Biochemistry and Life Sciences

Dr. Louise Winn, Associate Dean, Life Sciences and Biochemistry
Professor, Biomedical and Molecular Sciences & Environmental Studies
**What is “Life Sciences” at Queen’s?**
This is a highly sought after undergraduate program that offers students both lecture instruction and laboratory opportunities to learn about human life. With courses ranging from the anatomy and physiology of the organs in our bodies to the bacteria and viruses that compromise organ functions to the cells that give rise to carcinomas to the drugs used to cure us of infection and disease.

**What is “Biochemistry” at Queen’s?**
This undergraduate program offers students a unique opportunity to learn about the machinery in cells that governs their shape, movement, and functional importance, as well as how this machinery is altered in response to injury and disease.
Biochemistry and Life Sciences
Distinguishing Programs

- Biochemistry (BSc)
- Life Sciences (BSc)
- Health Sciences (BHSc)
- Health Studies (BA)
Biochemistry and Life Sciences

CONTENT DISTINCTION
Biochemistry

Learn about cellular machinery that govern:

– Shape
– Movement
– Functional importance

Emphasis on these aspects in health and disease.
Life Sciences

Learn about the following fields in the biomedical sciences:

– Biochemistry
– Cellular and Tissue Physiology
– Anatomy and Reproduction
– Drug Discovery and Human Toxicology
– Microbiology and Immunology
– Cancer Biology and Pathology
– Neurosciences
Biochemistry and Life Sciences

WHAT WILL MY DEGREE LOOK LIKE?
# WHAT WILL MY CORE DEGREE PLAN BE?

## Biochemistry Major

### 2nd year
- Molecular Biology
- Organic Chemistry
- Inorganic Chemistry
- Statistics

### 3rd year
- Physical Biochemistry
- Proteins, Enzymes, Metabolism
- Biochemistry Laboratory

### 4th year
- Current Topics in Biochemistry
- 2 of:
  - Advanced Molecular Biology
  - Protein Structure and Function
  - Molecular Basis of Cell Function

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GPA greater than 2.5 (automatic GPA ≥ 2.9)
Pass in 1st year Chemistry
No less than 27 unit load
WHAT WILL MY CORE DEGREE PLAN BE?

Biochemistry Specialization

2nd year
• Molecular Biology
• Organic Chemistry
• Inorganic Chemistry
• Statistics

3rd year
• Physical Biochemistry
• Proteins, Enzymes, Metabolism
• Biochemistry Laboratory

4th year
• Current Topics in Biochemistry
• Advanced Molecular Biology
• Protein Structure and Function
• Molecular Basis of Cell Function
• Research project
WHAT WILL MY CORE DEGREE PLAN BE?

Life Sciences Major

2nd year
- Molecular Biology
- Organic Chemistry
- Microbiology
- Physiology

3rd year
- No Core Courses

4th year
- No Core Courses

GPA greater than 2.0 (automatic if GPA ≥ 3.2)
Pass in 1st year Chemistry
No less than 27.0 unit (9 course) load
WHAT WILL MY CORE DEGREE PLAN BE?

Life Sciences Specialization

2nd year
• Anatomy
• Molecular Biology
• Organic Chemistry
• Microbiology
• Physiology
• Statistics

3rd year
• Biochemistry
• Immunology
• Pharmacology

4th year
• No Core Courses
• Topic-specialized courses with research opportunity*

*Specialization Plans include: Cancer Biology, Cardiorespiratory, Drug Development and Human Toxicology, Neurosciences, Biomedical Discovery/Sciences
Combined BSc/MSc

• Life Sciences and Biochemistry offer a combined program

• “Accelerated” path to graduate school

• Apply in the 2\textsuperscript{nd} term of 3\textsuperscript{rd} year

• Take up to 6 units of graduate courses during 4\textsuperscript{th} year

• Continue 4\textsuperscript{th} year research project
Exit Strategy

If you get an acceptance to medical school in your 3\textsuperscript{rd} year...

