

NEUROSCIENCE (NEUR)

Departments of Biomedical Sciences (Ontario Veterinary College), Human Health and Nutritional Sciences (College of Biological Science), Molecular & Cellular Biology (College of Biological Science), and Psychology (College of Social and Applied Human Science).

Major Requirements (Honours)

This is a major within the degree: Bachelor of Science.

This Honours program provides a foundation in the natural sciences and an opportunity to develop advanced knowledge of nervous system structure and function, and the skills required for independent inquiry within neuroscience. The specialization is unique in its emphasis on integrative/interdisciplinary problem solving. Through the use of electives, students may structure a program that emphasizes molecular and biomedical neuroscience, behavioural and cognitive neuroscience, or comparative neuroscience.

The major prepares students for professional programs in health science (medical, physiotherapy, pharmacy, veterinary medicine, nursing), post-graduate degrees in neuroscience research, and provides a strong foundation for students wishing to pursue careers in the pharmaceutical and biotechnology industries, public health, teaching, and scientific publishing & journalism.

Students may enter this major in Semester 1 or any semester thereafter. A student wishing to declare the major may wish to consult with a Faculty Advisor. A minimum total of 20.00 credits is required to complete the major.

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at: https://www.uoguelph.ca/bsc/revised_SS/.

| Code | Title | Credits |
|----------------------------------|--|---------|
| Semester 1 | | |
| BIOL*1080 | Biological Concepts of Health | 0.50 |
| CHEM*1040 | General Chemistry I | 0.50 |
| MATH*1080 | Elements of Calculus I | 0.50 |
| PHYS*1080 | Physics for Life Sciences | 0.50 |
| 0.50 Liberal Education electives | | 0.50 |
| Semester 2 | | |
| BIOL*1070 | Discovering Biodiversity | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| CHEM*1050 | General Chemistry II | 0.50 |
| PHYS*1070 | Physics for Life Sciences II | 0.50 |
| PSYC*1000 | Introduction to Psychology | 0.50 |
| Semester 3 | | |
| BIOC*2580 | Introduction to Biochemistry | 0.50 |
| MBG*2040 | Foundations in Molecular Biology and Genetics | 0.50 |
| NEUR*2000 | Foundations in Neuroscience I | 0.50 |
| STAT*2040 | Statistics I | 0.50 |
| or PSYC*1010 | Making Sense of Data in Psychological Research | |
| 0.50 Liberal Education electives | | 0.50 |
| Semester 4 | | |

| | | |
|--|--|------|
| MCB*2050 | Molecular Biology of the Cell | 0.50 |
| NEUR*2100 | Foundations in Neuroscience II | 0.50 |
| PSYC*3410 | Behavioural Neuroscience II | 0.50 |
| 1.00 electives or restricted electives | | 1.00 |
| Semester 5 | | |
| BIOM*3000 | Functional Mammalian Neuroanatomy | 0.50 |
| NEUR*3100 | Molecular Mechanisms of Neurological Disorders | 0.50 |
| PSYC*3270 | Cognitive Neuroscience | 0.50 |
| 1.00 electives or restricted electives | | 1.00 |
| Semester 6 | | |
| BIOM*3090 | Principles of Pharmacology | 0.50 |
| NEUR*3500 | Techniques in Neuroscience | 1.00 |
| 1.00 electives or restricted electives | | 1.00 |
| Semester 7 | | |
| NEUR*4000 | Current Issues in Neuroscience | 0.50 |
| NEUR*4100 | Neuropharmacology | 0.50 |
| 1.50 electives or restricted electives | | 1.50 |
| Semester 8 | | |
| 2.50 electives or restricted electives | | 2.50 |

Note: Physiology restricted elective (# 3) must be taken before registering in BIOM*3090 Principles of Pharmacology in semester 6.

Restricted Electives

Students are advised to pay particular attention to pre-requisite requirements when choosing individual courses, and seek advice as needed.

1. A minimum of 0.50 credits of Critical thinking/ Philosophy / Ethics from:

| Code | Title | Credits |
|-----------|--|---------|
| BIOM*3210 | Critical Thinking in the Health Sciences | 0.50 |
| PHIL*2100 | Critical Thinking | 0.50 |
| PHIL*2110 | Formal Logic | 0.50 |
| PHIL*2120 | Ethics | 0.50 |
| PHIL*2180 | Philosophy of Science | 0.50 |
| PHIL*2240 | Knowledge and Belief | 0.50 |

Note: if a PHIL course is completed from this list, students are required to take an additional 0.50 credit approved science course as an elective to ensure the minimum science requirement is met.

