# Table of Contents

Welcome to the Department of Pharmacology and Therapeutics ................................................... 3
Pharmacology Core Faculty Members ............................................................................................ 4
Pharmacology Programs ................................................................................................................ 9
  BSc. Major in Pharmacology ........................................................................................................ 9
  BSc. Honours in Pharmacology .................................................................................................... 11
  PURE (Pharmacology Undergraduate Research Expo) ...................................................................... 13
  Minor in Pharmacology .................................................................................................................. 14
Pharmacology Courses ................................................................................................................ 15
Pharmacology Integrative League of Students (PILS) ..................................................................... 20
Pharmacology Mentorship Program (PUMP) ............................................................................... 20
Selecting your Courses ................................................................................................................ 21
  Year Designation ............................................................................................................................ 21
  Electives ........................................................................................................................................ 21
  Academic Integrity .......................................................................................................................... 21
  Credit Load .................................................................................................................................... 22
  Registration ................................................................................................................................... 22
  Visual Schedule Builder (VSB) ......................................................................................................... 22
  What is the Add/Drop Period? ......................................................................................................... 23
  Money Saver ................................................................................................................................. 23
  S/U Option .................................................................................................................................. 23
  Passing Grade ............................................................................................................................... 24
  Final Examinations ......................................................................................................................... 24
  Deferred and Supplemental Exams ............................................................................................... 24
  Summer Studies ............................................................................................................................ 25
  Looking for Summer work? ........................................................................................................... 25
  Office for Undergraduate Research in Science (OURS) .................................................................. 26
  Science Internships and Field Studies Office .................................................................................. 26
  Study Away .................................................................................................................................. 26
Essential Information ...................................................................................................................... 27
  Enrollment Services - Service Point ............................................................................................ 27
  Useful McGill sites ......................................................................................................................... 27
  Information Services ..................................................................................................................... 28
  Undergraduate Calendar ............................................................................................................... 28
  Career Planning Service - CaPS .................................................................................................... 28
  Étudiants Francophones .................................................................................................................. 29
  Computer Access ........................................................................................................................ 29
  Bulletin Boards ............................................................................................................................ 29
Graduation / Convocation .............................................................................................................. 30
BSc/MSc Program ............................................................................................................................ 31
  BSc/MSc Program Timeline .......................................................................................................... 32
Graduate Studies in Pharmacology .................................................................................................. 33
Welcome!

to the Department of Pharmacology and Therapeutics!

The Department of Pharmacology and Therapeutics offers, at the Undergraduate level,
BSc: Minor in Pharmacology,
Major in Pharmacology and
Honours in Pharmacology.

The Minor Program is intended for students registered in a complementary BSc. program, who are interested in a focused introduction to specialized topics in Pharmacology.

The Major Program provides a solid background in Pharmacology and allied disciplines, which is excellent preparation for graduate studies in biomedical or environmental sciences, or professional programs, including: medicine, dentistry, nursing and veterinary sciences. Students will have the opportunity to enroll in the PHAR 599; Pharmacology Research Project, as an upper level complementary course, allowing them to focus their studies on a topic of Pharmacology of great personal interest.

The Honours Program is designed for students who are interested in pursuing a research career, and are considering subsequent graduate studies in Pharmacology. It provides an opportunity for hands-on research experience – the student becomes affiliated with one of our pharmacology research laboratories and will carry out and interpret experiments on a designated project. The PHAR 598 D1&D2; Honours Pharmacology Research Project course is required for this program.

Our mission is to offer excellent educational opportunities to undergraduate students, graduate students and postdoctoral fellows alike. This Department is engaged in innovative biomedical research. We aim at excellence in teaching and research and are currently considering how to best integrate high impact research with multidisciplinary training of our graduate and undergraduate students.

For further information, visit our Department of Pharmacology and Therapeutics’ website: http://www.mcgill.ca/pharma/

Chantal Grignon
Undergraduate Student Affairs Coordinator
Department of Pharmacology and Therapeutics
McIntyre Medical Building
3655, Promenade Sir-William-Osler, Room 1325a
Montreal, Qc H3G 1Y6
Phone: (514) 398-3622
undergradstudies.pharmacology@mcgill.ca
Pharmacology Core Faculty Members

**Guillermina Almazan**, Professor

**Field of Research:** Neuroscience, Toxicology, Cell Signalling, Drug Development and Nanomedicine.

Dr. Almazan’s research is focused on the understanding of the molecular and cellular signals that direct the growth of oligodendrocytes and their progenitor cells. The current specific aims are to delineate the role of insulin growth factor receptor transduction events that regulate oligodendrocyte-specific gene expression, and to identify the critical interactions of oligodendrocytes with neurons leading to myelination. In collaboration with Dr. Jack Antel’s group at the Montreal Neurological Institute, Dr. Almazan aims to develop experimental strategies to stimulate remyelination in demyelinating diseases, such as multiple sclerosis and periventricular leucomalacia.

McIntyre Medical Bldg. Room 1321
E-mail: guillermina.almazan@mcgill.ca

**Daniel Bernard**, Professor

**Field of Research:** Neuroscience, Reproduction and Development, Cellular Signalling.

The Bernard lab investigates molecular mechanisms of pituitary hormone synthesis using *in vitro* and *in vivo* approaches. Projects in the lab concern: 1) signal transduction mechanisms through which members of the transforming growth factor β superfamily regulate pituitary follicle-stimulating hormone (FSH) synthesis, 2) mechanisms of gonadotropin-releasing hormone (GnRH) signaling in pituitary gonadotrope cells, and 3) hypothalamic-pituitary control of thyroid hormone production.

McIntyre Medical Bldg. Room 1321
E-mail: daniel.bernard@mcgill.ca

**Derek Bowie**, Professor

**Field of Research:** Neuroscience, Cellular Signalling, Drug Development and Nanomedicine.

The Bowie Lab studies the two major neurotransmitter receptors of the brain, namely ionotropic glutamate receptors and GABA-A receptors. Both receptor families are widespread in the vertebrate brain and fulfill many important roles in healthy individuals as well as being implicated in disease states (e.g. Autism, Epilepsy, Alzheimer’s disease). These receptors are studied to understand how they shape neuronal circuit behaviour and how they may be targeted to treat CNS disease.

Bellini Life Science Complex. Room 164
E-mail: derek.bowie@mcgill.ca

**Bastien Castagner**, Assistant Professor

**Field of Research:** Chemical Biology, Clostridium Difficile, Drug Discovery, Inositol phosphates.

Dr. Castagner’s research focuses on the design of small-molecules and natural product analogues as novel drug candidates. He is especially interested in the chemistry and biology of inositol phosphates. His group has also been involved in novel strategies to inactivate the toxins responsible for the pathogenesis of Clostridium difficile.

McIntyre Medical Bldg. Room 1315
E-mail: bastien.castagner@mcgill.ca
Paul Clarke, Professor

Field of Research: Neuroscience.

Addiction research Why are drugs such as nicotine, amphetamine and cocaine so addictive? Clearly, brain dopamine is important here, but does it play a specialized role in reward, or a more general role in helping the organism organize its behaviour? Among addictive drugs, nicotine is especially puzzling; we believe standard animal models do not fully capture the effects of nicotine that motivate tobacco smoking, and we are trying new approaches.

Rat ultrasonic vocalizations Rats seem silent to us, but they are in fact quite vocal - but at frequencies beyond our hearing range. The ultrasonic (20-80 kHz) vocalizations made by adult rats are remarkably varied and may convey complex information. These calls may yet be of use in animal models of human disorders such as drug addiction, depression and anxiety.

