

NEUROSCIENCE (NEUR)

NEUR*2000 Foundations in Neuroscience I Fall Only (LEC: 3) [0.50]

This course emphasizes the structure and function of the human brain. General principles of the function and organization of nervous systems will be discussed, providing both an overview of the subject and a foundation for advanced courses. Topics will include the physical and chemical bases for action potentials, synaptic transmission, and sensory transduction; anatomy; development; sensory and motor pathways; and the neuroscience of brain diseases.

Prerequisite(s): 4.00 credits including BIOL*1090

Restriction(s): PSYC*2410. This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations or semester levels during certain periods.

Department(s): Department of Psychology

Location(s): Guelph

NEUR*2100 Foundations in Neuroscience II Winter Only (LEC: 4) [0.50]

This course will emphasize general principles of the function and organization of the peripheral nervous system, providing both an in-depth view of the subject and a foundation for advanced courses. Topics will include the physical and chemical bases for sensory transduction in the periphery; anatomy and physiology of sensory and motor systems; peripheral gain; sensory and motor pathways; the neuroscience of movement sense, plasticity and adaptation. By the end of this course, students will appreciate the complexities of the peripheral nervous system. This will lay the foundation for further integrative topics on the inter-relationship of the whole system and its functional outcomes.

Prerequisite(s): NEUR*2000

Restriction(s): Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor. This is a Priority Access Course. Enrolment will initially be restricted to BSCH.NEUR and BSCH.NEUR:C major. When this Priority Access is lifted, students in the NEUR minor will have the opportunity to enroll (space permitting). See the BSc Advising website for more information.

Department(s): Department of Human Health & Nutritional Sciences & Department of Molecular and Cellular Biology

Location(s): Guelph

NEUR*3100 Molecular Mechanisms of Neurological Disorders Fall Only (LEC: 3) [0.50]

This course will follow the life of nervous system cells from birth, through their functional life, and ending in ageing and degenerative disease. Focus will be on the molecular and cellular events that govern these processes and the diseases and pathologies, such as Parkinson's and Alzheimer's, that arise as a consequence of their dysfunction. Finally, students will be introduced to the new and rapidly advancing field of adult neural stem cells and the promises and potential problems of their use in treating many of the diseases that will have been discussed throughout.

Prerequisite(s): MCB*2050, (1 of MBG*3040, NEUR*2000, PSYC*2410)

Restriction(s): This is a Priority Access Course. Enrolment may be restricted to particular programs (BSCH.NEUR, BSCH.NEUR:C, BSCH.MBG, BSCH.MBG:C and NEUR minor) or semester levels during certain periods.

Department(s): Department of Molecular and Cellular Biology

Location(s): Guelph

NEUR*3500 Techniques in Neuroscience Winter Only (LEC: 2, LAB: 3) [1.00]

This course provides an introduction to selected techniques used in Neuroscience. Students will investigate and learn key methods in neurophysiology and biomechanics, neuroanatomy, cognitive neuroscience, and molecular and cellular neurobiology, used to address contemporary problems in this multidisciplinary field. These techniques will be introduced through literature review, hands-on laboratory exercises and demonstrations. A diversity of vertebrate and invertebrate model organisms will be considered as well as the ethical considerations that accompany the use of animals or human subjects in research.

Prerequisite(s): MCB*2050, PSYC*3270, (1 of NEUR*2000, NEUR*2100, PSYC*2410), (1 of BIOM*3200, HK*2810, ZOO*3600)

Restriction(s): This is a Priority Access Course. Enrolment may be restricted to particular programs (BSCH.NEUR and BSCH.NEUR:C) or semester levels during certain periods.

Department(s): Department of Molecular and Cellular Biology, Department of Biomedical Sciences, Department of Psychology, Department of Human Health and Nutritional Sciences

Location(s): Guelph

NEUR*4000 Current Issues in Neuroscience Fall Only (LEC: 3) [0.50]

This course will consist of guest lectures offered by faculty who are working in the field and will complement the seminars given by the students on topics that they have prepared in studying the primary literature. Students will also prepare a major paper on a neuroscience topic.

Prerequisite(s): 14.00 credits

Restriction(s): Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor. This is a Priority Access Course. Enrolment will initially be restricted to BSCH.NEUR and BSCH.NEUR:C. When this Priority Access is lifted, students in the NEUR minor will have the opportunity to enroll (space permitting). See the BSc Advising website for more information.

Department(s): Department of Biomedical Sciences

Location(s): Guelph

NEUR*4100 Neuropharmacology Fall Only (LEC: 4) [0.50]

This course will explore pharmacological manipulation of the nervous system. Content will focus on the physiology of major neurotransmitter systems in the brain, followed by current pharmacological interventions for selected brain disorders, and the use and abuse of common pharmacological agents.