2. A minimum of 0.50 credits of Developmental Biology

| Code | Title | Credits |
|-----------|---------------------------------|---------|
| BIOM*3040 | Medical Embryology ¹ | 0.75 |
| MBG*3040 | Molecular Biology of the Gene | 0.50 |
| ZOO*3050 | Developmental Biology | 0.50 |

3. A minimum of 0.50 credits of Physiology

| Code | Title | Credits |
|-----------|---|---------|
| BIOM*3200 | Biomedical Physiology | 1.00 |
| HK*2810 | Human Physiology I - Concepts and Principles ² | 0.50 |
| ZOO*3600 | Comparative Animal Physiology I ¹ | 0.50 |

4. A minimum of 0.50 credits of additional statistics or experimental design

| Code | Title | Credits |
|-----------|--------------------------------------|---------|
| PSYC*2360 | Psychological Methods and Statistics | 0.50 |
| STAT*2050 | Statistics II | 0.50 |

¹ Indicates courses that require additional prerequisites.

² **Note:** If HK*2810 Human Physiology I - Concepts and Principles is completed in Semester 4, HK*3810 Human Physiology II - Integrated Systems must be completed in Semester 5 in order to meet the BIOM*3090 Principles of Pharmacology pre-requisite requirement

Lists of Recommended Electives

The following lists contain recommended electives for students wishing to emphasize particular areas in neuroscience.

| Code | Title | Credits |
|---|--|---------|
| Psychology | | |
| PSYC*2330 | Principles of Learning | 0.50 |
| PSYC*2390 | Sensation and Perception | 0.50 |
| PSYC*2650 | Cognitive Psychology | 0.50 |
| PSYC*3030 | Neurochemical Basis of Behaviour ³ | 0.50 |
| PSYC*3100 | Evolutionary Psychology ³ | 0.50 |
| PSYC*3330 | Memory and Attention ³ | 0.50 |
| PSYC*4470 | Advanced Topics in Behavioural and Cognitive Neuroscience | 0.50 |
| PSYC*4570 | Special Topics in Applied Psychology | 0.50 |
| Computation, Modeling and Statistics | | |
| CIS*1300 | Programming | 0.50 |
| CIS*2500 | Intermediate Programming ³ | 0.50 |
| MATH*1090 | Elements of Calculus II | 0.50 |
| MATH*1160 | Linear Algebra I | 0.50 |
| MATH*2270 | Applied Differential Equations ³ | 0.50 |
| MATH*3510 | Biomathematics ³ | 0.50 |
| PSYC*3290 | Conducting Statistical Analyses in Psychology ³ | 0.50 |
| PSYC*4290 | Psychological Measurement | 0.50 |
| STAT*3240 | Applied Regression Analysis ³ | 0.50 |
| Biological Science | | |
| BIOC*3560 | Structure and Function in Biochemistry | 0.50 |
| BIOC*4580 | Membrane Biochemistry ³ | 0.50 |
| BIOM*4070 | Biomedical Histology ³ | 0.50 |
| MBG*3050 | Human Genetics | 0.50 |
| MCB*3010 | Dynamics of Cell Function and Signaling | 0.50 |
| MCB*4010 | Advanced Cell Biology ³ | 0.50 |
| PHYS*2030 | Biophysics of Excitable Cells | 0.50 |
| ZOO*3000 | Comparative Histology ³ | 0.50 |
| Health & Disease | | |
| BIOM*3040 | Medical Embryology ³ | 0.75 |
| BIOM*4030 | Endocrine Physiology ³ | 0.50 |
| BIOM*4050 | Biomedical Aspects of Aging ³ | 0.50 |
| HK*3100 | Neuromuscular Physiology ³ | 0.50 |
| HK*3810 | Human Physiology II - Integrated Systems ³ | 0.75 |
| HK*4070 | Clinical Biomechanics ³ | 0.50 |

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|----------|--------------------|------|
| TOX*4000 | Medical Toxicology | 0.50 |
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Research Based

For students who are interested in graduate studies, a research course is recommended. A full listing of neuroscience focused faculty can be found on the neuroscience website.

