENT**

- Tyler Vance, BScH '13

**11% of alumni work in PHARMACEUTICALS**

**17% of alumni work in HEALTH CARE**

**40% of alumni work in EDUCATION & RESEARCH**

**5% of alumni work in**

- Employment Relations
- Entrepreneurship, Innovation and Creativity
- Disability and Physical Activity
- French for Professionals
- Geographic Information Science
- Global Action and Engagement
- Indigenous Languages and Cultures
- International Studies
- Media Studies
- Sexual and Gender Diversity
- Urban Planning Studies
- Quartsy.com/certs

*Thresholds are made on a competitive basis and are updated annually. For the latest information please visit Quartsy.com*
BIOCHEMISTRY

SPECIALIZATION MAP

1ST YEAR

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.

GET RELEVANT EXPERIENCE
Join teams or clubs on campus such as Let's Talk Science and Queen's First Aid.

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

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 THINKING GLOBALLY
Prepare for work or studies in a multi-cultural environment by taking QULC's Intercultural Competency Certificate and research possible immigration regulations.

Speak to a QULC 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. 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.

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.

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.

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 SWEP or NSERC. Consider entrepreneurial opportunities via programs like the Queen's Innovation Connector Summer Initiative (QICSI).

GET CONNECTED WITH THE COMMUNITY
Get involved with the BCHM Student Council. Connect with professors at social or attend speaker events.

Start or continue volunteering with organizations such as Médecins Sans Frontières (Doctors Without Borders).

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.

GET READY FOR LIFE AFTER GRADUATION
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.

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.

GET RELEVANT EXPERIENCE
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 QUP internship between your third and fourth year.

GET CONNECTED WITH THE COMMUNITY
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 DSC.

GET THINKING GLOBALLY
Build your intercultural competency by getting involved with other cultures or by practicing and improving your language skills.

GET READY FOR LIFE AFTER GRADUATION
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.

4TH OR FINAL YEAR

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.

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

GET CONNECTED WITH THE COMMUNITY
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 THINKING GLOBALLY
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 or PhD in Biochemistry, or to your future career in any number of fields. A degree in Biochemistry can lead to a variety of fields, including:

- 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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