Prerequisite(s): BIOM*3090, (NEUR*2000 or PSYC*2410)

Restriction(s): This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations or semester levels during certain periods (e.g., BSCH.NEUR, BSCH.NEUR:C, NEUR minor and BSCH.BIOM).

Department(s): Department of Biomedical Sciences

Location(s): Guelph

NEUR*4401 Research in Neurosciences Summer, Fall, and Winter (LAB: 6) [0.50]

This is the first part of the two-semester course NEUR*4401/2. In this course, students will conduct independent research of a current topic in any of the biomedical neurosciences (such as anatomy, physiology, pharmacology, toxicology, molecular biology, biochemistry). Students work under the supervision of individual faculty. Faculty consent must be obtained prior to being admitted into the course by the course coordinator. This is a two-semester course offered over consecutive semesters. When you register for this course you must select NEUR*4401 in the first semester and NEUR*4402 in the second semester. A grade will not be assigned in NEUR*4401 until NEUR*4402 has been completed.

Prerequisite(s): 14.00 credits

Restriction(s): BIOM*4510, BIOM*4521, BIOM*4522, NEUR*4421, NEUR*4422, NEUR*4450. Instructor consent required. Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor.

Department(s): Department of Biomedical Sciences

Location(s): Guelph

NEUR*4402 Research in Neurosciences Summer, Fall, and Winter (LAB: 6) [0.50]

This is the second part of the two-semester course NEUR*4401/2. In this course, students will conduct independent research of a current topic in any of the biomedical neurosciences (such as anatomy, physiology, pharmacology, toxicology, molecular biology, biochemistry). Students work under the supervision of individual faculty. Faculty consent must be obtained prior to being admitted into the course by the course coordinator. This is a two-semester course offered over consecutive semesters. When you register for this course you must select NEUR*4401 in the first semester and NEUR*4402 in the second semester. A grade will not be assigned in NEUR*4401 until NEUR*4402 has been completed.

Prerequisite(s): NEUR*4401

Restriction(s): BIOM*4510, BIOM*4521, BIOM*4522, NEUR*4421, NEUR*4422, NEUR*4450. Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor.

Department(s): Department of Biomedical Sciences

Location(s): Guelph

NEUR*4421 Advanced Research in Neurosciences Summer, Fall, and Winter (LAB: 12) [1.00]

This is a two-semester undergraduate project course in which students conduct a comprehensive, independent research project in neuroscience under the supervision of a faculty member. The faculty member can be from any department at the University, so long as the project falls within the field of neuroscience. Projects involve original research communicated in oral presentations and in written reports, including a publication quality final report. This two-semester course offers students the opportunity to pursue research questions and experimental designs that cannot be completed in the single semester research courses.

Students must make arrangements with a faculty supervisor and submit a completed registration questionnaire to the course coordinator before registering for this course. This two-semester course is offered over consecutive semesters. Students will select NEUR*4421 in the first semester and NEUR*4422 in the second semester. A grade will not be assigned to NEUR*4421 until NEUR*4422 has been completed.

Prerequisite(s): 14.00 credits

Restriction(s): BIOM*4510, BIOM*4521, BIOM*4522, NEUR*4401, NEUR*4402, NEUR*4450. Instructor consent required. Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor.

Department(s): Biomedical Science

Location(s): Guelph

NEUR*4422 Advanced Research in Neurosciences Summer, Fall, and Winter (LAB: 12) [1.00]

This is the second part of the two-semester undergraduate research course (NEUR*4421/2). Students will continue to work under the supervision of the faculty member from NEUR*4421 and will enroll in NEUR*4422 in the semester immediately following the completion of NEUR*4421. A grade will not be assigned in NEUR*4421 until NEUR*4422 has been completed.

Prerequisite(s): NEUR*4421

Restriction(s): BIOM*4510, BIOM*4521, BIOM*4522, NEUR*4401, NEUR*4402, NEUR*4450. Instructor consent required. Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor.

Department(s): Biomedical Science

Location(s): Guelph

NEUR*4450 Research in Neurosciences Summer, Fall, and Winter (LAB: 12) [1.00]

In this course, students will conduct independent laboratory research on a current topic in any of the biomedical neurosciences (such as anatomy, physiology, pharmacology, toxicology, molecular biology, biochemistry). Students work under the supervision of individual faculty. Faculty consent must be obtained prior to being admitted into the course by the course coordinator.

Prerequisite(s): 14.00 credits

Restriction(s): BIOM*4510, BIOM*4521, BIOM*4522, NEUR*4401, NEUR*4402, NEUR*4421, NEUR*4422. Instructor consent required.

Restricted to students in BSCH.NEUR, BSCH.NEUR:C and NEUR minor.

Department(s): Department of Biomedical Sciences

Location(s): Guelph