| | | |
|-----------|---|------|
| BIOM*4500 | Literature-based Research in Biomedical Sciences | 0.50 |
| BIOM*4510 | Research in Biomedical Sciences | 1.00 |
| BIOM*4521 | Research in Biomedical Sciences | 1.00 |
| BIOM*4522 | Research in Biomedical Sciences | 1.00 |
| HK*4230 | Advanced Study in Human Health and Nutritional Sciences | 0.50 |
| HK*4360 | Research in Human Health and Nutritional Sciences | 1.00 |
| HK*4371 | Research in Human Health and Nutritional Sciences I | 0.50 |
| HK*4372 | Research in Human Health and Nutritional Sciences II | 0.50 |
| IBIO*4500 | Research in Integrative Biology I | 1.00 |
| IBIO*4510 | Research in Integrative Biology II | 1.00 |
| IBIO*4521 | Thesis in Integrative Biology | 1.00 |
| IBIO*4522 | Thesis in Integrative Biology | 1.00 |
| MCB*4500 | Research Project in Molecular and Cellular Biology I ³ | 1.00 |
| MCB*4510 | Research Project in Molecular and Cellular Biology ³ | 1.00 |
| MCB*4600 | Topics in Molecular and Cellular Biology ³ | 0.50 |
| NEUR*4401 | Research in Neurosciences | 0.50 |
| NEUR*4402 | Research in Neurosciences | 0.50 |
| NEUR*4421 | Advanced Research in Neurosciences | 1.00 |
| NEUR*4422 | Advanced Research in Neurosciences | 1.00 |
| NEUR*4450 | Research in Neurosciences | 1.00 |
| PSYC*3240 | Independent Research Project ⁴ | 0.50 |
| PSYC*4240 | Advanced Independent Research Project ⁴ | 0.50 |
| PSYC*4870 | Honours Thesis I ⁴ | 0.50 |
| PSYC*4880 | Honours Thesis II ⁴ | 1.00 |

³ Indicates courses that require additional prerequisites.

⁴ Faculty advisor will determine if this course is an eligible science elective, depending on the instructor and topic

Credit Summary

(20.00 Total Credits)

| Code | Title | Credits |
|----------------------|--|-----------|
| | First year science core | 4.00 |
| | Required science courses semester 3-8 | 7.50 |
| | Restricted elective (# 1,2,3,4 in restricted electives list) | 2.00 |
| | Approved Science Elective ⁵ | 2.50 |
| | Required Liberal Education Elective ⁶ | 0.50 |
| | Liberal Education Electives | 1.00 |
| | Free Electives | 2.50 |
| Total Credits | | 20 |

⁵ 3.00 Approved Science Electives if a PHIL*XXXX course is selected for restricted electives #1

⁶ PSYC*1000 Introduction to Psychology

Of the 20 total credits required, students must complete 16.00 credits in science of which a minimum of 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

Co-op Requirements (Honours)

This is a major within the degree: Bachelor of Science.

The Co-op program in Neuroscience is a five-year program, including four work terms. Students must follow the academic work schedule as outlined below (also found on the Co-operative Education website: <https://www.recruitguelph.ca/cecs/>).

Academic and Co-op Work Term Schedule

| Year | Fall | Winter | Summer |
|------|--------------------------------|------------------------|------------------------|
| 1 | Academic Semester 1 | Academic Semester 2 | Off |
| 2 | Academic Semester 3, COOP*1100 | Academic Semester 4 | COOP*1000 Work Term I |
| 3 | Academic Semester 5 | Academic Semester 6 | COOP*2000 Work Term II |
| 4 | COOP*3000 Work Term III | COOP*4000 Work Term IV | Off |
| 5 | Academic Semester 7 | Academic Semester 8 | N/A |

Please refer to the Co-operative Education program policy with respect to work term performance grading, work term report grading and program completion requirements.

For additional program information, students should consult with their Co-op Coordinator and Co-op Faculty Advisor, listed on the Co-operative Education website.

Credit Summary

(22.00 Total Credits)

| Code | Title | Credits |
|------|--|-----------|
| | First year science core | 4.00 |
| | Required science courses semester 3-8 | 7.50 |
| | Restricted elective (# 1,2,3,4 in restricted electives list) | 2.00 |
| | Approved Science Elective ¹ | 2.50 |
| | Required Liberal Education Elective ² | 0.50 |
| | Liberal Education Electives | 1.00 |
| | Free Electives | 2.50 |
| | Co-op Work Terms | 2.00 |
| | Total Credits | 22 |

¹ 3.00 Approved Science Electives if a PHIL*XXXX course is selected for restricted electives #1.

