

integrating new technology into operations; managing research and development. Restricted to Executive MBA students only.

#### ORG A 870 Corporate Strategy

★3 (fi 32) (second term, 3-0-0). Understanding corporate strategy and processes to mobilize resources to achieve corporate objectives; industry and competitive analysis. Restricted to Executive MBA students only.

#### ORG A 875 Leadership

★3 (fi 32) (second term, 3-0-0). Understanding the unique perspectives, tasks, and responsibilities of the executive in providing leadership to the organization; dynamic processes of organizations; and developing leadership skills. Restricted to Executive MBA students only.

## 201.160 Paediatrics, PAED

Department of Paediatrics  
Faculty of Medicine and Dentistry

### Undergraduate Courses

#### PAED 546 Paediatrics Student Internship

★6 (fi 12) (either term, 6 weeks). Student internship in paediatrics for students registered in the MD program.

#### PAED 556 Paediatrics Student Internship

★3 (fi 6) (either term, 3 weeks). Student internship in paediatrics for students registered in the MD Program.

## 201.161 Paleontology, PALEO

Department of Biological Sciences  
Department of Earth and Atmospheric Sciences  
Faculty of Science

### Undergraduate Courses

#### PALEO 318 Paleobiology of the Lower Vertebrates

★3 (fi 6) (first term, 3-0-3). Evolution of fish-like vertebrates, amphibians, reptiles and birds, with emphasis on systematics, major adaptive shifts and subsequent evolutionary radiation. Prerequisite: EAS 230 or ZOO 225.

#### PALEO 319 Paleobiology of the Higher Vertebrates

★3 (fi 6) (second term, 3-0-3). The Mesozoic history of mammals as illustrative of the origin and evolution of a higher taxon; adaptive radiation of Tertiary mammals, with special emphasis on insectivores, primates, carnivores, proboscidians, and ungulates. Prerequisite: EAS 230 or ZOO 225.

#### PALEO 414 Paleontology

★3 (fi 6) (second term, 3-0-3). Morphology, paleoecology and evolution, with emphasis on both the theoretical aspects and practical techniques of paleontology. Concentration on invertebrate paleontology, but examples from vertebrate paleontology and paleobotany included. Prerequisite: EAS 230.

### Graduate Courses

**Note:** The following undergraduate courses may be taken for credit by graduate students: PALEO 318, 319.

#### PALEO 512 Selected Topics in Paleontology

★3 (fi 6) (either term, 4-2s-0). Offered in alternate years.

#### PALEO 513 Advanced Paleontology

★3 (fi 6) (second term, 3-0-3). Morphology, paleoecology and evolution, with emphasis on both the theoretical aspects and practical techniques of paleontology. Concentration on invertebrate paleontology, but examples from vertebrate paleontology and paleobotany included. Prerequisite: EAS 230. Classes concurrent with PALEO 414. Not available to students with credit in PALEO 414.

#### PALEO 520 Problems in Vertebrate Paleobiology

★3 (fi 6) (either term, 0-3s-0). Prerequisites: PALEO 318 and 319.

## 201.162 Pathology, PATH

Department of Laboratory Medicine and Pathology  
Faculty of Medicine and Dentistry

#### Notes

- (1) PATH 501 and 502 are intended for residents in pathology, medical microbiology, surgery, or medicine. There are currently no other graduate courses available on human diagnostic pathology. PATH 506 and 507 are intended for residents in pathology, medical microbiology, surgery or

medicine, and graduate students from the medical laboratory science program. There are currently no other graduate courses available on medical biochemistry.

- (2) Not all graduate courses are offered every year. The Department should be consulted regarding the availability of graduate courses in any academic session.

### Graduate Courses

#### PATH 510 Cryobiology I

★3 (fi 6) (first term, 2-1s-0). Physicochemical changes in aqueous solutions at low temperatures and responses of living cells and tissues to those changes. Current theories of damage and protection during freezing and thawing.

#### PATH 511 Cryobiology II

★3 (fi 6) (second term, 2-1s-0). Freeze-thaw responses of enzyme systems, individual cells and organized tissues. Preservation of spermatozoa, blood and bone marrow cells, embryos and various tissues. Approaches to the cryopreservation of organs and whole organisms. Applications in medicine and agriculture. Prerequisite: consent of Department.

#### PATH 520 Pathology Research Seminar

★1 (fi 2) (two term, 0-1s/2-0). Graduate seminars presented by graduate students, faculty and guests in the Department. Required of all pathology graduate students.

## 201.163 Persian, PERS

Department of Comparative Literature, Religion and Film/  
Media Studies  
Faculty of Arts

#### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess background. Students with a Persian language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course suitable to their level of ability or they may be encouraged to seek "Credit by Special Assessment" (see §44.5) where appropriate.
- (3) The Department will withhold credit from students completing courses for which background makes them ineligible. For example, 100-level courses are normally restricted to students with little or no knowledge in that language. Should students with matriculation standing or those possessing background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.

### Undergraduate Courses

#### PERS 100 Introductory Persian

★6 (fi 12) (two term, 3-0-2). Note: not open to students who have successfully completed RELIG 229.

#### PERS 301 Intermediate Persian I

★3 (fi 6) (either term, 3-0-0). Prerequisite: PERS 100 or consent of Department.

#### PERS 302 Intermediate Persian II

★3 (fi 6) (either term, 3-0-0). Different uses of Persian through audio-visual materials (particularly films) and selected readings in classical and modern literature. Prerequisite: PERS 301 or consent of Department.

#### PERS 499 Problems and Topics in Persian Language and Literature

★3-6 (variable) (variable, 0-3s-0). Prerequisite: consent of Department.

## 201.164 Petroleum Engineering, PET E

School of Mining and Petroleum Engineering  
Department of Civil and Environmental Engineering  
Faculty of Engineering

**Note:** See also Materials Engineering (MATE); Mining (MIN E), and Petroleum Engineering (PET E) listings.

The following course was renumbered effective 2001/02:

Old	New
PET E 465	PET E 365

### Undergraduate Courses

#### PET E 295 Introduction to Fundamental Petroleum Engineering

★3.8 (fi 6) (second term, 3-0-3/2). The relationships of geology, basic reservoir rock properties, surface and interfacial phenomena, the flow of fluids through

porous media, classification of oil and natural gas reservoirs, and introduction to reserve estimation principles. Prerequisite: consent of Instructor.

#### PET E 362 Petroleum Reservoir Fluids

★3.8 (fi 6) (first term, 3-0-3/2). Qualitative and quantitative phase behavior of petroleum reservoir fluids through the algebraic and numerical application of thermodynamic theory, equations of state, and empirical correlations. Determination of engineering PVT parameters. Oilfield waters. Introduction to mass transfer. Prerequisite: CH E 243. Corequisite: CHEM 271.

#### PET E 364 Oil Well Drilling and Completion

★3.5 (fi 6) (first term, 3-1s-0). Elements of rock mechanics, drilling fluids, factors affecting rate of penetration, formulation evaluation and well completions. Prerequisites: CIV E 270, CH E 312 and either CHEM 271 or CH E 243, or consent of Instructor.

#### PET E 365 Well Logging and Formation Evaluation

★3.5 (fi 6) (first term, 3-1s-0). Theory and engineering applications of measurements of physical properties of the formation near the well bore; interpretation and use of the information in reservoir engineering. Corequisite: PET E 362 or consent of Instructor.

#### PET E 366 Petroleum Production Operations

★3 (fi 6) (second term, 3-0-0). Land units in Western Canada, types and characteristics of well completions, perforating, wellbore damage and simulation, combined inflow and well performance analysis, multiphase flow through conduits, oil well pumping, gas lift, surface facilities and flow measurement, applied mass transfer. Prerequisite: CH E 312 or consent of Instructor.

#### PET E 367 Drilling Fluids Laboratory

★1.8 (fi 6) (second term, 1-0-3/2). Functions and types of drilling fluids, drilling fluid properties and their control, equipment and test procedures used to determine drilling fluid properties, common drilling fluid additives, and drilling problems related to drilling fluids will be discussed. Laboratory experiments are designed to help students better understand the factors controlling drilling fluid properties as well as familiarize students with field testing procedures of drilling fluids.

#### PET E 368 Fundamentals of Well Test Analysis

★3.8 (fi 6) (second term, 3-0-3/2). A basic course in well test design and interpretation. Analysis methods for pressure drawdown, buildup, and interference tests. Principle of superposition and its application in well test analysis. Average reservoir pressure estimation. Effect of wellbore conditions on pressure behavior. An introduction to drill stem testing and gas well testing. Prerequisite: PET E 295 or consent of Instructor.

#### PET E 444 Natural Gas Engineering

★3 (fi 6) (first term, 3-0-0). Topics include gas properties, resources and reserves estimation, material balance equation, decline curve analysis, gas well deliverability, gas well testing, gas storage, transmission. Prerequisite: PET E 362 or consent of Instructor.

#### PET E 470 Heavy Oil Recovery

★3 (fi 6) (first term, 3-0-0). The objectives of this course are to introduce the student to the current heavy oil recovery technology, and to develop the practical project design techniques. Emphasis will be on thermal methods, although nonthermal methods will be covered briefly. This is designed to be suitable for both undergraduate and graduate students. Prerequisite or corequisite: PET E 473.

