Honours Neuroscience (B.Sc.)
(The availability of this program is subject to Ministry Approval. To be first offered September 2017)

Program Overview
The B.Sc. in Neuroscience is a program geared towards undergraduate students who are interested in a career in neuroscience research. The program will be jointly administered by the Departments of Biology and Psychology, Neuroscience & Behaviour (PNB). Neuroscience is an inherently interdisciplinary field, comprising all research related to neurons and nervous systems. Such research spans a vast range of topics, from the biophysical and electrochemical properties of nerve cells to the developmental biology of neural circuit formation to the information processing calculations carried out by the brain. To be able to comprehend past and current developments in neuroscience, and to contribute to future developments, students require a broad foundational skill set in Biology, Chemistry, Computer Science, Mathematics, Physics, and PNB topic areas, coupled with a strong introduction to the core areas of molecular, cellular, and systems neuroscience. This program offers such a curriculum.

ADMISSION
Enrolment in this program is limited and possession of the published minimum requirements does not guarantee admission. Selection is based on academic achievement but requires, as a minimum, completion of any Level I program with a Grade Point Average of at least 5.0 including:

6 units BIOLOGY 1A03, 1M03
6 units CHEM 1A03, 1AA3
3 units from MATH 1A03, 1LS3
3 units from PHYSICS 1A03, 1C03
3 units PSYCH 1XX3
3 units from MATH 1AA3, 1B03, 1LT3, 1MP3, COMPSCI 1MD3
6 units Electives (See Program Note 1)

PROGRAM NOTES
1. While completion in Level I is recommended, the following courses must be complete by the end of Level II: MATH 1AA3 or 1LT3; MATH 1B03; COMPSCI 1MD3 or MATH 1MP3 (note – PHYSICS 2G03 serves as an appropriate substitute).
2. Advanced courses in Biochemistry, Biology, Biophysics, Chemical Biology, Chemistry, Computer Science, Mathematics, Medical Physics, Molecular Biology and Physics may be considered as units towards Course Lists 2, 3, or 4 by petition to the PNB or Biology Undergraduate Chair.

COURSE LIST 1
BIOCHEM 2B03, 2BB3; BIOLOGY 2EE3; BIOPHY 1S03; CHEMBIO 2P03; KINESIOL 2Y03, 2YY3; MATH 2C03, 2X03; MEDPHYS 2B03, 2D03; PHYSICS 1AA3, 1CC3; PNB 2XA3, 2XC3, 2XD3, 2XE3; STATS 2D03

COURSE LIST 2
BIOCHEM 3G03; BIOLOGY 3A03, 3V3; 4T03; BIOPHY 4S03; MOLBIOL 3B03, 3M03

COURSE LIST 3
BIOLOGY 3UU3; KINESIOL 3E03; LIFESCI 3K03; PNB 3L03; PSYCH 3A03, 3FA3

COURSE LIST 4
PSYCH 3BN3, 3D03, 3H03, 3M03, 3NL3, 4BN3, 4KK3, 4MP3, 4Y03
REQUIREMENTS: **120 UNITS** (Level 1 to IV), of which no more than 48 units may be from Level 1

**LEVEL 1: 30 UNITS** *(See Admission)*

**LEVELS II: 30 UNITS**
- 6 units from BIOLOGY 2A03 (Animal Physiology), BIOLOGY 2B03 (Cell Biology)
- 6 units CHEM 20A3, 2OB3 (Organic Chem I & II)
- 3 units MATH 1B03 (Linear Algebra)
- 3 units MATH 1AA3 or 1LT3 (Calculus II); or COMPSCI 1MD3 or MATH 1MP3 (Programming)
- 3 units PNB 2XB3 (Neuroanatomy & Neurophysiology)
- 3 units MEDPHYS 2C03 (Electronics for Medicine & Biology)
- 6 units Electives *(See Program Note 1)*

**LEVEL III: 30 UNITS**
- 3 units BIOCHEM 2EE3 (Metabolism & Physiological Chemistry)
- 6 units BIOLOGY 2C03 (Genetics), 3P03 (Cell Physiology)
- 3 units NEUROSCI 3E03 (or PNB 3L03 Neuroscience Lab)
- 3 units PNB 3XE3 (Inferential Statistics)
- 3 units PSYCH 3SN3 (Neural Circuits)
- 6 units from Course Lists 1 to 4 *(See Program Note 2)*
- 6 units Electives

**LEVEL IV: 30 UNITS**
- 12 units from NEUROSCI 4L12A/B (Neuroscience Senior Thesis); or NEUROSCI 4L09A/B (Neuroscience Thesis) and 3 units from Course Lists 2, 3, 4; or 6 units from Course Lists 2, 3, 4 and one of BIOLOGY 4F06A/B,S (Senior Project) or PNB 45C6A/B (Science Communication) *(See Program Note 2)*
- 3 units NEUROSCI 4S03A/B (Neuroscience Seminar)
- 3 units from Course List 2 *(See Program Note 2)*
- 3 units from Course List 3 *(See Program Note 2)*
- 3 units from Course List 4 *(See Program Note 2)*
- 6 units Electives

**Program Advisors:**
- **Psychology, Neuroscience & Behaviour -** *(pnb@mcmaster.ca)*  
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- **Biology –** *(biology@mcmaster.ca)*  
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**Web Sites:**
- Psychology, Neuroscience & Behaviour  [http://pnb.mcmaster.ca/](http://pnb.mcmaster.ca/)