McIntyre Medical Bldg. Room 1320 E-mail: paul.clarke@mcgill.ca

Claudio A. Cuello, Professor

Field of Research: Neuroscience, Drug Development and Nanomedicine.

Dr Cuello’s lab is interested in degenerative and regenerative processes in the CNS with particular emphasis on aging and Alzheimer’s disease (AD) related studies. His lab utilizes and develops transgenic animal models presenting features of the AD neuropathology. The research is of a multidisciplinary nature ranging from molecular approaches to whole animal experimentation and with a particular interest in Alzheimer’s Therapeutics.

McIntyre Medical Bldg. Room 1210 E-mail: claudio.cuello@mcgill.ca

Barbara Hales, Professor

Field of Research: Toxicology, Reproduction and Development.

Birth defects occur in 2-4% of the children in North America, yet the causes of most of these malformations remain unknown. The overall goal of our research is to elucidate the mechanisms(s) underlying the developmental toxicity of environmental chemicals and drugs. We use a combination of in vivo, in vitro, and molecular approaches to elucidate the effects of model teratogens on signaling pathways that play important roles in normal development. In collaboration with Bernard Robaire, we are exploring the consequences of paternal exposure to anticancer agents on male germ cell integrity and on epigenetic programming in early embryos. Finally, we are working with teams of researchers to evaluate the impact of exposure to “green” replacement plasticizers on the developing and adult testis and to determine the effects of chronic exposure to the environmentally relevant mixture of brominated flame retardants found in North American house dust on reproduction and development.

McIntyre Medical Bldg. Room 110 E-mail: barbara.hales@mcgill.ca

Terry Hébert, Professor

Field of Research: Neuroscience, Cardiovascular, Cellular Signalling.

Research in my lab is centered broadly around the theme of G protein-coupled signal transduction systems. These signalling systems are activated by agonists that bind to G protein-coupled receptors (GPCRs) leading to the regulation of effector proteins (e.g. enzymes and ion channels) by a transducer. We are interested in 1) basic mechanisms of how these signalling systems are wired, 2) novel signalling complexes and pathways
associated with alternative subcellular localization of GPCRs and 3) the roles that these architectural features of signalling complex design might play in cardiac disease with a particular emphasis on congenital heart disease. More recently, my group has also become interested in how novel allosteric regulators of these receptors might be developed and tested, here with a focus on inflammatory mediators, their receptors and their roles in health and disease. I have also been investigating basic mechanisms of GPCR regulation, developing functional assays amenable to scaling up and for use as screens for novel modulators of the interactions within GPCR signalling complexes. All of the projects are currently funded.

McIntyre Medical Bldg. Room 1303
E-mail: terence.hebert@mcgill.ca

Dusica Maysinger, Professor

Field of Research: Neuroscience, Toxicology, Drug Development and Nanomedicine.

The “leitmotiv” of my research is the establishment of nanoparticles-based diagnostics and nano-delivery systems for therapeutic agents that will promote cell survival, neuronal growth and differentiation. I am particularly interested in the mechanisms that underlie the nanoparticle-cell interactions and signaling pathways involved in these processes. In the last several years our focus has been on the role of glia, particularly microglia, in the elimination of nanostructured materials from, and their delivery to, sites of injury. We anticipate that our cell biological investigations of drug-polymer-cell interactions will have biomedical applications, especially in the fields of diagnosis and treatment. My main scientific contributions are in revealing the mechanisms of cell death by nanostructures and roles of organelles in cell adaptation and functional repair.

McIntyre Medical Bldg. Room 1314
E-mail: dusica.maysinger@mcgill.ca

Anne McKinney, Professor

Field of Research: Neuroscience.

Dr. McKinney’s principle research interest is the mechanisms involved in development and maintenance of excitatory synapses in the CNS, during physiological and pathological conditions, such as epilepsy and mental retardation. The synaptogenesis and maintenance of synaptic structures, key issues in neuroscience, are still poorly understood despite intensive research efforts. Her group’s studies are concentrated on the hippocampus, a brain region thought to be involved in learning and memory. The McKinney lab is using a combination of techniques including, 4-dimensional confocal laser scanning microscopy, serial electron microscopy, transgenic animals and electrophysiological techniques to investigate the structure and function of dendritic spines and their synapses.

Bellini Life Science Complex. Room 167
E-mail: anne.mckinney@mcgill.ca

Gerhard Multhaup, Professor and Department Chair

Field of Research: Neuroscience

Dr. Multhaup’s research interests include (i) understanding the APP biology, i.e., to unravel the protein network and the mechanisms involved in Aβ generation by structural and functional analyses, and (ii) investigating the molecular events of amyloid aggregation, gain of toxicity, and the causes of neuronal dysfunction. Our primary aim is to identify novel targets to develop pharmacological strategies for prevention and therapy.

Life Sciences Complex, Bellini. Room 168
E-mail: Gerhard.multhaup@mcgill.ca
Lisa Marie Münter, Assistant Professor

Field of Research: Neuroscience

Our principal research interests are the molecular mechanisms of newly described enzymes mediating a cellular pathway termed “Regulated Intramembrane Proteolysis” (RIP). The enzymes cleave a broad set of substrates within the plane of the membrane, thereby delivering diverse signaling molecules. Slight deregulations in this pathway likely cause the neurodegenerative processes observed in Alzheimer disease. RIP is seemingly also associated with other diseases such as schizophrenia, autism or cancer. Thus, our research is directed to a general understanding of RIP pathways, e.g., their activation, regulation, and pathological deregulations. With this knowledge, we aim to identify novel strategies to treat disorders of the central nervous system where RIP plays a role. Our lab uses methods of biochemical pharmacology including MALDI-mass spectrometry and fluorescent resonance energy transfer (FRET), which are used to characterize molecules and their interactions on the cellular level and in vivo.

Life Sciences Complex, Bellini. Room 136
E-mail: lisa.munter@mcgill.ca

Alfredo Ribeiro-da-Silva, Professor

Field of Research: Neuroscience.

His main research interest is the unravelling of the mechanisms underlying chronic pain, both in the central and peripheral nervous systems. He is particularly interested in animal models of arthritis pain and of neuropathic pain. Methods used in his lab include: immunocytochemistry at the light and electron microscopic levels, animal behaviour testing, and neurochemistry. He uses advanced tools such as replication deficient viral vectors to study synaptic circuits in the spinal cord and their changes in pain states. He is also investigating the effects of modulating the endogenous levels of neurotrophic factors as a potential therapeutic approach for arthritis and neuropathic pain.

McIntyre Medical Bldg. Room 1215
E-mail: alfredo.ribeirosilva@mcgill.ca

Bernard Robaire, Professor

Field of Research: Toxicology, Reproduction and Development and Epigenetics.

His research interests focus on the effects of environmental toxicants on male reproduction, on male mediated reproductive toxicology, on the structure, function and regulation of the epididymis, on androgen action, and on aging of the male reproductive system. This research activity has resulted in over 200 journal articles and book chapters, and editing/co-editing ten books.

McIntyre Medical Bldg. Room 104
E-mail: bernard.robaire@mcgill.ca

Uri Saragovi, Professor

Field of Research: Neuroscience, Cancer, Drug Development and Nanomedicine.

Research in Dr. Saragovi’s laboratory focuses in understanding macromolecular structure function relationships, particularly in receptor-ligand interactions.