#### PET E 471 Enhanced Oil Recovery

★3 (fi 6) (either term, 3-0-0). Classification of EOR methods. Chemical oil recovery methods. Principles of polymer flooding. Principles of surfactant flooding. Oil displacement by surfactant solutions, principles of alkaline flooding, principles of micellar flooding, oil displacement by micellar solutions, design of scaled models. Heavy oil recovery by thermal methods. Other chemical oil recovery methods. Prerequisite: consent of Instructor.

#### PET E 473 Fundamental Reservoir Engineering

★3.8 (fi 6) (first term, 3-0-3/2). Rock properties, rock-fluid interaction, flow through porous media; material balance. Prerequisite: PET E 362 or consent of Instructor.

#### PET E 475 Applied Reservoir Engineering

★3.8 (fi 6) (second term, 3-0-3/2). Analysis and prediction of reservoir performance by use of material balance. Reservoir performance by use of decline curves. Fluid displacement, pressure maintenance and enhanced recovery. Prerequisite: PET E 473.

#### PET E 477 Modelling in Petroleum Engineering

★3 (fi 6) (second term, 3-0-0). Fundamentals of Modelling in Petroleum Engineering. Simulation methods as applied to specific problems in petroleum reservoir behavior. Examples will be drawn from primary, secondary and tertiary recovery phases of petroleum production. Prerequisites: PET E 473, ENCOMP 100 and MATH 201 or equivalent.

#### PET E 484 Oil and Gas Property Evaluation

★3.5 (fi 6) (first term, 2-0-3). An economic and property evaluation in petroleum engineering involving exploration, drilling, production and development

fundamentals and field case histories, Canadian oil and gas regulations, unitization and equalization of investment. Prerequisite: ENGG 310 or 401 or equivalent.

#### PET E 488 Petroleum Field Trip

★0.5 (fi 1) (either term, 0-1s-0). Students in fifth and sixth terms of the traditional program, and students in the seventh and eighth terms of the co-op program, will be required to make several trips to selected field installations, laboratories and industrial plants.

#### PET E 489 Petroleum Seminar

★1 (fi 2) (second term, 1-0-0). Meeting of students and staff for discussion of topics related to petroleum engineering.

#### PET E 496 Petroleum Engineering Design Project

★4 (fi 6) (second term, 1-6s-0). Designed to deal with special case studies in the mining and petroleum industries; an analysis of reserves; the prediction of production and operating procedures related to the project; the application of economics in the analysis of profitability; economics and planning as tools for a management position. Prerequisite: PET E 484 or consent of Instructor.

## Graduate Courses

#### PET E 555 Special Topics in Petroleum Engineering

★3 (fi 6) (either term, 3-0-0). Research studies and/or projects dealing with selected subjects relevant to Petroleum Engineering. Suitable subjects are chosen in consultation with a Petroleum Engineering Faculty member. Typical study categories include reserve estimation, reservoir management techniques, production operations, regulations, safety, environmental impacts of oil and gas operations. Prerequisite: consent of Instructor.

#### PET E 614 Well-Logging and Formation Evaluation

★3.5 (fi 6) (either term, 3-1s-0). Petrophysics and modern well-logging methods; discussion of the physical properties of porous media and the measurement of geometric and mechanical properties of the porous media, fluid saturations, chemical composition of the saturating fluids; application of the results in formulation and reservoir evaluation.

#### PET E 630 Petroleum Reservoir Engineering

★3.5 (fi 6) (either term, 3-1s-0). Characteristics of reservoir materials (rock, reservoir fluids); reservoir evaluation (volumetric method, material balance method with water influx); fundamental production processes (primary recovery).

#### PET E 632 Advanced Topics in Petroleum Production Mechanics

★3.5 (fi 6) (either term, 3-1s-0). Concepts of reservoir engineering from an advanced point of view as applied to forecasting the performance of oil and/or gas reservoirs; combined driving mechanisms; applications to practical problems encountered during performance by primary means.

#### PET E 634 Secondary Recovery

★3.5 (fi 6) (either term, 3-1s-0). Evaluation and operation of secondary recovery projects; fundamental consideration of petroleum engineering and reservoir behavior applied to secondary recovery of oil; recent technical papers.

#### PET E 635 Numerical and Analytical Solution of Porous Media Flow Problems

★3.5 (fi 6) (either term, 3-1s-0). The goal of this course is to develop techniques for the solution of a wide variety of single phase flow problems in porous media for compressible and incompressible flow. Two dimensional flow will be considered for the greater part. Selected mathematical techniques, analytical as well as numerical, will be developed for specific problems. In a number of cases, analytical and numerical solutions will be compared.

#### PET E 644 Fluid Mechanics of Natural Gas Production

★3.5 (fi 6) (either term, 3-1s-0). Review of natural gas properties; reserve estimation techniques and advanced treatment of water influx in gas reservoirs; steady and transient single-phase gas flow in porous media; non-Darcy flow; deliverability tests; transient gas well testing; single and multiphase flow in circular conduits. Normally offered in alternate years.

#### PET E 650 Reservoir Simulator Development

★3.5 (fi 6) (either term, 3-1s-0). The principal objective of this course is the development of reservoir simulation theory to the level required for the construction of a three-phase, three-dimensional reservoir simulator. In addition to providing practice in developing a simulator, the course will also cover recent advances in simulation and history matching.

#### PET E 664 Advanced Drilling Engineering

★3 (fi 6) (either term, 3-0-0). Recent advances and changes in drilling techniques will be discussed. The topics will include directional drilling and deviation control, design aspects of horizontal and multilateral well drilling, measurement while drilling, drillstring mechanics, bottomhole assembly design, tubular stability, drag and torque problems. Prerequisite: PET E 364 or consent of Instructor.

#### PET E 668 Advanced Well Test Analysis

★3.5 (fi 6) (either term, 3-1s-0). Analytical techniques employed to solve complex well test problems. Pressure derivative analysis. Production time effects on buildup

analysis. Pressure transient analysis for fractured wells. Layered reservoir testing. Prerequisite: PET E 368 or consent of Instructor. Normally offered in alternate years.

#### **PET E 682 Graduate Seminar**

★0.5 (*fi 2*) (variable, 0-1s-0). Discussion of progress and problems in research underway in the Department.

#### **PET E 694 Advanced Topics in Petroleum Engineering**

★3 (*fi 6*) (either term, 3-0-0). An advanced treatment of selected petroleum engineering topics of current interest to staff and students.

#### **PET E 709 Special Topics in Petroleum Engineering**

★3 (*fi 6*) (either term, 3-0-0). Reading Course. Reading and discussion of selected topics in Petroleum Engineering.

#### **PET E 900 Directed Research**

★6 (*fi 12*) (variable, unassigned). An engineering project for students registered in a Masters of Engineering program.

## 201.165 Pharmacology, PMCOL

Department of Pharmacology  
Faculty of Medicine and Dentistry

### Undergraduate Courses

**Note:** The following courses may be used by students in the Faculty of Science as science courses: PMCOL 201, 305, 336, 337, 342, 371, 403, 407, 409, 412, 415 and 416.

#### **PMCOL 201 Introductory Pharmacology**

★3 (*fi 6*) (either term, 3-0-0). An introduction to the discipline of pharmacology. What are drugs and how do they bring about their effects; how are drugs modified by the body; how are drugs developed and licensed for therapeutic use? These and related questions are addressed and the underlying pharmacological principles illustrated with examples drawn from an array of commonly used drugs. Prerequisites: CHEM 101 and 102, and either BIOL 107 or 108. Restricted to students in second year.

#### **PMCOL 300 Introduction to Pharmacology**

★2 (*fi 4*) (first term, 28 hours). Lectures are used to illustrate the principles of pharmacology including rational application of commonly used drugs to the treatment of disease. This course is available only to students registered in the Dental Hygiene Diploma program.

#### **PMCOL 305 An Introduction to the Pharmacology of Drug Abuse**

★3 (*fi 6*) (either term, 3-0-0). An introduction to the complexities of drug abuse and the drugs of abuse. The student will be introduced to the psychological and social problems of drug abuse and their impact upon the abuser. Objectives of the course are to develop an understanding of addiction and a detailed knowledge of the nature of the commonly abused substances. Emphasis will be placed upon the pharmacology of drugs of abuse. Prerequisite: a 200-level Biological Sciences course.

#### **PMCOL 331 General Pharmacology**

★6 (*fi 12*) (two term, 3-0-0). The pharmacological actions of drugs selected for their physiological and clinical significance. Basic pharmacological principles are applied to representative clinically important drugs having their primary actions on various organ systems of the body. The course includes a study of chemotherapeutic agents used in the treatment of infections and neoplasia. Restricted to students in the Faculty of Pharmacy and Pharmaceutical Sciences.

#### **PMCOL 337 Experimental Procedures in Pharmacology**

★3 (*fi 6*) (either term, 0-0-6). A laboratory course in which the use of biochemical techniques, as well as intact animal and isolated tissue preparations, as applied to pharmacological problems are emphasized. Course includes both a theoretical consideration of the procedures under study, together with practical instruction and practice in their execution. Prerequisite or corequisite: Normally restricted to Pharmacology Specialization or Honors programs. PMCOL 342.