- **Life Sciences & Biochemistry – General Bachelor of Science**
  - Honours routes: Major or Specialization

- **Health Sciences – General Bachelor of Health Sciences**
  - Honours route: Major
Facilities: Both Programs

Left:

– Botterell Hall
  (offices and research labs)

Right:

• New Medical Building (teaching labs)
World class teaching labs

(School of Medicine Tours running all day!)
Research In Action
Queen's Undergraduate Internship Program (QUIP)

The Queen's Undergraduate Internship Program (QUIP) provides students with a 12-16 month work experience. QUIP internships are paid, professionally supervised, career-related positions designed to offer second or third year students the opportunity to learn about current advances, practices and technologies in business and industry. The program is open to students in the Faculty of Engineering and Applied Science (domestic and international), Faculty of Arts and Science (domestic and international), School of Computing (domestic and international) and the School of Business (domestic only; not for credit). Due to the longer work term (compared to a 4-month co-op), employers are highly motivated to maximize their time and investment. This means that Internship students are offered the opportunity to manage more extensive and significant projects.

Got Questions?  Come and see the QUIP Coordinator during QUIP Drop-in Advising Hour – no appointment necessary!

QUIP Drop-in Advising: Every Tuesday and Thursday from 11-12 in the Career Advising and Resources Area (Sept-April)

Eligibility

The program is open to students in the Faculty of Engineering and Applied Science (domestic and international), Faculty of Arts and Science (domestic and international), School of Computing (domestic and international) and the School of Business (domestic only - please see an academic advisor in the School of Business before registering).

- Queen’s students can participate in QUIP after their 2nd or 3rd year of studies and must be returning to complete their final academic term after the internship.
- Students must have a minimum GPA of 1.9 and the permission of your undergraduate chair to register in QUIP.
LSO Networking Night
Tuesday, November 07, 2017

Please join the LSO members, Board and other Industry individuals for the November Networking Night

LSO's Networking Nights event series provides a forum for LSO members and non-members to build connections with the life sciences community in a social setting.

On average we have 100 -120 confirmed attendees per event, with our most popular event drawing 140 people. One third of attendees represented SME companies, 33% were researchers/students, with the remainder being consultants, lawyers, investors, accelerators, multinationals, and government delegates.

If you are looking to raise your profile within the Life Sciences community, Sponsorship Opportunities are available. For more information, please contact the LSO Office (admin@lifesciencesontario.ca)

When: Tuesday, November 7th
Where: Marché Restaurant’s MUVBAR - Brookfield Place Street Level

42 Yonge Street, Toronto, ON
Canadians Studying Medicine Abroad
November 5, 2018 - B139

Speakers:

Dr. James MacKinnon, PGY 1 Family Medicine, Queen’s
BSc (Biology, Mount Allison University); MSc (Global Health and
Public Policy, University of Edinburgh); MD/MSc (Saba University
School of Medicine)

Dr. Shadé Miller, PGY 1 Psychiatry, Queen’s
BSc (Psychology, Western University); MD (Saba University School
of Medicine)

Dr. Arjun Kundra, PGY 1 Internal Medicine, Queen’s
BSc, Biomedical Sciences (York University); M.D., American
University of Integrative Sciences School of Medicine

Dr. Nimsha Singaram, PGY1 Psychiatry, Queen’s
MB, BCh, BAO, (Royal College of Surgeons Ireland)
Career Opportunities

- Medicine
- Biomedical Research
- Law
- Healthcare Policy and/or Administration
- Industry
- Pharmacy
- Veterinary Medicine
- Education
- Dentistry
- Physiotherapy and Occupational Therapy
What extracurricular activities are available?

Biochemistry and Life Science students both have an active, elected student council that organize sports, social and academic related activities for their students, including an annual banquet, BBQ’s, book and clothing sales. Life Science students also have their research publication “QSURJ”.
Contact Us

By email:

Life Sciences – lifesci@queensu.ca (Katherine Rudder)
Biochemistry – biochem@queensu.ca (Alana Korczynski)