Lady Davis Institute, Jewish General Hospital. Room E-535.
E-mail: uri.saragovi@mcgill.ca
Moshe Szyf, Professor

Field of Research: Neuroscience, Cancer, Drug Development and Nanomedicine, Epigenetics.

General Interests of the lab is 1) Epigenome. 2) DNA methylation. 3) Cancer is an epigenic disease. 4) Therapeutic implications of the epigenome on anticancer therapy.

McIntyre Medical Bldg. Room 1309/1310
E-mail: moshe.szyf@mcgill.ca

Jason Tanny, Assistant Professor

Field of Research: Epigenetics.

My lab studies gene regulation by covalent histone modifications and the impact of these mechanisms on human disease. We focus on two general questions: (1) How are histone modifications established at active genes? (2) What are their functions in gene expression? We use classical and chemical genetics, genomics, biochemistry, and proteomics approaches in yeast and mammalian model systems to elucidate the molecular functions of histone modifications. Our recent work has uncovered a novel link between ubiquitylation of histone H2B and the conserved transcription elongation factor P-TEFb. Ultimately, we aim to target histone modifications and relevant modifying enzymes to develop novel therapeutic avenues for a variety of diseases.

McIntyre Medical Bldg, Room 132/133
E-mail: jason.tanny@mcgill.ca

Jacquetta Trasler, Professor

Field of Research: Reproduction and Development, Epigenetics

Her research interests focus on epigenetics and the molecular and developmental regulation of gene expression in the germline and early embryo. More specifically she studies DNA methylation and genomic imprinting and the molecular and cellular targets for drug effects on germ cells and embryos. Ongoing studies include effects of drugs, diet (folate) and assisted reproductive technologies on the epigenome of germ cells and embryos and the implications for trangenerational passage of epigenetic defects.

MUHC Research Institute
E-mail: jacquetta.trasler@mcgill.ca

Jean-François Trempe, Assistant Professor

Field of Research: Parkinson’s Disease, Structural Biology

My research interests are in the structure and function of proteins implicated in Parkinson’s disease, Parkin and PINK1 in particular. These proteins have been shown to mediate neuroprotection and mitochondrial maintenance through their enzymatic activities and post-translational modifications (PTMs): Parkin is an E3 ubiquitin ligase and PINK1 is a Ser/Thr kinase. My goals are to: 1) elucidate the composition and 3D structure of molecular complexes formed by Parkin and PINK1 on mitochondria, 2) develop novel therapies for PD based on these structures. My group will use the full range of structural biology tools available at McGill, such as X-ray crystallography, NMR spectroscopy, SAXS, electron microscopy and mass spectrometry, in order to obtain the most complete and highest resolution picture of complexes formed by PINK1 and Parkin. These structures will inform us on how these enzymes become active and modify their substrates, and will guide the development of novel pharmacological targets.

McIntyre Medical Bldg. Room 1313A
E-mail: jeanfrancois.trempe@mcgill.ca
Pharmacology Programs

Admission:

All students admitted to McGill’s Faculty of Science are eligible to pursue the Major in Pharmacology program.

Briefly, students are admitted after completing a CEGEP Diplôme d'études Collégiales (DEC) with the following prerequisites:

- Biology – NYA (OOUK)
- Chemistry – NYA, NYB, (OOUL, OOUUM)
- Mathematics – NYA, NYB, NYC (OOUN, OOUP, OOUQ)
- Physics – NYA, NYB, NYC (OOUR, OOUS, OOUT)
- General Biology II (OOXU)

Or students who have completed a Freshman Science Year (UO) at McGill, or an equivalent, with the following prerequisites:

- BIOL 112: Cell and Molecular Biology
- CHEM 110: General Chemistry 1
- CHEM 120: General Chemistry 2
- MATH 139 or MATH 140: Calculus 1
- MATH 141: Calculus 2
- PHYS 101: Intro. Physics - Mechanics
- PHYS 102: Intro. Physics - Electromagnetism

NOTE: Students who graduated with CEGEP DEC, French Bacc, International Bacc, Advanced Placement, etc., may receive 30 credits of advanced standing. Therefore, you need to complete your Degree with 90 credits. If you are unsure, please go to: [www.mcgill.ca/students/transfercredit](http://www.mcgill.ca/students/transfercredit).

B.Sc. Major in Pharmacology (67 credits)

U1 Required Courses (24 credits):

- BIOL 200 (3) Molecular Biology
- BIOL 202 (3) Basic Genetics
- CHEM 212* (4) Introductory Organic Chemistry 1
- CHEM 222* (4) Introductory Organic Chemistry 2
- PHAR 200 (1) Introduction to Pharmacology 1
- PHAR 201 (1) Introduction to Pharmacology 2
- PHGY 209 (3) Mammalian Physiology 1
- PHGY 210 (3) Mammalian Physiology 2
- PHGY 212 (1) Introductory Physiology Laboratory 1
- PHGY 213 (1) Introductory Physiology Laboratory 2

* Students who have taken the equivalent of CHEM 212, CHEM 222, and/or MATH 203 in CEGEP (as defined at: [http://www.mcgill.ca/students/transfercredit/prospective/cegep](http://www.mcgill.ca/students/transfercredit/prospective/cegep)) are exempt and may not take these courses at McGill. Students must replace these credits with appropriate complementary course credits to satisfy the total credit requirements for their degree.

U2 Required Courses (16 credits):

- BIOC 311 (3) Metabolic Biochemistry
- BIOL 301 (4) Cell and Molecular Laboratory
- PHAR 300 (3) Drug Action
- PHAR 301 (3) Drugs and Disease
- PHAR 303 (3) Principles of Toxicology
Complementary Courses (27 credits total)

3 credits selected from (usually in Year 1):
- BIOL 201 (3) Cell Biology and Metabolism
- BIOC 212 or ANAT 212 (3) Molecular Mechanisms of Cell Function

3 credits selected from (usually in Year 2):
- CHEM 204 (3) Physical Chemistry Biological Sciences 1
- CHEM 203 (3) Survey of Physical Chemistry

3 credits selected from (usually in Year 2):
- BIOL 373 (3) Biometry
- MATH 203 * (3) Principles of Statistics 1
- PSYC 204 (3) Introduction to Psychological Statistics

3 credits selected from (usually in U3):
- PHAR 503 (3) Drug Discovery and Development 1
- PHAR 505 (3) Structural Pharmacology

3 credits selected from (usually in U3):
- PHAR 562 (3) Neuropharmacology
- PHAR 563 (3) Endocrine Pharmacology