#### **PMCOL 342 Scientific Basis of Pharmacology**

★6 (*fi 12*) (two term, 3-0-0). This course will provide detailed scientific information about clinically important drugs having their primary actions on various organs of the body. It is intended to provide a sound scientific knowledge of the mechanism of action of the relevant drugs. The experimental basis of present-day clinical knowledge is discussed in detail. Prerequisite: PMCOL 201. Pre- or corequisite: BIOCH 203, 205 and PHYSL 210 or 211. Normally restricted to students in Pharmacology Specialization or Honors programs.

#### **PMCOL 371 Cellular Neuroscience**

★3 (*fi 6*) (first term, 3-0-0). Lectures presented by the Faculty of Medicine and Dentistry and the Faculty of Science on nerve cell membranes, ion channels, neurotransmitters and their receptors, synaptic mechanisms and plasticity, gene regulation and development, the physiology of small neural networks and disorders involving basic mechanisms. Prerequisite: PHYSL 210, 211, 252, or ZOO 242.

#### **PMCOL 400 Industrial Internship Practicum**

★3 (*fi 6*) (first term, 0-3s-0). Required by all students who have just completed a Pharmacology Industrial Internship Program. Must be completed during the first academic term following return to full-time studies. Note: a grade of F - A+ will be determined, by the students job performance as evaluated by the employer, by the students performance in the completion of an internship practicum report and by the students ability demonstrated in an oral presentation.

#### **PMCOL 401 Pharmacology Tutorial**

★3 (*fi 6*) (first term, 3-0-0). Research and/or Reading course. This course allows a student to study an area of pharmacology in much greater detail than is usual in most courses. The format is usually a reading/tutorial in which the student carries out directed reading and meets with the tutor at regular intervals for discussion and further guidance. Term papers are often used for evaluation purposes. A mature attitude towards learning is essential, as the course often requires independent study and research. Students who have a particular interest in any specific area of pharmacology are encouraged to meet with the faculty members to explore the possibilities of arranging a mutually satisfactory topic. Prerequisite: PMCOL 342.

#### **PMCOL 402 Pharmacology Tutorial**

★3 (*fi 6*) (second term, 3-0-0). Research and/or Reading course. This course allows a student to study an area of pharmacology in much greater detail than is usual in most courses. The format is usually a reading/tutorial in which the student carries out directed reading and meets with the tutor at regular intervals for discussion and further guidance. Term papers are often used for evaluation purposes. A mature attitude towards learning is essential, as the course often requires independent study and research. Students who have a particular interest in any specific area of pharmacology are encouraged to meet with faculty members to explore the possibilities of arranging a mutually satisfactory topic. Prerequisite: PMCOL 342.

#### **PMCOL 403 Introduction to Toxicology**

★3 (*fi 6*) (either term, 3-0-0). The adverse effects of xenobiotics on biological systems are discussed. Principles of toxicology, including dose-response relationships and toxicant metabolism, are introduced. Responses of target organs to selected toxicants are described, with emphasis on molecular mechanisms; haloalkane and hydrocarbon solvents, heavy metals, carbon monoxide, cyanide, pesticides, pulmonary irritants, ethanol, and methanol serve as examples. Special topics include chemical carcinogenesis, teratogenesis, and the toxic effects of ionizing radiation, toxins, and food additives. Prerequisites or corequisites: BIOCH 203 and 205, PHYSL 210 or 211, or consent of Department.

#### **PMCOL 407 Neuromuscular Pharmacology**

★3 (*fi 6*) (either term, 3-0-0). A detailed study of synaptic transmission, excitation-contraction coupling in skeletal muscle, and the drugs known to be active at these sites. Diseases of neuromuscular transmission, their etiology, and therapy will also be included. The scope of the lectures will range from molecular considerations, through structure-activity relationships, to clinical usefulness and experience. Prerequisites: PMCOL 342 or 371.

#### **PMCOL 409 Current Research Topics in Pharmacology**

★3 (*fi 6*) (either term, 3-0-0). Introduction to current areas of research in Pharmacology. The aim is to provide students with an overview of recent developments and future trends in Pharmacology research and to illustrate how research problems are identified and addressed. Individual members of the Department of Pharmacology will provide background to their field of research followed by examples of the current research conducted in their own laboratories. In addition, some areas of research outside of those being pursued in the Department of Pharmacology will be covered. Topics include: electrophysiological characterization of synaptic transmission in central and autonomic nervous systems, biochemical and molecular biological analysis of ion channels. Liposomes and immunopharmacology, nucleoside transporter processes, cardiovascular pharmacology and clinical pharmacology. Prerequisite: PMCOL 342.

#### **PMCOL 412 Drugs and the Nervous System**

★3 (*fi 6*) (either term, 3-0-0). Pharmacological management of disease in the central nervous system is presented in the context of current knowledge of neuroscience and neurochemistry. Prerequisite: PMCOL 342 or 371.

#### **PMCOL 415 Cardiovascular Pharmacology**

★3 (*fi 6*) (either term, 3-0-0). A lecture course that examines the pharmacology of drug action on the cardiovascular system. Topics include the molecular and cellular mechanisms involved in drug action on both the vasculature and the heart, the mechanisms involved in myocardial ischemic injury, and the control of heart inotropism and rhythmicity. Also provides an overview of current therapeutic options in the treatment of cardiovascular disease. Prerequisite: PMCOL 342.

#### **PMCOL 416 Current Topics in Endocrine Pharmacology**

★3 (*fi 6*) (either term, 3-0-0). This course examines in detail, drugs (including natural hormones) that are used for treatment of endocrine diseases (e.g. diabetes, infertility, and growth deficiency). The focus of the course is the action of drugs on hormone receptors and on the regulation of hormone synthesis and secretion. Prerequisite: PMCOL 342.

**PMCOL 424 Advanced Topics in Toxicology**

★3 (fi 6) (second term, 3-0-0). A discussion of selected topics of current interest in toxicology. Content may vary from year to year, but will generally include mechanisms of cell injury and cell death, mechanisms of chemical carcinogenesis, and topics from genetic toxicology, radiation toxicology, and forensic toxicology. Intended for senior undergraduate students. Prerequisites: PMCOL 403 and consent of Department.

**PMCOL 425 Problem Solving in Pharmacology and Therapeutics**

★3 (fi 6) (second term, 3-0-0). Students will be presented with problem cases involving patients with conditions, possibly needing drug therapy. They will identify the issues needing resolution, work collectively to find information to resolve them, and present these and their application to each patient to the group. The group will work to resolve outstanding issues after the presentations. Intended for senior undergraduate students. Prerequisites: PMCOL 342 and consent of Instructor.

**PMCOL 442 Advanced Principles of Pharmacology**

★3 (fi 6) (first term, 3-0-0). Covers drug delivery, absorption and metabolism. Emphasis will be placed on pharmacokinetics and pharmacodynamics of drug action. In addition, an introduction to experimental design and the techniques and statistics needed for drug discovery will be included. Prerequisite: PMCOL 342. Restricted to fourth year honors and specialization Pharmacology students.

**PMCOL 498 Pharmacology Research Program**

★6 (fi 12) (two term, 0-0-6). During their fourth year all honors candidates are required to carry out a program of directed research under the supervision of a staff member. This program will be related to the special interest of the student and will involve experimental work as well as two presentations and a written report on the part of the student. Students are encouraged to make arrangements with a supervisor of their choice before the fall term begins. Prerequisite: consent of Department. Normally available to fourth-year honors students only.

**Graduate Courses**

**Note:** Not all graduate courses are offered each year. The Chair of the Department should be consulted regarding the prerequisites for and availability of graduate courses in any academic session.

**PMCOL 501 Pharmacology Tutorial, Research, and Reading Course**

★3 (fi 6) (first term, 3-0-0). This course is similar to PMCOL 401 except that the course material and student performance will be at a level suitable for graduate students.

**PMCOL 502 Pharmacology Tutorial, Research, and Reading Course**

★3 (fi 6) (second term, 3-0-0). This course is similar to PMCOL 401 except that the course material and student performance will be at a level suitable for graduate students.

**PMCOL 504 Advanced Topics in Toxicology**

★3 (fi 6) (second term, 3-0-0). A discussion of selected topics of current interest in toxicology. Content may vary from year to year, but will generally include mechanisms of cell injury and cell death, mechanisms of chemical carcinogenesis, and topics from genetic toxicology, radiation toxicology, and forensic toxicology. Intended for graduate students. Prerequisites: PMCOL 403 and consent of Department.

**PMCOL 505 Cancer Chemotherapy**

★3 (fi 6) (either term, 3-0-0). A survey of biochemical, cellular, and clinical pharmacology of agents currently employed in chemotherapy of neoplastic disease; drug metabolism, adverse effects, mechanisms of action and of resistance will be discussed. Prerequisites: BIOCH 203 and 205 or equivalent and consent of Department.

**PMCOL 508 Molecular Pharmacology**

★3 (fi 6) (either term, 3-0-0). This course aims to provide an understanding of the general mechanisms of drug action at the molecular level. Theoretical aspects of drug-receptor interaction are presented in detail followed by a consideration of the mechanisms of signal transduction that have been associated with different receptor types. Prerequisite: consent of Department.