² PSYC*1000 Introduction to Psychology

Of the 22.00 total credits required, students must complete 16.00 credits in science of which a minimum of 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

Recommended Program Sequence

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at: https://www.uoguelph.ca/bsc/revised_SS/.

| Code | Title | Credits |
|-----------------------------------|---|---------|
| Semester 1 - Fall | | |
| BIOL*1080 | Biological Concepts of Health | 0.50 |
| CHEM*1040 | General Chemistry I | 0.50 |
| MATH*1080 | Elements of Calculus I | 0.50 |
| PHYS*1080 | Physics for Life Sciences | 0.50 |
| | 0.50 Liberal Education electives | 0.50 |
| Semester 2 - Winter | | |
| BIOL*1070 | Discovering Biodiversity | 0.50 |
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| CHEM*1050 | General Chemistry II | 0.50 |
| PHYS*1070 | Physics for Life Sciences II | 0.50 |
| PSYC*1000 | Introduction to Psychology | 0.50 |
| Summer Semester | | |
| No academic semester or work term | | |
| Semester 3 - Fall | | |
| BIOC*2580 | Introduction to Biochemistry | 0.50 |
| COOP*1100 | Introduction to Co-operative Education | 0.00 |
| MBG*2040 | Foundations in Molecular Biology and Genetics | 0.50 |
| NEUR*2000 | Foundations in Neuroscience I | 0.50 |
| STAT*2040 | Statistics I | 0.50 |
| | or PSYC*1010 Making Sense of Data in Psychological Research | |
| | 0.50 Liberal Education electives | 0.50 |
| Semester 4 - Winter | | |
| MCB*2050 | Molecular Biology of the Cell | 0.50 |
| NEUR*2100 | Foundations in Neuroscience II | 0.50 |
| PSYC*3410 | Behavioural Neuroscience II | 0.50 |
| | 1.00 electives or restricted electives | 1.00 |
| Summer Semester | | |
| COOP*1000 | Co-op Work Term I | 0.50 |
| Semester 5 - Fall | | |
| BIOM*3000 | Functional Mammalian Neuroanatomy | 0.50 |
| NEUR*3100 | Molecular Mechanisms of Neurological Disorders | 0.50 |
| PSYC*3270 | Cognitive Neuroscience | 0.50 |
| | 1.00 electives or restricted electives | 1.00 |
| Semester 6 - Winter | | |
| BIOM*3090 | Principles of Pharmacology | 0.50 |
| NEUR*3500 | Techniques in Neuroscience | 1.00 |
| | 1.00 electives or restricted electives | 1.00 |
| Summer Semester | | |
| COOP*2000 | Co-op Work Term II | 0.50 |
| Fall Semester | | |

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|--|--------------------------------|------|
| COOP*3000 | Co-op Work Term III | 0.50 |
| Winter Semester | | |
| COOP*4000 | Co-op Work Term IV | 0.50 |
| Summer Semester | | |
| No academic semester or work term | | |
| Semester 7 - Fall | | |
| NEUR*4000 | Current Issues in Neuroscience | 0.50 |
| NEUR*4100 | Neuropharmacology | 0.50 |
| 1.50 electives or restricted electives | | 1.50 |
| Semester 8 - Winter | | |
| 2.50 electives or restricted electives | | 2.50 |

Note: Physiology restricted elective (# 3) must be taken before registering in BIOM*3090 Principles of Pharmacology in semester 6.

Restricted Electives

Students are advised to pay particular attention to pre-requisite requirements when choosing individual courses, and seek advice as needed.

1. A minimum of 0.50 credits of Critical thinking/ Philosophy / Ethics from:

| Code | Title | Credits |
|-----------|--|---------|
| BIOM*3210 | Critical Thinking in the Health Sciences | 0.50 |
| PHIL*2100 | Critical Thinking | 0.50 |
| PHIL*2110 | Formal Logic | 0.50 |
| PHIL*2120 | Ethics | 0.50 |
| PHIL*2180 | Philosophy of Science | 0.50 |
| PHIL*2240 | Knowledge and Belief | 0.50 |

Note: if a PHIL course is completed from this list, students are required to take an additional 0.50 credit approved science course as an elective to ensure the minimum science requirement is met.