12 credits selected from the following upper level science courses (in Year 3):
- ANAT 321 (3) Circuitry of the Human Brain
- ANAT 322 (3) Neuroendocrinology
- ANAT 365 (3) Cell Biology: Secretory Processes
- ANAT 458 / BIOC 458 (3) Membranes and Cellular Signalling
- BIOC 312 (3) Biochemistry of Macromolecules
- BIOC 450 (3) Protein Structure and Function
- BIOC 454 (3) Nucleic Acids
- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 303 (3) Developmental Biology
- BIOL 306 (3) Neural Basis of Behavior
- BIOL 314 (3) Molecular Biology of Oncogenes
- BIOT 505 (3) Selected Topics in Biotechnology
- CHEM 302 (3) Introductory Organic Chemistry 3
- CHEM 334 (3) Advanced Materials
- CHEM 382 (3) Organic Chemistry: Natural Products
- CHEM 502 (3) Advanced Bio-Organic Chemistry
- CHEM 504 (3) Drug Design and Development 2 (not offered for Fall 2013/2014)
- CHEM 522 (3) Stereochemistry
- CHEM 552 (3) Physical Organic Chemistry
- EPIB 501 (3) Population Health and Epidemiology (Not offered for Fall 2013/Winter 2014)
- EXMD 401 (3) Physiology & Biochemistry Endocrine Systems
- EXMD 504 (3) Biology of Cancer
- EXMD 511 (3) Joint Venturing With Industry
- MIMM 387 (3) Business of Science
- MIMM 414 (3) Advanced Immunology
- NEUR 310 (3) Cellular Neurobiology
- PATH 300 (3) Human Disease
- PHAR 504 (3) Drug Discovery and Development 2
• PHAR 508 (3) Drug Discovery and Development 3
• PHAR 562 (3) Neuropharmacology
• PHAR 563 (3) Endocrine Pharmacology
• PHAR 565 (3) Epigenetic Drugs and Targets
• PHAR 599D1/D2 (6) Research Projects in Pharmacology (must register for both terms)
• PHGY 311 (3) Channels, Synapses & Hormones
• PHGY 312 (3) respiratory, Renal & Cardiovascular Physiology
• PHGY 313 (3) Blood, Gastrointestinal & Immune Systems Physiology
• PHGY 314 (3) Integrative Neuroscience
• PHGY 520 (3) Ion Channels
• PSYC 302 (3) The Psychology of Pain
• PSYC 311 (3) Human Cognition and the Brain
• PSYT 301 (3) Issues in Drug Dependence
• PSYT 455 (3) Neurochemistry (previously BIOC 455)
• PSYT 500 (3) Advances: Neurobiology of Mental Disorders
• REDM 410 (3) Writing Research Articles

* Committee approval is required to substitute an upper level science course not appearing in the above list.

**B.Sc. Honours in Pharmacology (76 credits)**

Students who have satisfactorily completed the first three terms of the Pharmacology Major program with a CGPA of at least 3.50 and a mark of B+ or higher in core Pharmacology courses (PHAR 300, PHAR 301 and PHAR 303) are eligible for admission into the Honours program.

Students must complete the online application form, which is found on our Departmental website. The deadline to apply is May 15th. *(Application form is available from February 1st – May 15th):* [http://www.mcgill.ca/pharma/prospective-students/undergraduate-program-bsc/major-and-honours-pharmacology/honours](http://www.mcgill.ca/pharma/prospective-students/undergraduate-program-bsc/major-and-honours-pharmacology/honours)

The U1 and U2 required courses for the Honours program are identical to those in the Major program. In addition to these requirements, in U3, students are required to take a 6-credit Research Projects in Pharmacology course and an additional 3 credit course chosen from the list of advanced level complementary courses.

**U3 Required Courses** (6 credits):

- PHAR 598 D1 & D2 (6) Honours Pharmacology Research Project (must register for both terms)

15 credits selected from the following upper level science courses (in Year 3):

- ANAT 321 (3) Circuitry of the Human Brain
- ANAT 322 (3) Neuroendocrinology
- ANAT 365 (3) Cell Biology: Secretory Processes
• ANAT 321 (3) Circuitry of the Human Brain
• ANAT 322 (3) Neuroendocrinology
• ANAT 365 (3) Cell Biology: Secretory Processes
• ANAT 458 / BIOC 458 (3) Membranes and Cellular Signalling
• BIOC 312 (3) Biochemistry of Macromolecules
• BIOC 450 (3) Protein Structure and Function
• BIOC 454 (3) Nucleic Acids
• BIOL 300 (3) Molecular Biology of the Gene
• BIOL 303 (3) Developmental Biology
• BIOL 306 (3) Neural Basis of Behavior
• BIOL 314 (3) Molecular Biology of Oncogenes
• BIOT 505 (3) Selected Topics in Biotechnology
• CHEM 302 (3) Introductory Organic Chemistry 3
• CHEM 334 (3) Advanced Materials
• CHEM 382 (3) Organic Chemistry: Natural Products
• CHEM 502 (3) Advanced Bio-Organic Chemistry
• CHEM 504 (3) Drug Design and Development 2 (not offered for Fall 2013/2014)
• CHEM 522 (3) Stereochemistry
• CHEM 552 (3) Physical Organic Chemistry
• EPIB 501 (3) Population Health and Epidemiology (Not offered for Fall 2013/Winter 2014)
• EXMD 401 (3) Physiology & Biochemistry Endocrine Systems
• EXMD 504 (3) Biology of Cancer
• EXMD 511 (3) Joint Venturing With Industry
• MIMM 387 (3) Business of Science
• MIMM 414 (3) Advanced Immunology
• NEUR 310 (3) Cellular Neurobiology
• PATH 300 (3) Human Disease
• PHAR 390 (3) Laboratory in Pharmacology
• PHAR 504 (3) Drug Discovery and Development 2
• PHAR 508 (3) Drug Discovery and Development 3
• PHAR 562 (3) Neuropharmacology
• PHAR 563 (3) Endocrine Pharmacology
• PHAR 565 (3) Epigenetic Drugs and Targets
• PHGY 311 (3) Channels, Synapses & Hormones
• PHGY 312 (3) respiratory, Renal & Cardiovascular Physiology
• PHGY 313 (3) Blood, Gastrointestinal & Immune Systems Physiology
• PHGY 314 (3) Integrative Neuroscience
• PHGY 520 (3) Ion Channels
• PSYC 302 (3) The Psychology of Pain
• PSYC 311 (3) Human Cognition and the Brain
• PSYT 301 (3) Issues in Drug Dependence
• PSYT 455 (3) Neurochemistry (previously BIOC 455)
• PSYT 500 (3) Advances: Neurobiology of Mental Disorders
• REDM 410 (3) Writing Research Articles

* Committee approval is required to substitute an upper level science course not appearing in the above list.
PURE
(Pharmacology Undergraduate Research Expo)

Students enrolled in a PHAR 599 Pharmacology Research Project or in a PHAR 598 Honours Pharmacology Research Project, are encouraged to participate in this event to give an oral or poster presentation.
Minor in Pharmacology  
(24 credits)

The Minor in Pharmacology is intended for students registered in a complementary B.Sc. program who are interested in a focused introduction to specialized topics in pharmacology to prepare them for professional schools, graduate education, or entry into jobs in industry or research institutes. Students should declare their intent to enter the Minor in Pharmacology at the beginning of their U2 year. They must consult with, and obtain the approval of, the Coordinator for the Minor Program in the Department of Pharmacology and Therapeutics.

All courses in the Minor Program must be passed with a minimum grade C or better. Generally, no more than 6 credits of overlap are permitted between the Minor and the primary program.

Required Courses (6 credits):

- PHAR 300 (3) Drug Action
- PHAR 301 (3) Drugs and Disease

Complementary Courses (18 credits):

3 credits, one of:

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOC 212 (3) Molecular Mechanisms of Cell Function

3 credits, one of:

- PHGY 209 (3) Mammalian Physiology 1
- PHGY 210 (3) Mammalian Physiology 2

3 credits, one of:

- PHAR 503 (3) Drug Discovery and Development 1
- PHAR 505 (3) Structural Pharmacology

3 credits, one of:

- PHAR 562 (3) Neuropharmacology
- PHAR 563 (3) Endocrine Pharmacology

6 credits, chosen from:

- PHAR 303 (3) Principles of Toxicology
- PHAR 504 (3) Drug Discovery and Development 2
- PHAR 508 (3) Drug Discovery and Development 3
- PHAR 562 (3) Neuropharmacology
- PHAR 563 (3) Endocrine Pharmacology
- PHAR 565 (3) Epigenetic Drugs and Targets
- PHAR 599 D1/D2 (6) Pharmacology Research Projects (must register for both terms to receive credit)
Pharmacology Courses

The following are course descriptions of all Undergraduate courses offered by the Pharmacology and Therapeutics Department.