**PMCOL 509 Biophysical Aspects of Neuropharmacology**

★3 (fi 6) (either term, 3-0-0). This course aims to provide an examination in depth of the mechanisms of action of drugs at the level of the single excitable cell. The course includes a review of basic membrane biophysics, neurotransmitter release mechanisms and post synaptic effects of neurotransmitters and other ligands. Time will also be devoted to selected special topics. Prerequisite: consent of Department.

**PMCOL 510 Advanced Topics**

★3 (fi 6) (first term, 3-0-0).

**PMCOL 511 Advanced Topics**

★3 (fi 6) (second term, 3-0-0).

**PMCOL 512 Neurotransmitters**

★3 (fi 6) (either term, 3-0-0). Current concepts of neurotransmitters,

neuromodulators and trophic factors are discussed in the context of the normal, diseased and developing nervous systems. Students should have some biological background either in physiology, pharmacology, zoology, or the neurosciences. Prerequisite: consent of Department.

**PMCOL 515 Advanced Topics in Cardiovascular Pharmacology**

★3 (fi 6) (either term, 3-0-0). Current concepts of cardiovascular pharmacology will be discussed in the context of the normal and diseased cardiovascular system. Recent developments and use of the literature will be emphasized. Prerequisites: PMCOL 415 and consent of Department.

**PMCOL 525 Problem Solving in Pharmacology and Therapeutics**

★3 (fi 6) (second term, 3-0-0). Students will be presented with problem cases involving patients with conditions, possibly needing drug therapy. They will identify the issues needing resolution, work collectively to find information to resolve them, and present these and their application to each patient to the group. The group will work to resolve outstanding issues after the presentations. Intended for graduate students. Prerequisites: PMCOL 342 and consent of Instructor.

**201.166 Pharmacy, PHARM**

Faculty of Pharmacy and Pharmaceutical Sciences

**Undergraduate Courses****PHARM 302 Introduction to the Profession of Pharmacy**

★3 (fi 6) (first term, 3-4s-0). Introduction to the Canadian Health Care System, the pharmacist's role and the needs of patients. Information and use of some non-prescription drugs, medical surgical products and basic emergency treatment. Development of verbal communication skills. (Restricted to Pharmacy students.)

**PHARM 303 Pharmacy Dispensing Procedures and Pharmaceutical Calculations**

★3 (fi 6) (second term, 3-0-3). An introduction to the technical aspects of dispensing, pharmaceutical calculations, dosage forms and drug procurement. Development of basic patient medication counselling skills. Exposure to the need for accuracy and accountability as a professional responsibility. Prerequisite: PHARM 302. (Restricted to Pharmacy students.)

**PHARM 320 Introduction to Medicinal Chemistry**

★6 (fi 12) (two term, 3-0-0). The development of drugs. Physicochemical properties and biologic activity. The relationship of these properties to the absorption, distribution and elimination of drugs. The metabolism of drugs, enzymes, pathways, mechanisms and substrates. Drug-receptor interactions and receptor-site theory. Prerequisites: CHEM 101/102 and CHEM 161/163. Corequisite: PHYSL 252. (Restricted to Pharmacy students.)

**PHARM 325 Introduction to Quantitative Pharmaceutical Analysis**

★3 (fi 6) (second term, 3-0-3). Chemical methods of quantitative analysis. The laboratory exercises consist of both instrumental and non-instrumental pharmacopoeial techniques that are widely employed in the analysis of pharmaceuticals. Prerequisites: CHEM 101/102 and 161/163. (Restricted to Pharmacy students.)

**PHARM 340 Pharmacy Administration**

★3 (fi 6) (second term, 3-2s-0). An introduction to the elements of pharmacy administration consisting of management principles, pharmaceutical marketing, and practice management. Provides the student with an understanding of the economic, political, and professional environment of the profession of pharmacy. (Restricted to Pharmacy students.)

**PHARM 352 Jurisprudence and Ethics**

★3 (fi 6) (first term, 3-1s-3). A study of the laws governing the practice of pharmacy, an understanding of the legal rights and responsibilities of the pharmacist and a practical application of these laws. Ethical theories and principles and their application in pharmacy practice. Development of verbal communication skills with emphasis on pharmacist-patient, and pharmacist-other health professional relationships. A study of the psychological aspects of illness. Prerequisite: PHARM 303. (Restricted to Pharmacy students.)

**PHARM 360 Pharmaceutics**

★6 (fi 12) (two term, 3-1L-2). Principles of pharmaceutical dosage forms. Factors affecting the physical and chemical behavior of drug products. Rationale underlying the formulation and compounding techniques of pharmaceutical preparations. Prerequisites: PHARM 303 and MATH 113. (Restricted to Pharmacy students.)

**PHARM 370 Medicinal Chemistry**

★6 (fi 12) (two term, 3-0-0). The study of organic medicinal substances. The design and synthesis, physico-chemical properties, mechanism of action, metabolism and structure-activity relationships of drug classes are discussed. Prerequisite: PHARM 320.

**PHARM 380 Introduction to Disease Processes**

★3 (fi 6) (first term, 3-0-0). The nature of disease, causes, processes, effects and

associated alterations in structure and function. Prerequisite or corequisite: ANAT 200, PHYSL 252. (Restricted to Pharmacy students.)

#### **PHARM 403 Toxicology of Drugs and Related Products**

★3 (fi 6) (first term, 3-0-0). Topics discussed include poisoning and its emergency treatment; toxicity of analgesics, antidepressants, drugs of abuse, antibiotics, iron, common drugs and household products, food additives; CNS and PNS toxicity; nephrotoxicity and hepatotoxicity; toxicity to the ear; ocular and epidermal toxicity; toxicity of pesticides and herbicides; neonatal and geriatric toxicology; carcinogenicity and teratology; blood dyscrasias; placental transfer of drugs; drugs in milk. Corequisites: PHARM 415 and 431. Restricted to Pharmacy students.

#### **PHARM 404 Clinical Pharmacy**

★3 (fi 6) (second term, 3-0-0). Lecture/discussion sessions are used to demonstrate clinical pharmacy responsibilities in a selected number of areas. Experience will be gained in using a case history, patient management approach to clinical problem solving. Topics of discussion include clinical laboratory tests, applied clinical pharmacokinetics, advanced OTCs, drug information, drug substance abuse, and clinical drug interactions. Corequisite: PHARM 431. (Restricted to Pharmacy students.)

#### **PHARM 405 Intro to Institutional Practice and Patient Counselling with the Emphasis on Nonprescription Drugs**

★3 (fi 6) (first term, 3-1s-3). An understanding of the drug distribution system in hospitals. An evaluation of drug literature. Introduction to the workshop format and patient interviewing. An understanding of the role of self-medication in health care. An introduction to nonprescription drug products. Corequisites: PHARM 404, 415 and 431. Restricted to Pharmacy students.

#### **PHARM 406 Monitoring Drug Therapy Based on Patient Interviews, Patient Counselling and Drug Information**

★3 (fi 6) (second term, 3-1s-3). Lectures and laboratory exercises to develop the student's skills in clinical pharmacy practice relating to patient interviewing, dispensing, counselling and monitoring drug therapy. Prerequisites: PHARM 405, 415. Corequisite: PHARM 431 and 432. Restricted to Pharmacy students.

#### **PHARM 415 Biopharmaceutics and Pharmacokinetics**

★3 (fi 6) (first term, 3-0-0). Application of biopharmaceutics and pharmacokinetics to patient care and drug therapy. Clinical pharmacokinetics of selected classes of drugs. Prerequisites: PHARM 320 and PHARM 360. Corequisite: PHARM 431.

#### **PHARM 431 Therapeutics**

★6 (fi 12) (two term, 3-0-0). Integrated lectures and seminars on the pharmacological action of drugs and the therapeutics of common diseases. Basic pharmacological principles; mechanisms of actions of drugs; rationale of drug therapy and problems associated with the use of drugs in the disease state; the role of the pharmacist in therapeutics. Prerequisite: PMCOL 331. (Restricted to Pharmacy students.)

#### **PHARM 432 Antimicrobial Agents and Infectious Diseases**

★3 (fi 6) (second term, 3-2s-0). Integrated lectures and seminars on the use of antimicrobial agents in infectious diseases. Antibacterial, antifungal and antiviral agents will be discussed under the following headings: structure and relation to activity, mechanism of action, antimicrobial spectrum of activity, development of microbial resistance, pharmacokinetic properties and therapeutic use. Seminars and case studies focus on the pathogenesis and treatment of selected infectious diseases. (Restricted to Pharmacy students.)

#### **PHARM 443 Radiopharmaceutical Sciences I**

★3 (fi 6) (second term, 3-0-0). Basic principles involving the application of radiation and radioactive compounds in medical diagnosis, therapy and industry. Rationale for utility, preparation and quality control of radiopharmaceuticals. Biologic effects of various radiations. Prerequisites: ANAT 200, PHYSL 252, BIOCH 203/205.