2. A minimum of 0.50 credits of Developmental Biology

| Code | Title | Credits |
|-----------|---------------------------------|---------|
| BIOM*3040 | Medical Embryology ³ | 0.75 |
| MBG*3040 | Molecular Biology of the Gene | 0.50 |
| ZOO*3050 | Developmental Biology | 0.50 |

3. A minimum of 0.50 credits of Physiology

| Code | Title | Credits |
|-----------|---|---------|
| BIOM*3200 | Biomedical Physiology | 1.00 |
| HK*2810 | Human Physiology I - Concepts and Principles ⁴ | 0.50 |
| ZOO*3600 | Comparative Animal Physiology I ³ | 0.50 |

4. A minimum of 0.50 credits of additional statistics or experimental design

| Code | Title | Credits |
|-----------|--------------------------------------|---------|
| PSYC*2360 | Psychological Methods and Statistics | 0.50 |
| STAT*2050 | Statistics II | 0.50 |

Systems must be completed in Semester 5 in order to meet the BIOM*3090 Principles of Pharmacology pre-requisite requirement

Lists of Recommended Electives

The following lists contain recommended electives for students wishing to emphasize particular areas in neuroscience.

| Code | Title | Credits |
|---|--|---------|
| Psychology | | |
| PSYC*2330 | Principles of Learning | 0.50 |
| PSYC*2390 | Sensation and Perception | 0.50 |
| PSYC*2650 | Cognitive Psychology | 0.50 |
| PSYC*3030 | Neurochemical Basis of Behaviour ⁵ | 0.50 |
| PSYC*3100 | Evolutionary Psychology ⁵ | 0.50 |
| PSYC*3330 | Memory and Attention ⁵ | 0.50 |
| PSYC*4470 | Advanced Topics in Behavioural and Cognitive Neuroscience | 0.50 |
| PSYC*4570 | Special Topics in Applied Psychology | 0.50 |
| Computation, Modeling and Statistics | | |
| CIS*1300 | Programming | 0.50 |
| CIS*2500 | Intermediate Programming ⁵ | 0.50 |
| MATH*1090 | Elements of Calculus II | 0.50 |
| MATH*1160 | Linear Algebra I | 0.50 |
| MATH*2270 | Applied Differential Equations ⁵ | 0.50 |
| MATH*3510 | Biomathematics ⁵ | 0.50 |
| PSYC*3290 | Conducting Statistical Analyses in Psychology ⁵ | 0.50 |
| PSYC*4290 | Psychological Measurement | 0.50 |
| STAT*3240 | Applied Regression Analysis ⁵ | 0.50 |
| Biological Science | | |
| BIOC*3560 | Structure and Function in Biochemistry | 0.50 |
| BIOC*4580 | Membrane Biochemistry ⁵ | 0.50 |
| BIOM*4070 | Biomedical Histology ⁵ | 0.50 |
| MBG*3050 | Human Genetics | 0.50 |
| MCB*3010 | Dynamics of Cell Function and Signaling | 0.50 |
| MCB*4010 | Advanced Cell Biology ⁵ | 0.50 |
| PHYS*2030 | Biophysics of Excitable Cells | 0.50 |
| ZOO*3000 | Comparative Histology ⁵ | 0.50 |
| Health & Disease | | |
| BIOM*3040 | Medical Embryology ⁵ | 0.75 |
| BIOM*4030 | Endocrine Physiology ⁵ | 0.50 |
| BIOM*4050 | Biomedical Aspects of Aging ⁵ | 0.50 |
| HK*3100 | Neuromuscular Physiology ⁵ | 0.50 |
| HK*3810 | Human Physiology II - Integrated Systems ⁵ | 0.75 |
| HK*4070 | Clinical Biomechanics ⁵ | 0.50 |
| TOX*4000 | Medical Toxicology | 0.50 |
| Research Based | | |
| For students who are interested in graduate studies, a research course is recommended. A full listing of neuroscience focused faculty can be found on the neuroscience website. | | |
| BIOM*4500 | Literature-based Research in Biomedical Sciences | 0.50 |
| BIOM*4510 | Research in Biomedical Sciences | 1.00 |
| BIOM*4521 | Research in Biomedical Sciences | 1.00 |

³ Indicates courses that require additional prerequisites.