PLEASE NOTE: Information on the lecture location, time and date can be found on Minerva.

PHAR 200, CRN 20957 – Introduction to Pharmacology 1
(1 credit)

Course Coordinators:
Dr. Barbara Hales; barbara.hales@mcgill.ca
Dr. Anne McKinney; anne.mckinney@mcgill.ca

The objective of this course is to give U1 Pharmacology Major Program students an appreciation of research in Pharmacology. The focus will be on contributions of this research to our understanding of how drugs work, strategies towards the discovery of new drugs, and/or on how use of current drugs may be improved based on this understanding.

Restrictions: Only open to students in the BSc. Major in Pharmacology.

PHAR 201, CRN 15549 – Introduction to Pharmacology 2
(1 credit)

Course Coordinators:
Dr. Barbara Hales; barbara.hales@mcgill.ca
Dr. Anne McKinney; anne.mckinney@mcgill.ca

This course will be a continuation of PHAR 200, taught in the Fall semester. The focus will be on contributions of this research to our understanding of how drugs work, strategies towards the discovery of new drugs, and/or on how use of current drugs may be improved based on this understanding.

Restrictions: Only open to students in the BSc. Major in Pharmacology.

PHAR 300, CRN 818 - Drug Action
(3 credits)

Course Coordinator: Dr. Edith Zorychta
edith.zorychta@mcgill.ca

* Please take note that Dr. Edith Zorychta should be contacted directly for course approval forms, credit transfer forms, etc.

Principles of pharmacology and toxicology. Frequently encountered drugs will be used as a focus to illustrate sites and mechanisms of action, distribution, metabolism, elimination and adverse side effects.

Prerequisites: BIOL 200, PHYG 209, PHYG 210 and one of BIOL 201 or ANAT/BIOC 212 or permission of instructor.

PHAR 301, CRN 439 - Drugs and Disease
(3 credits)

Course Coordinator: Dr. Barbara Hales
barbara.hales@mcgill.ca

This course further explores the basic principles of pharmacology as illustrated by drugs used in the treatment of disease. Emphasis will be placed on drugs used for diseases prevalent in North America.

Prerequisites: PHAR 300 or permission of instructor.
PHAR 303, CRN 440 - Principles of Toxicology
(3 credits)

Course Coordinator: Dr. Bernard Robaire
bernard.robaire@mcgill.ca

Fundamental mechanisms by which toxic compounds damage a biological system (organelle, cell, organ, organism, ecosystem). Detection and quantification of toxicity and risk/benefit analysis are considered. Selected agents of current risk to human health or the environment are used as examples are evaluated in depth.

Prerequisites: BIOL 200, BIOL 201 or BIOC 212, PHGY 209 and PHGY 210

PHAR 503, CRN 819 - Drug Discovery and Development I
(3 credits)

Course Coordinators:
Dr. Dusica Maysinger
dusica.maysinger@mcgill.ca

Dr. Lisa Munter
lisa.munter@mcgill.ca

Chemistry, mechanisms of action, and steps in drug discovery and development.

Prerequisites: PHAR 301 and PHAR 303; or permission of instructor.

PHAR 504, CRN 441 - Drug Discovery and Development II

PHAR 505, CRN 20962 - Structural Pharmacology
(3 credits)

Course Coordinators:
Dr. Jean-François Trempe
jean-francois.trempe@mcgill.ca

Dr. Bastien Castagner
bastien.castagner@mcgill.ca

The course will cover approaches widely used in the pharmaceuticals industry, such as drug target selection, structure determination and medicinal chemistry. The basics of structural biology will be taught in a very visual and interactive manner, with an emphasis on drug : target interactions and chemical principles relevant to drug design. By the end of the course, the students will become familiar with the structure-based drug discovery process and principles of molecular pharmacology.
**Prerequisites:** PHAR 301, BIOC 311 or with permission of instructor.

**Restrictions:** Not open to students who have taken or are taking PHAR 503.

---

**PHAR 508, CRN 15596 – Drug Discovery and Development 3**  
(3 credits)

**Course Coordinator:** Dr. Terry Hébet  
terence.hebert@mcgill.ca

This course explores the changing nature of selected drug targets in light of advances in studying proteins in their native cellular milieu, in the context of intact tissues, organs and whole animals, highlighting several conceptual advances in pharmacological theory with bearing on how drug targets are viewed and characterized.

**Prerequisite:** PHAR 301 (PHAR 503 or PHAR 505 are also highly recommended).

**Restriction(s):** Open to U3 students in the minor, major or honours program in Pharmacology.

Not open to students who have taken PHAR 558.

---

**PHAR 562, CRN 820 – Neuropharmacology**  
(3 credits)

**Course Coordinator:** Dr. Derek Bowie  
derek.bowie@mcgill.ca

Topics in Pharmacology with an emphasis on molecular mechanisms of drug-action and cellular targets in the nervous system.

**Prerequisites:** PHAR 301 or with permission of instructor

**Restrictions:** Open to U3 students in the minor, major or honours program in Pharmacology, or with permission of instructor.

---

**PHAR 563, CRN 442 – Endocrine Pharmacology**  
(3 credits)

**Course Coordinator:** Dr. Dan Bernard  
daniel.bernard@mcgill.ca

This advanced course covers selected topics in pharmacology of reproductive, endocrine, and metabolic disorders

**Prerequisites:** PHAR 301 or permission of the instructor.

**Restrictions:** Open to U3 students in the minor, major or honours program in Pharmacology, or with permission of instructor.

---

**PHAR 565, CRN 15551 – Epigenetic Drugs and Targets**  
(3 credits)

**Course Coordinator:** Dr. Jason Tanny  
jason.tanny@mcgill.ca

This course covers therapeutics targeting epigenetic mechanisms. Although only a
A handful of epigenetic drugs are in widespread use, further development of such agents is a very active area of research as it has the potential to directly target aberrant gene expression. This course will examine both the current use and potential of epigenetic drugs in treatment of cancer, neurological diseases, immune disorders, and cardiovascular disease. The concept of epigenetics as mediating gene-environment interaction will also be discussed.

**Prerequisite:** PHAR 301

---

**PHAR 599, CRN 821 (Fall or Winter or Summer. 1 session only) (6 credits)**

**PHAR 599D1, CRN 822 (Fall) (3 credits)**

**PHAR 599D2, CRN 857 (Winter) (3 credits)**

No credit will be given for this course unless both PHAR 599D1 and PHAR 599D2 are successfully completed in consecutive terms

**Pharmacology Research Project**

**Course Coordinators:**

Dr. Dusica Maysinger:  
dusica.maysinger@mcgill.ca

Dr. Anne McKinney:  
anne.mckinney@mcgill.ca

This is a laboratory project course dealing with mechanisms involved in different pathologies and drug actions. Students select laboratories and supervisors and participate in the research activities in these laboratories. A student’s work is evaluated based on a written report and oral presentation

**Corequisite:** PHAR 562 and/or PHAR 563

**Restrictions:** U3 students with permission of instructors; students should consult instructors 3-4 weeks before registration.