#### **PHARM 455 Specialty Pharmacy Rotation**

★3 (fi 6) (either term, 160 hours). Consists of 160 hours in a practice area, on a full-time or part-time basis. Students are required to prepare a proposal for the placement with desired objectives, activities and an evaluation mechanism. The proposal is to be agreed to by the Placement Coordinator and the Site Coordinator/preceptor. The placement will be conducted under the coordination of the Placement Coordinator and preceptor(s) at the practice site. The student is also required to prepare a report on the outcomes of the placement in the form of a portfolio. Travel and accommodation costs are the responsibility of the student. Prerequisites: Dependent on specialty and consent of Faculty. Restricted to Pharmacy students.

#### **PHARM 456 Clinical Pharmacy Rotations**

★15 (fi 30) (either term, 12 weeks). The student is expected to demonstrate professional and technical competencies in a variety of practice situations, including counselling patients, obtaining medication histories, providing drug information, monitoring and evaluating drug therapy, adverse drug reaction assessment and reporting, and therapeutic drug monitoring. Prerequisites: PHARM 404, 405, 406, 415, and 431, PMCOL 331. Restricted to Pharmacy students.

#### **PHARM 457 Contemporary Issues in Pharmacy**

★1 (fi 2) (either term, 1-0-0). An evaluation of significant trends in the health

system that may affect the profession of pharmacy. (Restricted to Pharmacy students.)

#### **PHARM 458 Hospital Pharmacy**

★3 (fi 6) (either term, 3-0-0). Current literature analysis and presentation of modern concepts in drug distribution, drug information systems, application of data processing to decentralized pharmacy services and administrative principles peculiar to institutional pharmacy. (Restricted to Pharmacy students.)

#### **PHARM 460 Sterile Products**

★3 (fi 6) (either term, 3-0-3). This course is designed as a comprehensive education in sterile pharmaceutical products that may be prepared and/or dispensed by a hospital pharmacy department. Specific distribution systems and administration techniques will also be discussed. In addition to didactic education, practical experience will be provided in the laboratory section of the course. Prerequisite: PHARM 360. (Restricted to Pharmacy students.)

#### **PHARM 471 Pain Module**

★3 (fi 6) (first term, 0-3s-0). This module is designed to enable senior pharmacy students to understand and apply the principles of pain management to patients presenting with pain. This course integrates knowledge of pain etiologies, pharmacology, medicinal chemistry, and pharmacokinetics with the therapeutics of pain management. Patient care, skill development and application of pharmaceutical sciences to management and treatment of pain are emphasized. This module is delivered as a seminar course and uses computer conferencing to facilitate communication among students and faculty to foster a collaborative learning environment. Site visits are an integral component of this course. Restricted to Pharmacy students.

#### **PHARM 472 Complementary/Alternative Medicinal Therapies**

★3 (fi 6) (either term, 3-0-0). The study of herbal preparations, nutritional supplements, and homeopathics. These are widely used by the general public as self-selected OTC (over-the-counter) products/NPDs (nonprescription drugs), or food items for therapeutic, disease prevention, or health promotion purposes. Emphasis will be placed on the role of the pharmacist to help clients make an informed choice and counsel them on the selection of useful and safe products. Prerequisites: PHARM 404, 405, 406 and 432. Restricted to Pharmacy students.

#### **PHARM 481 Veterinary Pharmacology**

★3 (fi 6) (second term, variable). A course in the commonly used veterinary biological and pharmaceutical preparations; general sanitary and management procedures for the prevention and control of livestock diseases; a brief review of infectious diseases and animal parasites.

#### **PHARM 483 Home Health Care**

★3 (fi 6) (second term, 3-0-0). To acquaint students with the variety of home health care products; to demonstrate the proper assembly, fitting, adjustment, and use of various products and supplies; to discuss the economics, marketing, and management of running a home health care department and supplying home health care products and services. (Restricted to Pharmacy students.)

#### **PHARM 485 Medication Use in the Canadian Health Care System**

★3 (fi 6) (second term, 3-0-0). An examination of the Canadian health care system with a focus on medication use and the profession of pharmacy. The course is organized in three general areas: 1) the Canadian health care system, 2) medication use in the Canadian health care system, and 3) medication use management within health care systems. The overall goal is to provide a wider awareness of the systems within which pharmacists work, and factors influencing the systems. Particular attention is given to medication formulary decision making at the provincial, regional and institutional levels. Restricted to Pharmacy students.

#### **PHARM 489 Seminars in Therapeutics and Professional Practice**

★3 (fi 6) (either term, variable). A seminar course for fourth year pharmacy students covering selected topics in therapeutics, pharmacokinetics and clinical pharmacy. Prerequisites: PHARM 403, 415, and 431. (Restricted to Pharmacy students.)

#### **PHARM 493 Pharmaceutical Biotechnology**

★3 (fi 6) (either term, 3-0-0). An introduction to the development of protein and peptide drugs, vaccines, and other drugs produced by biotechnological techniques involving molecular biology and/or genetic manipulations. Topics include basic principles, descriptions of objectives and methodology, and examples of modern drugs produced by these techniques. Therapeutic effects and clinical applications of currently marketed products are addressed. Prerequisites: BIOCH 203/205 or consent of the Faculty.

#### **PHARM 494 Pharmacy Management: Selected Topics**

★3 (fi 6) (either term, variable). Continuation of PHARM 340 with emphasis on financial management and the management of human resources. Projects on pharmacy operations. Prerequisite: PHARM 340.

#### **PHARM 498 Pharmaceutical Research**

★3 (fi 6) (either term, 0-0-4). Investigational work under the direction of a member of the Faculty. Preparation of a written report. Prerequisites: consent of the Faculty and the approval of a Faculty member to direct the research. This course may be taken during Spring/Summer by special arrangement. (Restricted to Pharmacy students.)

## Graduate Courses

**Note:** The following undergraduate courses may be taken for credit by graduate students: PHARM 415, 473, 481, 484, 494, 496.

### PHARM 565 Clinical Pharmacokinetics

★3 (fi 6) (either term, 2-2s-0). A comprehensive course dealing with basic pharmacokinetic principles of dosage regimen calculation and pharmacokinetic considerations relating to the use of various drugs. Clinical pharmacokinetics of therapeutically important drugs will be covered in detail. The laboratory portion is designed to expose the students to the methods used in dosage-regimen adjustment based on the clinical status of the patient. Prerequisites: PHARM 415 and 431, PMCOL 331 and consent of the Faculty. (Restricted to Pharmacy students.)

### PHARM 570 Advanced Pharmaceutical Analysis - Spectroscopy

★3 (fi 6) (first term, 3-0-3). Applications of instrumental methods of analysis (ultraviolet and infrared spectroscopy; NMR; mass spectrometry; atomic absorption spectroscopy) to pharmaceutical compounds. Offered in odd-numbered years. Prerequisite: PHARM 325 or consent of Faculty.

### PHARM 580 Introduction to Computer-Aided Drug Design

★3 (fi 6) (second term, 3-0-2). An introductory course designed to provide students with the background and a hands-on understanding of techniques involved in computer-aided drug design, including bioinformatics, molecular modelling, molecular simulation, docking and QSAR. Prerequisite: consent of the Faculty.

### PHARM 589 Pharmacy in Neoplastic Disease

★3 (fi 6) (either term, 3-0-0). Description of neoplastic disease, its prevalence and drug treatment with an emphasis on patient management. There is an emphasis on the pharmacists' role in preparing chemotherapy medication, minimizing toxic effects of cancer drugs, dosage considerations, concomitant use of medication for other diseases and psychosocial aspects of care. Students will also learn about newer forms of treatments and changes in the provision of treatment services. Prerequisite: PHARM 370. Restricted to Pharmacy students.

### PHARM 593 Advanced Radiopharmaceutical Sciences II

★3 (fi 6) (first term, 3-0-4). Application of radionuclides in medical diagnosis and treatment; control of radionuclides in the hospital. Laboratory: preparation, quality control and clinical utility of currently used radiopharmaceuticals in nuclear medicine. Prerequisite: PHARM 443 or PHARM 601 or consent of Faculty.

### PHARM 595 Clinical Rotations

★6 (fi 12) (two term, 900 hours). A clinical experience which will provide the student with the opportunity to practice clinical pharmacy in several speciality areas. The student will be expected to demonstrate professional competence in patient counselling, obtaining medication histories, providing drug information, applied pharmacokinetics and related areas. Credit will be granted after the completion of 900 hours of approved clinical training.

### PHARM 596 Pharmaceutical Marketing

★3 (fi 6) (first term, 3-0-0). An examination of the process of marketing pharmaceuticals in Canada. Topics to be covered are: pre-marketing requirements, regulatory control over drugs, price and product competition, promotion and advertising of pharmaceuticals, channels of distribution, packaging, ethics, price, and group purchasing. The course stresses the unique factors to be considered in marketing pharmaceuticals. Prerequisite: PHARM 340.

### PHARM 601 Isotope Tracer Methodology I

★3 (fi 6) (first term, 3-0-3). Fundamental principles of radioactivity and health physics. The importance of radioisotopes in medicine, agriculture, industry, and research. Problems and limitations in the use of radioisotopes as tracers. Instrumentation and analysis methods. Experimental procedures, application of methods of analysis and criteria for evaluation of results. Laboratory: handling and preparation of radioisotopes for counting. Counting procedures. Tracer chemical and biochemical analyses.

