

Neuroscience

BSc | www.yorku.ca/interdisciplinary/neuroscience

Admission Requirements

- ENG4U, MHF4U, SBI4U, SCH4U
- **Minimum admission average:** low 80s – mid 80s

Program Overview

Neuroscience is a Specialized Honours BSc degree program jointly offered by the Faculty of Science in the Department of Biology and the Faculty of Health in the School of Kinesiology & Health Science and the Department of Psychology. All three entrance pathways allow students to begin the Neuroscience specialization in second year.

York's neuroscience program combines broad neuroscience foundation courses with the choice to focus on one of three streams after first year, based on a student's preference:

- **Molecular and Cellular Neuroscience**
- **Behavioural and Cognitive Neuroscience**
- **Systems Neuroscience**

Small class sizes encourage collaboration amongst students and instructors as they explore the development, structure and function of the nervous system, and investigate how and why these change - whether naturally or due to human intervention.

Starting in first year, students are introduced to both classroom and laboratory work and begin developing their understanding of the fundamental processes of life at the molecular, cellular and population levels. As students progress through the program, they choose from an extensive variety of science and non-science courses to tailor their degree to their individual interests.

Students hoping to pursue medical school or other professional programs (dentistry, optometry, physiotherapy, chiropractic, occupational health, etc.) will be able to incorporate all required prerequisite courses into their schedule. Choosing courses from a broad range of disciplines helps prepare students for the MCAT (Medical College Admissions Test) or other professional school admission tests.

First Year Courses:

- Biology
- Psychology
- Frontiers in Neuroscience
- Computer Use
- General Education Course

Second Year Courses:

- Fundamental Molecular and Cellular Neuroscience
- Systems, Behavioural, and Cognitive Neuroscience
- Statistics
- Neuroscience Techniques
- General Education Course

Upper Year Options:

- Functional Neuroanatomy
- Neural Basis of Behaviour
- Human Anatomy and Physiology
- Molecular and Cellular Neurobiology
- Immunobiology
- Neurobiology
- Cellular Regulation
- Cell and Molecular Basis of Muscle Physiology

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Experiential Education

The undergraduate Neuroscience program emphasizes hands-on learning and uses methods of assessments that match these experiences, such as interviews, case-studies/simulations, team critical reflections, and an independent or team-based capstone project. Experiential education is woven into York’s Neuroscience program.

Whichever path a student follows in this program, it will culminate in the completion of the **Neuroscience capstone experience** – either conducting an individual research project or participating in a team-based research project. Regardless, students will complete a project that has direct relevance to current research in neuroscience, whether on campus or with industry or hospital partners. Student capstone research experience may include:

- The roles of genetics and the environment on autism
- How the brain plans actions in three-dimensional space
- The visual system’s role in outer space
- Reality check: What the senses tell the brain about the world
- Smart synapses: The making and breaking of memories
- The cellular and molecular bases of brain disorders

Possible Career Pathways

Your studies in Neuroscience will lay the foundation for your future career, professional programs or graduate studies, or prepare you for neuroscience-related careers in research institutes, universities, health care, and industry.

- Clinical data collection
- Clinical research
- Community programming
- Analytical laboratory work
- Medical devices and therapies
- Pharmaceuticals
- Regulatory affairs
- Science advocacy
- Science communications
- Professional Schools – Medicine, Dentistry, Pharmacy, Law, Business

Get In Touch

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“As a neuroscience student, I have taken courses in many different areas to build a strong foundation in my field, including behavioural, cognitive and cellular approaches to the brain, and am now specialising in molecular neuroscience as a third year student. York’s approach to neuroscience is preparing me well for a future career in neuroscientific and medical research through streamlined courses, a fourth year capstone project, and engaged professors teaching small class sizes.”

- Maureen, Neuroscience Student