---

**PHAR 598D1, CRN 19601 (Fall) (3 credits)**  
**PHAR 598D2, CRN 14601 (Winter) (3 credits)**

No credit will be given for this course unless both PHAR 598D1 and PHAR 598D2 are successfully completed in consecutive terms

**Honours Pharmacology Research Project**

**Course Coordinators:**

Dr. Dusica Maysinger:  
dusica.maysinger@mcgill.ca

Dr. Anne McKinney:  
anne.mckinney@mcgill.ca

Supervised Honours Research Project in Pharmacology. Students are expected to obtain hands-on research experience in their supervisor’s laboratory. They are also required to submit a written report in the form of a scientific manuscript and present a ten minute seminar.

Minimum of 9 hours/week to be spent in the lab.

**Corequisite:** PHAR 562 and/or PHAR 563

**Restrictions:** Only open to U3 students accepted in the BSc. Honours Pharmacology. Required Departmental approval.
PHAR 390, CRN 723 (lecture) & 706 (lab) – Laboratory in Pharmacology
(3 credits)

Course Coordinator: Dr. Lisa Münter  
lisa.munter@mcgill.ca

This course is a two-week (during the summer) all day practical laboratory course where students will have the opportunity to design their own experiments, write out the experimental lab reports and learn to troubleshoot on their own.

Restricted: To Pharmacology Honours Students or permission of instructor.

PHAR 396 (Fall, Winter or Summer)
Undergraduate Research Project
(3 credits)

Course Coordinator: Dr. Jason Tanny  
jason.tanny@mcgill.ca

Independent research project in Pharmacology with a written report and an oral presentation.

How does it all work?

We will determine the terms in which we will offer the 396 course and arrange to open a section in Minerva. Instructors will prepare project descriptions and submit them electronically to the Office for Undergraduate Research in Science (OURS). The forms are available on the OURS website. 

OURS (the Office for Undergraduate Research in Science) will maintain a page where students can view project descriptions.

Students interested in a potential project (that has already been submitted by a professor and posted) will communicate with the instructor proposing the project. Instructions on how to apply are indicated on each project description.

Students interested in a new project (that is not yet posted) may ask their proposed supervisors to fill out a new form. When an instructor and student agree upon a project, they should print, complete, and sign the form, and then submit the form to the Undergraduate Student Affairs Coordinator, Mrs. Chantal Grignon.

General information concerning 396 courses:

- PHAR 396 is NOT a required course for the Pharmacology Minor, Major or Honours programs.
- 396 courses are elective courses.
- Can be taken after one term of undergraduate studies.
- Is not available under the satisfactory/unsatisfactory option (S/U).
- Open to all students in any program offered by the Faculty of Science.
- Students may take more than one 396 course, but cannot be supervised by the same instructor for two 396 Science courses. Each 396 course must also be for a different project.
- May count towards the requirements of the Dean’s Multidisciplinary Undergraduate Research List (DMURL).
Pharmacology Integrative League of Students - PILS

PILS is a student run organization that represents students in the department of Pharmacology & Therapeutics. PILS formed shortly after the Pharmacology major program was approved in September 2009. They act as a liaison between administration and students representing the undergraduate voice within the department. Although they are a small organization, their views and opinions are well respected within the department. They provide services and events such as NTCs, academic and research seminars, lunches with profs, parties and many more!

Office: Room 506A in McIntyre Medical Building
Website: [http://pils.sus.mcgill.ca](http://pils.sus.mcgill.ca)
E-mail at: pils@sus.mcgill.ca

Council 2016/2017:

President: Vaidehi Nafade
VP Academic: Jaqueline Chan
VP Communications: Jessica Mancuso
VP External: Morgan Phillips
VP Finance: Cameron Wong
VP Fundraising: Maame Yaa Brako
VP Internal: Tala Zuraiqat
U3 Representative: Hannah King and Emma Leblanc
U2 Representatives: George Perlman and Kristina Yau

Pharmacology Undergraduate Mentorship Program – PUMP

PUMP is a PILS initiative directed towards the undergraduate students to facilitate peer advising. The Mentors’ guidance ranges from course selection, study tips, to stress management. The Mentors are U3 pharmacology students, eager to impart knowledge onto their Mentee, either a U1 or U2 student.

If anyone is interested in becoming either a PUMP Mentor or Mentee, please contact the PUMP Program Coordinator at: pilspump@gmail.com
Selecting your courses

Year Designation

Students in their first year of a four-year, 120-credit, Bachelor of Science (B.Sc.) degree program, will complete a Freshman year, designated U0.

Students entering the second year of the four-year program, or the first year of the 90-credit program, are designated U1.

The second-to-last year of a program is considered U2, while U3 refers to the final year of a B.Sc. Program.

Electives

What is an elective?
Electives are courses taken for academic credit but which are not required for your degree. In this regard they differ from required or complementary courses.

Electives allow you to explore interests outside your core program, gain exposure to a wider world, and take advantage of the vast scope of opportunities at a large, comprehensive university like McGill. From astronomy to philosophy, from sociology to zoology, electives round out your education.

- For example; EPSC 330, Mineral Deposits, would count as an elective for the PHAR Major because it is not required for your program.
- Please consult the list “Courses outside the Faculty of Science”. You may register for courses that are found on the “Approved” list. However, you may not register for courses that are found on the “Not-approved” list – they will not count towards your Degree.
- The number of electives that you may take during your degree varies depending on how much room you have left after completing program requirements and prerequisites for your programs.

Please check the university calendar and carefully review course restrictions to determine whether you have permission to take a specific course:

Academic Integrity Tutorial

- For newly admitted students
- Course AAAA-100 (Mandatory!!)
- Students must login to myCourses to complete the tutorial.
- To view the content of the tutorial: http://www.mcgill.ca/students/ssr/honest/students/test
- Once the tutorial has been completed in myCourses, an administrative status of CO-Completed is assigned.
- If the tutorial is not completed, an administrative status of IC-Incomplete is assigned.
Credit Load

The normal course load is 4-5 courses (12-15 credits) per term; a full year is normally 30 credits. If you are not sure how many credits to register for each term or for the academic year, keep the following regulations in mind:

- 12 credits per term to maintain full-time status, eligibility for student visas, loans and bursaries;
- up to 14 credits (4 courses) maximum per term for students in probationary standing;
- up to 17 credits per term for students in satisfactory standing;
- 27 graded (non-S/U) credits per academic year (both the fall and winter terms) to be considered for renewal of entrance scholarships or for in-course McGill scholarships or awards, including Dean's Honour List; at least 27 graded credits that fulfill the degree requirements to be considered for faculty scholarships;
- 30 graded credits per year to maintain Canadian scholarships;
- Maximum allowed credits is up to 17 credits per term for students whose standing is Satisfactory or Interim Satisfactory.
- students whose CGPA is 3.5 or higher and who wish to take a course overload of up to a maximum of 19 credits are required to fill out a request form at Service Point, and are strongly urged to consult their adviser. Allow several working days for the processing of your request.

Registration

Minerva is McGill’s web-based information system that serves students, staff and faculty. Students register and make course changes using Minerva: [www.mcgill.ca/minerva-students](http://www.mcgill.ca/minerva-students)

Students also use Minerva to update their personal information, such as address and emergency contacts, and to make minor corrections (adding accents, changing upper/lower case letters) to their legal name. Students can view their grades and fee information on Minerva.

Visual Schedule Builder (VSB)

A new scheduling tool is here! Visual Schedule Builder (VSB) shows you all the possible timetables for the courses you ask it to schedule. Try it yourself here: [https://vsb.mcgill.ca/vsb/criteria.jsp?welcome=1](https://vsb.mcgill.ca/vsb/criteria.jsp?welcome=1) or access it on myMcGill.