### PHARM 603 Activation Analysis

★3 (fi 6) (second term, 2-0-0). Physical and chemical basis of activation analysis, use of slow neutrons from the Slowpoke reactor, proton and charged particle activation; x-ray fluorescence; modern pulse-height analysis technique. Prerequisite: consent of Faculty. Note: Offered-alternate years.

### PHARM 604 Applied Problems in Current Research

★3 (fi 6) (either term, 0-0-3). The student will work with one or two faculty members on special research techniques in bionucleonics or radiopharmacy. Prerequisite: consent of Faculty.

### PHARM 605 Radiopharmaceutical Chemistry

★2 (fi 4) (second term, 2-0-0). A discussion of preparation of short-lived radiopharmaceuticals with emphasis on radiochemical synthesis using carbon-11, fluorine 18 and radionuclides of iodine and bromine; stability, storage and purity of radio-labelled compounds; labelling with long-lived radionuclides. Prerequisite: consent of Faculty. Note: Offered-alternate years.

### PHARM 606 Current Topics in Bionucleonics and Radiopharmacy

★3 (fi 6) (either term, 3-0-0). Assigned readings, tutorials and seminars in recent advances in the fields of bionucleonics and radiopharmacy, conducted under the direction of several faculty members. Prerequisites: PHARM 601, 603, 604 or consent of Faculty.

### PHARM 610 Advanced Physical Pharmacy

★3 (fi 6) (first term, 3-0-4). Special topics of a physical-chemical nature applicable to pharmaceutical systems. Emphasis is given to principles of colloid and surface science. Applications to dosage form design and biological systems are considered. Laboratory: experimental work in application of physicochemical principles to pharmaceutical systems. Prerequisite: consent of Faculty.

### PHARM 611 Pharmaceutical Formulation and Development

★3 (fi 6) (second term, 3-0-4). Theoretical considerations basic to the technology of pharmaceutical dosage forms to meet the requirements of therapeutic efficacy, stability, and safety. Laboratory: development and formulation of pharmaceutical products. Prerequisite: consent of Faculty.

### PHARM 615 Advanced Pharmacokinetics

★3 (fi 6) (second term, 3-0-0). This course deals with the theoretical aspects of pharmacokinetics. Compartmental and non-compartmental theories are treated in depth. The application of these theories is made in various areas where kinetics are involved. Prerequisite: PHARM 415 or equivalent or consent of Faculty. Note: Offered alternate years.

### PHARM 624 Application of Nuclear Magnetic Resonance Spectroscopy to Medicinal and Pharmaceutical Chemistry

★3 (fi 6) (first term, 3-0-0). Basic interpretation and examples of use of NMR spectroscopy in problems of pharmaceutical synthesis and its studies of the mode of action of medicinally active compounds. Prerequisite: consent of Faculty. Note: Offered alternate years.

### PHARM 626 Applications of Mass Spectrometry to Medicinal and Pharmaceutical Chemistry

★3 (fi 6) (either term, 3-0-0). Examples of the use of mass spectrometry in the identification of medicinal compounds are considered. Diagnostic spectra of extracts of medicinal preparations, identification of drug metabolites and applications of mass spectrometry to chemical toxicology and neurochemistry are studied. Prerequisite: consent of Faculty. Note: Offered alternate years.

### PHARM 630 The Metabolism and Excretion of Drugs

★3 (fi 6) (second term, 3-0-0). The chemistry, biochemistry and kinetics of drug metabolism together with the factors affecting metabolism; the practical aspects of in vitro and in vivo studies of drug metabolism; the excretion of drugs by various routes and factors affecting excretion, the kinetics of excretion. Note: Offered alternate years.

### PHARM 685 Methods for the Assessment of Health Related Quality of Life

★3 (fi 6) (first term, 3-0-0). The primary objective is to provide students with the background knowledge and methodological skills to be discriminating and informed users of health-related quality of life measures and interpreters of HRQL evidence. Topics include uses of HRQL measures, various systems for classifying HRQL measures, methodologies for the assessment of reliability, validity, responsiveness, and interpretability, and conceptualization of major approaches for the development of HRQL measures (including psychometric, clinical, and economics and decision analytic approaches). Examples of different types of measures and their application in a wide variety of clinical areas are included.

### PHARM 690 Advanced Seminar in Pharmacy and Pharmaceutical Sciences

★3 (fi 6) (either term, 3-0-0). Assigned readings, tutorials, and seminars on recent advances and methodological approaches in Pharmacy, conducted under the direction of academic staff members in the Faculty of Pharmacy and Pharmaceutical Sciences.

### PHARM 694 Directed Project

★3 (fi 6) (either term, 0-0-3). Directed studies in pharmaceutical research, using one or more techniques of special interest to individual students. Prerequisites: consent of the Faculty and the supervising faculty member.

### PHARM 697 Graduate Seminar

★0 (fi 1) (two term, 0-1s-0). Seminar training and short seminar presentations on topics related to the student's field of research. Normally, the seminar will be presented during the student's second or third term. Required of all MSc and PhD students.

### PHARM 698 Graduate Seminar

★0 (fi 1) (either term, 0-1s-0). Seminar presentation based on the student's research. Normally to be taken during the final term, prior to thesis defense. Required of all MSc and PhD students.

### PHARM 900 Directed Research Project

★6 (fi 12) (variable, unassigned).

## 201.167 Philosophie, PHILE

Faculté Saint-Jean

### Cours de 1er cycle

#### PHILE 125 Logique pratique

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Les procédés et les principes d'analyse des arguments. La matière du cours pourra inclure les sophismes informels, l'initiation à la méthode scientifique, le raisonnement statistique élémentaire, la logique propositionnelle élémentaire et les procédés susceptibles de mener à une décision rationnelle. Note: La priorité sera accordée aux étudiants du BA de la Faculté Saint-Jean.

#### PHILE 140 Introduction à la philosophie occidentale

★6 (fi 12) (aux deux semestres, 3-0-0). Introduction aux principaux problèmes et théories qui ont dominé la pensée philosophique en Occident, par l'étude et la discussion critique de quelques classiques de la philosophie. Les lectures incluront la République de Plato et les Méditations métaphysiques de Descartes et une oeuvre majeure de Hobbes, Locke, Berkeley ou Hume.

#### PHILE 209 Une étude philosophique de l'être humain

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Un regard sur l'être humain: sa connaissance, ses façons d'aimer.

#### PHILE 386 La bioéthique

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Regard philosophique sur les problèmes majeurs de la bioéthique. Exemples: les droits et les devoirs du personnel hospitalier et du patient, l'euthanasie active et passive, le droit à la vie et l'avortement, la recherche et l'expérimentation en médecine humaine et animale, la manipulation génétique.

#### PHILE 392 Philosophie récente de l'Europe continentale

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à divers mouvements post-phénoménologiques en Europe continentale, tels que l'herméneutique, la théorie critique, le post-structuralisme, etc., qui serviront de base théorique et méthodologique à l'analyse de phénomènes pertinents aux humanités.

## 201.168 Philosophy, PHIL

Department of Philosophy  
Faculty of Arts

### Notes

- (1) See also INT D 331 and 498 for courses which are offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.
- (2) No junior course presupposes background in Philosophy. PHIL 101, 102, and 120 are recommended for all students intending to continue in Philosophy. Courses at the 200-level are intended to provide a foundation for further study in Philosophy.
- (3) There are no formal prerequisites for 200- or 300-level courses (except for PHIL 220). Entrance to 400-level courses requires ★6 of prior courses in PHIL, at least three of which must be at the 200-level.

### Undergraduate Courses

#### PHIL 101 Introduction to Philosophy: Values and Society

★3 (fi 6) (either term, 2-1s-0). An introduction to the classical problems of philosophy through study and critical discussion of selected philosophical classics and contemporary works. Emphasis will be placed on questions of moral and other values and on the nature of society and justice.

#### PHIL 102 Introduction to Philosophy: Knowledge and Reality

★3 (fi 6) (either term, 2-1s-0). An introduction to the classical problems of philosophy through study and critical discussion of selected philosophical classics and contemporary works. Emphasis will be placed on questions of the nature and extent of human knowledge and classic problems about the nature of reality and our place in it.

#### PHIL 120 Symbolic Logic I

★3 (fi 6) (either term, 3-0-0). A study of sentential logic, including translation, semantics, decision procedures and natural deduction followed by an introduction to predicate logic, concentrating on translation. Note: Not open to students with credit in PHIL 220.

#### PHIL 125 Practical Logic

★3 (fi 6) (either term, 3-0-0). Elementary methods and principles for analyzing reasoning as it occurs in everyday contexts. Topics may include informal fallacies, introduction to scientific method, elementary statistical reasoning, elementary sentential logic, as well as the study of argument in contemporary debates about issues of social concern.

#### PHIL 200 Metaphysics

★3 (fi 6) (either term, 3-0-0). Basic questions concerning the nature of reality.

Topics may include existence, materialism and idealism, freedom and determinism, appearance and reality, causality, identity, time and space, universals and particulars.

#### PHIL 205 Philosophy of Mind

★3 (fi 6) (either term, 3-0-0). Basic questions concerning the mind and our attempts to study it scientifically.