⁴ **Note:** If HK*2810 Human Physiology I - Concepts and Principles is completed in Semester 4, HK*3810 Human Physiology II - Integrated

| | | | | | |
|-----------|---|------|-----------|--|------|
| BIOM*4522 | Research in Biomedical Sciences | 1.00 | BIOM*3090 | Principles of Pharmacology | 0.50 |
| HK*4230 | Advanced Study in Human Health and Nutritional Sciences | 0.50 | BIOM*4030 | Endocrine Physiology | 0.50 |
| HK*4360 | Research in Human Health and Nutritional Sciences | 1.00 | HK*3100 | Neuromuscular Physiology | 0.50 |
| HK*4371 | Research in Human Health and Nutritional Sciences I | 0.50 | MBG*2040 | Foundations in Molecular Biology and Genetics | 0.50 |
| HK*4372 | Research in Human Health and Nutritional Sciences II | 0.50 | MBG*3050 | Human Genetics | 0.50 |
| IBIO*4500 | Research in Integrative Biology I | 1.00 | MCB*2050 | Molecular Biology of the Cell | 0.50 |
| IBIO*4510 | Research in Integrative Biology II | 1.00 | NEUR*3100 | Molecular Mechanisms of Neurological Disorders | 0.50 |
| IBIO*4521 | Thesis in Integrative Biology | 1.00 | NEUR*4000 | Current Issues in Neuroscience | 0.50 |
| IBIO*4522 | Thesis in Integrative Biology | 1.00 | NEUR*4100 | Neuropharmacology | 0.50 |
| MCB*4500 | Research Project in Molecular and Cellular Biology I ⁵ | 1.00 | PHYS*2030 | Biophysics of Excitable Cells | 0.50 |
| MCB*4510 | Research Project in Molecular and Cellular Biology ⁵ | 1.00 | PHYS*2330 | Electricity and Magnetism I | 0.50 |
| MCB*4600 | Topics in Molecular and Cellular Biology ⁵ | 0.50 | PSYC*2390 | Sensation and Perception | 0.50 |
| NEUR*4401 | Research in Neurosciences | 0.50 | PSYC*2650 | Cognitive Psychology | 0.50 |
| NEUR*4402 | Research in Neurosciences | 0.50 | PSYC*3030 | Neurochemical Basis of Behaviour | 0.50 |
| NEUR*4421 | Advanced Research in Neurosciences | 1.00 | PSYC*3270 | Cognitive Neuroscience | 0.50 |
| NEUR*4422 | Advanced Research in Neurosciences | 1.00 | PSYC*3330 | Memory and Attention | 0.50 |
| NEUR*4450 | Research in Neurosciences | 1.00 | PSYC*3410 | Behavioural Neuroscience II | 0.50 |
| PSYC*3240 | Independent Research Project ⁶ | 0.50 | PSYC*4750 | Seminar in Motivation and Emotion | 0.50 |
| PSYC*4240 | Advanced Independent Research Project ⁶ | 0.50 | | | |
| PSYC*4870 | Honours Thesis I ⁶ | 0.50 | | | |
| PSYC*4880 | Honours Thesis II ⁶ | 1.00 | | | |

⁵ Indicates courses that require additional prerequisites.

⁶ Faculty advisor will determine if this course is an eligible science elective, depending on the instructor and topic

Of the 2.00 additional credits, students may select one course from the following:

| | | |
|-----------|---|------|
| BIOM*3040 | Medical Embryology | 0.75 |
| MBG*4040 | Genetics and Molecular Biology of Development | 0.50 |
| ZOO*3050 | Developmental Biology | 0.50 |

Please note that some of the restricted electives require prerequisites that are not included in the minor.

Minor Requirements (Honours)

This minor cannot be combined with a major in Neuroscience.

A minor in Neuroscience requires a minimum of 5.00 credits including:

| Code | Title | Credits |
|--------------|--|---------|
| BIOL*1090 | Introduction to Molecular and Cellular Biology | 0.50 |
| PSYC*1000 | Introduction to Psychology | 0.50 |
| PSYC*2330 | Principles of Learning | 0.50 |
| NEUR*2000 | Foundations in Neuroscience I | 0.50 |
| or PSYC*2410 | Behavioural Neuroscience I | |
| PSYC*1010 | Making Sense of Data in Psychological Research | 0.50 |
| or STAT*2040 | Statistics I | |

Select a minimum of 0.50 credits from the following:

| | | |
|-----------|--|------|
| BIOM*2000 | Concepts in Human Physiology | 0.50 |
| BIOM*3200 | Biomedical Physiology | 1.00 |
| HK*2810 | Human Physiology I - Concepts and Principles | 0.50 |
| ZOO*3600 | Comparative Animal Physiology I | 0.50 |

Select a minimum of 2.00 credits from the following:

| | | |
|-----------|-----------------------------------|------|
| BIOM*3000 | Functional Mammalian Neuroanatomy | 0.50 |
|-----------|-----------------------------------|------|