Enter your courses into VSB. State your preferences (mornings or evenings off, for example) and watch as multiple conflict-free schedules are generated.

Then copy and paste CRNs (Course Reference Numbers) into the Minerva Quick Add boxes on the Registration menu so you can make your what-if schedule a reality. Or continue to browse to find more possibilities using helpful VSB features to further expand your scheduling options:

- Pin a class or lab in place in order to rearrange the rest of your schedule around it.
• Block off specific periods of time that you would like unscheduled by clicking and dragging timeslots on your timetable.
• Toggle the option to show or hide classes that are currently full.

What is the ADD/DROP Period?

Once you have registered for your courses, you will have the opportunity to change them during the ADD/DROP period. This course-change period occurs during both the Fall and Winter terms. Refer to the Calendar for specific dates:
http://www.mcgill.ca/students/courses/drop/adddrop

From the beginning of the term until the end of the add/drop period, you will have the opportunity to “shop around” and attend as many courses as your schedule permits.

Any courses dropped during this period will be deleted from your record and will not appear on your transcript. Your record will only show the courses in which you are registered for once the add/drop period is over.

Please visit the rules and regulations for withdrawals:
http://www.mcgill.ca/students/courses/drop/withdraw

Money $$ Saver: Avoid late registration fees ($85-150). If you are unsure of your course selection and wish to avoid this late fee charge, register for at least one course. Additions/deletions can be made after consulting an advisor, but before the end of the Course Change (ADD/DROP) Period.

S/U Option
(Satisfactory/Unsatisfactory)

You may choose to have a final grade of S (satisfactory) or U (unsatisfactory) for one of your elective courses (except for 396 courses). This option cannot be used for required courses within your program (Including the complementary courses list). The decision to have an elective course graded as S/U must be made before the end of the Drop/Add period, and no change can be made thereafter. Beware of the risks before you use this option. Refer to the 2015-2016 Undergraduate Programs, Courses and University Regulations for more information on this option:

Note: McGill Scholarship holders who wish to renew their scholarships, as well as students who would like to be considered for in-course awards (ex: Dean’s Honour List), must complete 27 credits each year - excluding S/U credits.
Passing Grade (Required courses or complementary courses)

All required and complementary courses listed in the Minor, Major and Honours programs in Pharmacology must be passed with a grade of “C” or better.

“D” is a failure for required and complementary courses in your program.

If you fail a required course, substitution is not allowed. It must be repeated, but only once. If that course is failed a second time, you may appeal to the Director of Advising Services (SOUSA) for permission to take the course a third time. If the permission is denied, you must withdraw from the program.

In the case of complementary courses, if you receive a grade of “D”, this can be considered as one of your electives and then you can choose another complementary from the list of options.

If you are unsure, check with Chantal Grignon, your Student Affairs Coordinator.

Final Examinations

Formal final examinations are held following each term (fall, winter). The dates of the examination periods are listed on the Exams Office page: http://www.mcgill.ca/students/exams/

Deferred and Supplemental Exams

If you are unable to write your final exam due to illness or another serious problem, you may apply for a deferral exam. You must have a valid document (doctor’s note) explaining your inability to write the exam. Please bring your note to Service Point at 3415, McTavish.

If you received a grade of D, F, J or U, you may be permitted to write a supplemental exam.

For further information on the Rules, Regulations and application dates, please see the Deferred and Supplemental Exams page: http://www.mcgill.ca/students/exams/dates/supdefer
Summer Studies

The Summer Session at McGill covers the months of May to August. During this period, a wide array of credit courses from McGill degree programs is offered. For more details, please consult the Summer Studies Calendar. Final year students taking Summer Studies courses to complete their graduation requirements will receive their degrees at the Fall Convocation (normally held in November).

Many Pharmacology students choose to take summer courses to lighten their course loads during the year. Unfortunately, only a few U1 required courses are offered during the summer term. If you are able to take summer courses, you are strongly encouraged to do so. However, please verify that the course you plan to take in the summer is indeed offered.

Looking for Summer work?

There are always possibilities to work in labs as a summer student, or for research project courses, or as part of a Science Undergraduate Research Awards (SURAs) (see next page on Office for Undergraduate Research in Science).

You may also work part-time in labs during the school year.

➢ What do I look for in a professor?

- Do a PubMed (not Google!) search of prospective supervisors and of the research subjects: http://www.ncbi.nlm.nih.gov/pubmed
- Read a few papers from prospective labs to get a feeling for the techniques and experimental models.
- Contact professors that interest you by e-mail; use your McGill e-mail address. Be specific on why you would like to work in their lab – make it personal – do not send general e-mails.
- When you introduce yourself, discuss your interests, qualifications and expectations. Have your resume and transcripts ready.
- You may also interview other students who have worked with the professor.
Office for Undergraduate Research in Science (OURS)

Research is the cornerstone of an undergraduate education. The McGill Faculty of Science's Office for Undergraduate Research seeks to expand research opportunities for qualified and interested students. The Office coordinates research opportunities across the Faculty, in particular building on the NSERC undergraduate research program. The office will create bridges across units, linking units with fewer students to those with a higher student-professor ratio.

Making research-based learning the standard

The academic goal is that students should participate in laboratory research and research projects from the start of their degree, and should continue to conduct research as part of their program requirements. The Office for Undergraduate Research will increase the number of undergraduate students involved in research, exposing them to the process and products of scholarship, and enhancing the undergraduate research experience.

Contact:
Victor Chisholm
Undergraduate Research Officer
http://www.mcgill.ca/science/research/ours

Science Internships & Field Studies Office

The Science Internships & Field Studies Office promotes field studies and internship opportunities to interested students seeking hands-on experience. The office coordinates the field study semesters offered through Faculty of Science and provides internship opportunities to students who are in Science programs at McGill. Whether you decide to participate in a field study semester or apply classroom theory to practice, the Science Internships & Field Studies Office will offer you assistance in your decision.

Contact:
Internship and Field Studies Officer
Dawson Hall, Room 408

Study Away

Studying away from McGill is a once-in-a-lifetime opportunity whose benefits can go far beyond academic learning. The opportunity to study at another university can add significant dimensions to your undergraduate education by enabling you to develop broader perspectives on your fields of study, to enhance skills in cross-cultural communication and critical thinking applicable to your everyday life and provide you with a chance for personal growth.
Note: For graduating students. As of the Summer 2011 term, students who are on any type of study away during their graduating term WILL NOT be able to graduate at the end of their final term; instead, these students must select a graduation term (on Minerva) for the term following their study away.