#### PHIL 215 Epistemology

★3 (fi 6) (either term, 3-0-0). A study of such central topics in the theory of knowledge as truth and rationality, skepticism and the limits of knowledge, relativism and the objectivity of knowledge, the role of perception, memory and reason as sources of knowledge.

#### PHIL 217 Biology and Society

★3 (fi 6) (either term, 3-0-0). The philosophical and social impact of historical and contemporary topics in the biological sciences.

#### PHIL 220 Symbolic Logic II

★3 (fi 6) (either term, 3-0-0). A brief review of sentential logic followed by an intensive study of predicate logic with identity. Topics include translation, semantics, decision procedures, natural deduction systems, mathematical induction. Other topics include: theories of definite descriptions, elementary modal logic, formal axiomatic systems. Prerequisite: PHIL 120 or consent of Department.

#### PHIL 230 Greek Philosophy to Plato

★3 (fi 6) (either term, 3-0-0). A survey of the thought of the ancient Greek world from its beginnings with the Pre-Socratics up to and including Plato.

#### PHIL 240 Descartes to Hume

★3 (fi 6) (either term, 3-0-0). A survey of Philosophy in the 17th- and 18th centuries. Philosophers studied will include Descartes, Leibniz, Spinoza, Locke, Berkeley, and Hume.

#### PHIL 242 Aristotle and Hellenistic Philosophy

★3 (fi 6) (either term, 3-0-0). The thought of the ancient Greek world from Aristotle into the Hellenistic period.

#### PHIL 245 Kant to Nietzsche

★3 (fi 6) (either term, 3-0-0). A survey of the philosophy of Kant and the 19th-century. Philosophers studied will include Kant, Hegel, Marx, the Utilitarians, and Nietzsche.

#### PHIL 246 Russell to Quine

★3 (fi 6) (either term, 3-0-0). A survey of Analytic Philosophy in the first half of the 20th Century.

#### PHIL 250 Ethics

★3 (fi 6) (either term, 3-0-0). An examination of questions of right and wrong, good and evil, and reasons for action, through the study of ethical thought of authors such as Plato, Aristotle, Hobbes, Kant, and Mill.

#### PHIL 265 Philosophy of Science

★3 (fi 6) (either term, 3-0-0). An introduction to the central issues in contemporary philosophy of science. Topics may include theory evaluation, paradigm shifts and theory change, laws of nature, causation and explanation, the rationality of science and its social and historical setting.

#### PHIL 270 Political Philosophy

★3 (fi 6) (either term, 3-0-0). A survey of issues in contemporary political philosophy with attention to liberalism and communitarianism, sovereignty, feminism, entitlement and distribution, and global justice.

#### PHIL 280 Philosophy of Art

★3 (fi 6) (either term, 3-0-0). An introduction to some of the traditional theories, such as the expressionist and the formalist theories, which investigate the nature and function of the arts. The nature of aesthetic experience will also be considered.

#### PHIL 291 Existentialism

★3 (fi 6) (either term, 3-0-0). An introduction to the background and main themes of existentialist philosophy. Authors such as Kierkegaard, Nietzsche, Heidegger, and Sartre are considered.

#### PHIL 317 Philosophy of Biology

★3 (fi 6) (either term, 3-0-0). Core topics of the interface of biology and philosophy.

#### PHIL 325 Risk, Choice, and Rationality

★3 (fi 6) (either term, 3-0-0). A study of the formal theory of rationality including probability and induction, and elementary decision theory, with attention to the paradoxes of choice.

#### PHIL 332 Feminist Issues in Political and Social Philosophy

★3 (fi 6) (either term, 3-0-0). An introduction to feminist issues in current social and political philosophy. Comparison and evaluation of various schools of current feminist thought such as liberal feminism, radical feminism, Marxist feminism, and socialist feminism.

#### PHIL 336 Early Medieval Philosophy

★3 (fi 6) (either term, 3-0-0). Major philosophers in the Christian and Islamic traditions up to the reintroduction of Aristotelian texts in the early 12th century. Prerequisite: PHIL 230 or consent of Department.

**PHIL 345 Humans and Animals**

★3 (fi 6) (either term, 3-0-0). Philosophical approaches to the question of comparative human and animal cognition, emotion, awareness, and language. The course will also address the problem of animal rights vis-à-vis individual and institutional human interests.

**PHIL 355 Philosophy of the Environment**

★3 (fi 6) (either term, 3-0-0). Philosophical dimensions of issues raised by our relationship to the environment. Topics may include anthropocentrism versus biocentrism, the value of biodiversity, the aesthetic appreciation of nature, the relationship between environmental and economic values.

**PHIL 357 Philosophy of Religion**

★3 (fi 6) (either term, 3-0-0). General topics in the Philosophy of Religion, which may include the concept of 'religion,' the existence of God, meaning and intelligibility in religious language, religion and morality, implications of the social scientific study of religion.

**PHIL 365 Philosophy of Computing**

★3 (fi 6) (either term, 3-0-0). Emphasis on artificial intelligence, artificial life, and virtual reality. No previous familiarity with computing is necessary.

**PHIL 366 Cyberethics**

★3 (fi 6) (either term, 3-0-0). The moral issues raised by the social impact of computers, especially issues about the self, community, nature, education and technology.

**PHIL 368 Equality and Social Justice**

★3 (fi 6) (either term, 3-0-0). A philosophical study of the notions of equality, privilege, and freedom. Readings from classical and contemporary texts on justice, equality, group identity and difference, oppression and liberation. Attention will be paid to areas of current controversy such as welfare policies, affirmative action, and the nature and implications of sexual, cultural, and ethnic identity.

**PHIL 375 Science and Society**

★3 (fi 6) (either term, 3-0-0). A broadly based introduction to the intellectual, cultural, and social dimensions of science and their implications. Topics may include the impact of the Newtonian revolution, mechanism, materialism and Darwinism, and the nature of objectivity and rationality.

**PHIL 380 Philosophy of Criticism**

★3 (fi 6) (either term, 3-0-0). An introduction to the philosophical foundations of art criticism. Questions concerning the standards of interpretation and of evaluation of the arts will be given special attention.

**PHIL 382 Philosophy of Law: Social Issues**

★3 (fi 6) (either term, 3-0-0). Philosophical problems arising at the interface between the legal system and wider social life: problems of legal liberty (harm as the limit of legal liberty, legal paternalism, legal moralism), the nature of legal liability/responsibility (the mental element in legal liability, the nature of causation in law), civil disobedience, punishment.

**PHIL 384 Applied Ethics**

★3 (fi 6) (either term, 3-0-0). Moral theory applied to practical problems in areas such as business, war and peace, the environment, and human relations.

**PHIL 386 Philosophy and Health Care**

★3 (fi 6) (either term, 3-0-0). A philosophical examination of concepts and issues central to knowledge and practice of health care. Topics may include: rights and responsibilities of patients and health care personnel, passive and active euthanasia, abortion, research and experimentation, disclosure of diagnosis and risks, death and suffering.

**PHIL 387 Professional Ethics**

★3 (fi 6) (either term, 3-0-0). Introduction to ethical thinking in a professional context. Ethical issues in common to different professions are examined in relation to ethical theory. Topics may include professionalism itself, honesty and consent, privacy and confidentiality, social responsibility, and professional ethical codes.

**PHIL 388 Philosophy and Nursing I**

★1.5 (fi 3) (either term, 18 hours). Elementary methods and principles for analyzing reasoning in everyday contexts and a philosophical examination of concepts and issues central to knowledge and practice in nursing. Note: Open only to students registered in the BScN-Collaborative program.

**PHIL 392 Topics in Recent Continental Philosophy**

★3 (fi 6) (either term, 3-0-0). An introduction to such movements in recent European Philosophy as phenomenology, hermeneutics, critical theory, structuralism, and post structuralism. Prerequisite: PHIL 291 or consent of the Department.

**PHIL 396 Third-Year Honors Seminar**

★3 (fi 6) (either term, 0-3s-0). Note: For students in the third year of the Honors program.

**PHIL 398 Philosophy and Nursing II**

★1.5 (fi 3) (either term, 18 hours). Elementary methods and principles for analyzing reasoning in everyday contexts, and a philosophical examination of concepts

and issues central to knowledge and practice in nursing. Note: Open to students registered in the BScN-Collaborative program only. Only open to students who have completed PHIL 388.

**PHIL 400 Topics in Metaphysics**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 401 Topics in Epistemology**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 405 Topics in Philosophy of Mind**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 411 Philosophy of Space and Time**

★3 (fi 6) (either term, 3-0-0). Selected theories and problems concerning the nature of space and time. A strong background in philosophy, mathematics, or physical sciences is desirable. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 412 Topics in Philosophy of Science**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 415 Topics in Philosophy of Biology**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of the Department.

**PHIL 417 Philosophy and Cognitive Science**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 420 Metalogic**

★3 (fi 6) (either term, 3-0-0). The theoretical study of formal systems of logic. Topics include formal axiomatic systems, formal syntax and semantics, soundness and completeness proofs for both sentential and predicate logic. Prerequisite: PHIL 220 or consent of Department.

**PHIL 421 Modal Logic**

★3 (fi 6) (either term, 3-0-0). Standard modal systems in sentential and predicate logic including possible world semantics and completeness proofs. Tense logic and epistemic logic may be considered. Prerequisite: PHIL 220 or consent of Department.

