



FACULTY OF SCIENCE

NEUROSCIENCE

Neuroscience is an interdisciplinary program that focuses on the brain basis of mind and behaviour. Core material includes courses from Psychology, Biology, Chemistry, Biochemistry and Physics that explore the function of the nervous system in health and disease.

Neuroscience is a natural science discipline that explores the neurological processes that control mind and behaviour. Topics in neuroscience can be studied at multiple levels from the molecular to the psychological. Courses in biology, psychology and chemistry explore the physiological, anatomical and evolutionary bases of behaviour. Course materials cover the ways in which genetic, physiological, developmental and experiential processes affect brain structure and function. Students will learn neuroanatomy, neurophysiology, cognitive and behavioural neuroscience. Though primarily focused on normal function, selected courses will explore the mechanisms of diseases that affect the brain and nervous system.

The Neuroscience program offers you the option of combining exciting disciplines to create a skill set that is interesting and unique. It is designed to appeal to people interested in careers in both basic and applied areas of neuroscience, including clinical areas such as neuropsychology and medicine.

This program leads to a **Bachelor of Science degree (3-year, 4-year, or 4-year Honours)**.

SAMPLE CAREERS

Employment opportunities for Neuroscience graduates exist in government laboratories, university research laboratories, scientific consulting organizations, pharmaceutical companies, and the scientific publishing industry. This program also provides a basis for entry into graduate programs in psychology, biology, and neuroscience for students who take the four-year Honours degree option.

SAMPLE COURSES

Evolution, Ecology, and Biodiversity is a first-year Biology course. This course emphasizes the evolutionary and ecological processes that underlie the relationship between an organism and its environment. Topics include natural selection and the origin of species, systematics and taxonomy, the origin of biological diversity, growth and reproductive strategies, and communities and ecosystems.

Physiological Psychology I is a second-year Psychology course that considers the physiological determinants of behaviour. This course examines the development, structure, and function of the nervous and endocrine systems. Topics to be discussed include the brain bases of sensory, motor, and cognitive processes.

Cognitive Neuroscience is a third-year Psychology course that examines the neural substrates underlying cognitive functions. The course examines the cognitive functions performed by all of the major brain areas, including memory, language, movement, emotion, and decision-making

Human Neurobiology is a fourth-year course that explores the field of neuroscience from a biological perspective. Neuroanatomy and cells of the nervous system are discussed in terms of cellular networks and molecular mechanisms that govern neurological function, specifically in terms of homeostasis, motor control, perception, cognition and disease processes.

MORE SAMPLE COURSES

- **Introductory Psychology**
- **Comparative Animal Physiology**
- **Biochemistry**
- **Attention and Memory**
- **Fundamentals of Animal Learning**
- **Molecular Genetics**

SAMPLE FIRST YEAR

PSYC-1000(6) Introductory Psychology
BIOL-1115(3) Cells and Cellular Processes
BIOL-1116(3) Evolution, Ecology, and Biodiversity
CHEM-1111(3) Introduction to the Chemical Properties of Matter
CHEM-1112(3) Basic Principles of Chemical Reactivity
RHET-1103(3) Academic Writing: Science or any other section of Academic Writing (if required)
STAT-1501(3) Elementary Biological Statistics I
6 credit hours Humanities

***NOTE:** This sample first year is representative of the courses you may take. For many of our programs, you may choose another set of courses and still be well on your way to a degree. Also, for most programs you do not have to take 30 credit hours (five full courses) in your first year.*

“My experience studying in The University of Winnipeg Psychology Department has been amazing. The professors take a sincere interest in their students and want them not only to succeed at the undergraduate level, but also to teach them skills that carry through to their future careers.”

- Tiffany Kolesar (BSc Honours)

REQUIRED HIGH SCHOOL COURSES

In addition to meeting The University of Winnipeg’s general admission requirements, you must have **Chemistry 40S** and either **Pre-Calculus Mathematics 40S** or **Applied Mathematics 40S**.

HOW TO APPLY

For details on application requirements and deadlines, and to apply online, please visit: uwinnipeg.ca/apply

For more information visit www.uwinnipeg.ca or contact a student recruitment officer at welcome@uwinnipeg.ca or 204.786.9844. In any case where The University of Winnipeg Academic

Calendar and this fact sheet differ, the current Calendar takes precedence.

CONTACT US

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