For more information on Study Away, please visit: http://www.mcgill.ca/science/student/general/studyaway

---

**Essential Information**

**Enrolment Services - Service Point**

Service Point has brought together newly-integrated front-line undergraduate and graduate student administrative services. Located on the ground floor of the McLennan Library Building in the heart of the downtown campus, Service Point will address a wide variety of students' needs:

- assistance with course and program registration for Arts and Science students
- information about exams, and approval of requests for supplemental and deferred exams for Arts or Science students
- ranking/recommendation letters for Arts and Science students
- proof of enrolment letters
- certified or translated copies of diplomas
- help with admissions
- help with Minerva
- international health insurance card and exemptions
- McGill ID cards
- official transcript pick-up
- replacement diplomas
- student study-abroad exchange programs
- help with submission of legal documents
- tuition and fees information
- US loans pick-up

**Location:**
Service Point
3415 McTavish Street

**Website:**
http://www.mcgill.ca/students/servicepoint/

---

**Useful McGill Sites**

- **Pharmacology and Therapeutics**
  homepage:
  http://www.mcgill.ca/pharma/

- **Student Services:** to enrich your McGill experience or to obtain assistance in a variety of areas related to your educational and personal pursuits. To see the resources they offer, go to this link: www.mcgill.ca/studentservices

- **SOU USA (Science Office for Undergraduate Student Advising)** provides assistance in interpreting and
updating records, as well as general academic information and advice about degree requirements, registration and course changes, procedures for withdrawal, deferred and supplemental exams, rereads, inter-faculty transfers, study away, academic standing and graduation:


- Undergraduate Programs, courses and University Regulations (e-calendar): This link describes McGill’s programs, courses, regulations and other important information for the current Academic year:

Information Services

The “Students’ home page” connects students to many other important sites:
www.mcgill.ca/students

Here are just a few of the links available through this site:

- Career Planning Service (CaPS)
- Convocation Information
- Course Calendars
- Course Timetable
- Exam schedules
- MINERVA
- Student Accounts
- Student Services

Undergraduate Calendar

The University Calendar contains the rules and regulations concerning your academic life at McGill, such as:
- Deadlines
- ID cards
- Fees
- Registration (including ADD/DROP and withdrawal dates)
- Courses
- Grading
- Exams (incl. what to do if you are ill; supplemental/deferred exams; what happens if you are caught cheating)
- Transfer credits
- Study away
- Individual faculty regulations
- Residences

The following website provides access to all course calendars:
http://www.mcgill.ca/students/courses/calendars/

Career Planning Service (CaPS)

CaPS McGill University offers a full range of services to students in search of part-time, summer and full-time employment. Some services include development workshops (i.e. CV - writing, interviewing techniques), individual appointments with a career advisor, access to the resource library, career fairs and job postings.
Brown Student Services Bldg.
3600, McTavish Street, Suite 2200
e-mail: careers.caps@mcgill.ca
web: http://www.mcgill.ca/caps/

The following services are also located in the William & Mary Brown Building. You are strongly encouraged to visit and make use of the following services:

- First-year Office
- Student Health & Mental Health Services
- Tutorial Service
- Student Aid
- International Student Services
- Office of the Dean of Students
- Chaplaincy Service

Étudiants Francophones

Pour plus d’informations, ou si vous avez des questions ou des préoccupations, n’hésitez pas à passer au Services aux étudiants de première année : http://www.mcgill.ca/firstyear/undergraduate/orientation-week/fall/francophone

Computer Access

Students can use the computers located in three areas of the McIntyre Medical Building: The 2nd floor kiosk (just off the elevator), and the Cafeteria Kiosk on the 5th floor have computers students can use. The Life Science Library also has computers. In fact, the Library houses more than 60 computers on both the 3rd and 4th floors. Each library computer is connected to a printer that students can use for a fee.

Bulletin Board (13th floor of the McIntyre Medical Building)

The Departmental notice board provides information concerning courses, deadlines, final exam schedules, fellowship information and job opportunities. Notices are posted throughout the year.
Please note: It is YOUR RESPONSIBILITY to verify your eligibility for graduation during your final semester. You can access your whole record via MINERVA at any time. You must complete the program (i.e. Minor, Majors or Honours) as well as the number of credits required for your degree (i.e. 90/120 etc). If you have met all these requirements, then you will graduate.

Convocation

Convocation dates and information can be found here: [www.mcgill.ca/convocations/](http://www.mcgill.ca/convocations/)

For information on graduating photos, contact the members of the PILS Council: [pils@sus.mcgill.ca](mailto:pils@sus.mcgill.ca)
Pharmacology BSc/MSc Program

Sponsored by the Faculty of Medicine and Graduate and Postdoctoral Studies, is designed for students with strong intentions of carrying out an MSc after completion of their BSc.

All applicants to the program will have the opportunity to conduct research in the summer prior to starting U3. BSc students must secure a summer research position for 10 to 12 consecutive weeks (this will be paid at $350/wk, either by the Faculty of Medicine or from a summer NSERC award: http://www.mcgill.ca/medresearch/biomedical/nserc).

During the U3 school year, applicants must successfully complete a 6 credit Pharmacology Research Project, either PHAR 599 D1/D2 (Major) or PHAR 598 D1/D2 (Honours).

BSc/MSc Timeline:

Requirements:
- Minimum CGPA 3.5.
- Must be a U2 student registered in the Major or Honours degree program in Pharmacology.
- Commitment by a faculty member to supervise PHAR 599 D1/D2 (Major) or PHAR 598 D1/D2 (Honours) and conditionally for an MSc Degree.
- Must have secured a summer research position for 10 to 12 consecutive weeks. (Note: This will be paid at $350/wk either from the Faculty of Medicine or from a summer NSERC award).

Application Documents Required:
- CV.
- Unofficial transcript.
- Letter of intent written by the applicant – must show strong evidence of research potential and interest in Graduate Studies.
- Letter of reference written by a Pharmacology Faculty member – indicating a commitment to supervise a summer research project and conditional acceptance for an MSc.
- One additional letter of reference – optional – research or otherwise.

Conditions of acceptance for the MSc:
- Show strong research performance during the summer following U2 and strong academic (min CGPA 3.5) and research performance during the U3 academic year.
- Successful completion of PHAR 599 D1/D2 (Major) or PHAR 598 D1/D2 (Honours) - (6 credits).
- Completion of PHAR 599 D1/D2 (Major) or PHAR 598 D1/D2 (Honours) should be with the potential MSc supervisor.

For further information, please contact:
- Ms. Tina Tremblay; gradstudies.pharmacology@mcgill.ca
- Ms. Chantal Grignon; undergradstudies.pharmacology@mcgill.ca
BSc/MSc Timeline

Fall 2016
- U2

Winter 2017
- U2
- Selection mid-April

Summer
- Applications Due early April
- Summer Research Project
  10 to 12 weeks ($350/wk) OR
  Summer NSERC 16 weeks ($5625)

Fall 2017
- U3

U2

Winter 2018
- MSc FT1

Summer 2018
- MSc FT2

Winter 2019
- MSc FT3

Summer 2019
- BSc Graduation
- MSc continuing
- Submit thesis
Graduate Studies in Pharmacology:

The Department of Pharmacology and Therapeutics at McGill University offers programs of study which lead to either M.Sc. (thesis) or Ph.D. degrees through the Graduate and Post-Doctoral Studies Office (GPSO). The GPSO has information for prospective graduate students: [http://www.mcgill.ca/gradapplicants/](http://www.mcgill.ca/gradapplicants/)

The objective of the M.Sc. (thesis) and Ph.D. programs is to provide in-depth research experience in a specific area of pharmacology in order to develop individuals capable of independent research and scholarly activity in industry, government or academia.

In the M.Sc. (Thesis) and Ph.D. programs, students select their own area of research for their thesis project. The thesis proposal usually follows the first year of the program and, if it is approved, thesis work begins. Since several members of the Department hold joint appointments in clinical and other basic science departments, students can participate in interdisciplinary research projects that are relevant to pharmacology.

How do I apply for Pharmacology Graduate Studies?

Instructions for submitting an application is found on the Departmental web site: [http://www.mcgill.ca/pharma/prospective-students/graduate-program/applying-department](http://www.mcgill.ca/pharma/prospective-students/graduate-program/applying-department)

For more information, please contact the Graduate Studies Coordinator; gradstudies.pharmacology@mcgill.ca

- Graduate Faculty: [www.mcgill.ca/gps/](http://www.mcgill.ca/gps/)