**PHIL 422 Topics in Advanced Symbolic Logic**

★3 (fi 6) (either term, 3-0-0). Prerequisite: PHIL 220 or consent of Department.

**PHIL 425 Topics in Rationality**

★3 (fi 6) (either term, 3-0-0). Prerequisite: PHIL 325, ECON 101, or consent of Department.

**PHIL 426 Philosophy of Language**

★3 (fi 6) (either term, 3-0-0). Selected problems concerning the nature of language and meaning. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 428 Logic and Language**

★3 (fi 6) (either term, 3-0-0). Philosophical logic and its application to the semantics of natural language. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 433 Topics in Feminist Philosophy**

★3 (fi 6) (either term, 3-0-0). Prerequisite: PHIL 332, W ST 301, or consent of Department.

**PHIL 434 Aristotle**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 436 Topics in Later Medieval Philosophy**

★3 (fi 6) (either term, 3-0-0). Scholastic philosophy in medieval western Europe from the mid-12th century to 1350, including relevant developments in later Islamic thought. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 442 17th- and 18th-Century Continental Philosophy**

★3 (fi 6) (either term, 3-0-0). Topics concerning the early modern philosophical tradition of Descartes, Spinoza, and Leibniz. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 443 17th- and 18th-Century British Philosophy**

★3 (fi 6) (either term, 3-0-0). Topics concerning the early modern British philosophical tradition of Locke, Berkeley, and Hume. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 444 Kant**

★3 (fi 6) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.



**L PHIL 445 Topics in 19th-Century Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 447 Wittgenstein**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 448 Topics in 20th-Century Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 450 Topics in Ethics**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 451 Topics in the History of Moral and Political Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 453 Philosophy of History**

★3 (*fi 6*) (either term, 3-0-0). Study of one or more of the following themes: Speculative accounts of our historical being and of the sense of history as a whole; critical analysis of the scope and limits of historiographic knowledge and explanation; historicist theses that philosophy is essentially historical. Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 470 Topics in Social and Political Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**L PHIL 480 Topics in Aesthetics**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 486 Directed Reading I**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: consent of Department.

**PHIL 487 Directed Reading II**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: consent of Department.

**L PHIL 488 Current Research in Philosophy**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: At least ★6 in PHIL, ★3 of which must be at the 200-level, or consent of Department.

**PHIL 493 Fourth-Year Honors Seminar**

★3 (*fi 6*) (first term, 0-3s-0). Note: For students in the fourth year of the Honors program.

**PHIL 498 Honors Essay**

★3 (*fi 6*) (either term, 3-0-0). Preparation of the honors essay, required in the fourth year of the Honors program.

## 201.168.1 Philosophy (from within the Roman Catholic Tradition) St Joseph's College

**Note:** The following courses are offered by St Joseph's College and can be used as Arts options.

**O PHIL 209 The Human Person: Philosophical Issues**

★3 (*fi 6*) (either term, 3-0-0). Personal identity, interpersonal relationships, sex and gender, freedom and immortality in historical and contemporary contexts.

**O PHIL 239 Greek Philosophy and the Christian Tradition**

★3 (*fi 6*) (either term, 3-0-0). Issues concerning human beings, knowledge, ethics and society among Greek thinkers and their impact on Christian thought. Note: Not available for credit with PHIL 139.

**O PHIL 249 Medieval Philosophy and the Christian Tradition**

★3 (*fi 6*) (either term, 3-0-0). Issues concerning human beings, faith and reason, free will and determinism, immortality and God among medieval thinkers and their significance for Christian thought. Note: Not available for credit with PHIL 139.

**O PHIL 269 Moral Issues in a Christian Context**

★3 (*fi 6*) (either term, 3-0-0). Critical philosophical reflection on contemporary social and moral issues.

**O PHIL 289 Issues in the Philosophy of Christian Education**

★3 (*fi 6*) (either term, 3-0-0). A philosophical study of the principles and aims of Christian education. Topics will include educating the whole person, religious beliefs and values, religious pluralism, tolerance, the Christian and Catholic educational tradition, separate schools.

**O PHIL 309 Augustine**

★3 (*fi 6*) (either term, 3-0-0). Philosophical issues in Augustine: their historical context, significance and influence. Prerequisite: At least ★3 in PHIL or consent of the College. Note: Not open to students with credit in PHIL 439.

**O PHIL 319 Thomas Aquinas**

★3 (*fi 6*) (either term, 3-0-0). Philosophical issues in Aquinas: their historical

context, significance and influence. Prerequisite: At least ★3 in PHIL or consent of the College. Note: Not open to students with credit in PHIL 449.

**O PHIL 339 Contemporary World Views and Christianity**

★3 (*fi 6*) (either term, 3-0-0). Critical study of Christianity in dialogue with such worldviews as atheism, agnosticism, naturalism, materialism, existentialism, feminism, liberalism, postmodernism.

**PHIL 389 Philosophy and Nursing II: Christian Perspectives**

★1.5 (*fi 3*) (either term, 18 hours). Ethical, cultural and religious concepts and issues central to knowledge and practice in nursing. Note: Open only to students registered in the BScN-Collaborative program and who have completed PHIL 388. Not available for credit to students who have completed PHIL 398 or CHRTC 352.

**O PHIL 399 Christian Existentialism**

★3 (*fi 6*) (either term, 3-0-0). The philosophical foundations of contemporary Christian thought as seen in such authors as Kierkegaard, Marcel and Mounier. Prerequisite: At least ★3 in PHIL or consent of the College. Formerly PHIL 306.

**Note:** For Christian Theology courses offered by St Joseph's College, see Christian Theology (CHRTC), St Joseph's College (from within the Roman Catholic Tradition).

## Graduate Courses

**Note:** Only a selection of the courses listed below are offered each year.

**PHIL 500 Metaphysics**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 501 Epistemology**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 505 Philosophy of Mind**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 510 Philosophy of Science**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 522 Topics in Logic**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 526 Philosophy of Language**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 532 Aristotle**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 546 Topics in Modern Philosophy**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 547 Topics in 20th Century Philosophy**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 550 Moral Philosophy**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 570 Social and Political Philosophy**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 580 Aesthetics**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 594 Selected Problems in Philosophy**

★3 (*fi 6*) (either term, 3-0-0).

**PHIL 596 Directed Reading I**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: Open only to graduate students beyond the qualifying year.

**PHIL 597 Directed Reading II**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: Open only to graduate students beyond the qualifying year.

**PHIL 696 Directed Reading III**

★3-6 (*variable*) (variable, 3-0-0). Prerequisite: Open only to provisional PhD candidates.

**PHIL 697 Directed Reading IV**

★3-6 (*variable*) (variable, 3-0-0). Prerequisite: Open only to provisional PhD candidates.

## 201.169 Physical Activity, PAC

Faculty of Physical Education and Recreation

**Goal of PAC Level I:**

- (1) Acquisition of basic skills required in the activity and an appreciation of how these skills are used in combination in performance situations.
- (2) Development of the specific theoretical knowledges associated with terminology, history, sociocultural context, rules and organizational aspects,

basic strategies and tactics, technique, and other concepts relevant to the activity.

#### Notes

- (1) Students enrolled in courses offered by the Faculty of Physical Education and Recreation must take responsibility for ensuring that they are physically and medically fit to be taking such courses. If a student has a physical or medical condition that may compromise his/her participation in a course, it is the student's responsibility to so inform the instructor of that course. Students may contact the Faculty for further information on physical activity requirements and are encouraged to seek medical advice if necessary.
- (2) Activity-course dress requirements for first class: Students are expected to attend the first class of any activity course appropriately dressed for activity participation.
- (3) These courses may require the payment of additional miscellaneous fees. See §22.2.3 for details.

## Undergraduate Courses

### PAC 101 Principles and Concepts of Physical Activity

★3 (fi 6) (either term, 1-2s-0). An exploration of the principles and concepts that underlie the movement of individuals and groups in a variety of settings. As the focus of the course is on the development of conceptual understanding of movement, a wide range of activities and their contexts will be examined and experienced. Note: credit will be granted for only one of PAC 101 or PEDS 294. Restricted to BPE students.

### PAC 110 Aquatics

★1.5 (fi 3) (either term, 0-3L-0). Development of proficiency in swimming and aquatic skills and the examination of theoretical aspects of aquatics. Prerequisite: Aquaquest Level 8 or RLSS Lifesaving II or YMCA Level 3. Red Cross Level Blue or the ability to swim front crawl and back crawl efficiently. Credit may not be taken for both PAC 110 and PAC 100.

### PAC 111 Basketball

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities.

### PAC 112 Field Hockey

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities.

### PAC 113 Football

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities.

### PAC 114 Ice Hockey

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities. Prerequisite: Average to above average skating ability. Students must provide their own equipment: skates, sticks, hockey gloves, helmets, elbow and shin pads.

### PAC 117 Rugby

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities. Mouth guards recommended.

### PAC 118 Soccer

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities.

### PAC 131 Badminton

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in basic badminton strokes and strategies. Students must supply own racquets and shuttlecocks.

### PAC 133 Squash

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in basic squash strokes and strategies. Students must supply their own equipment: Racquets, balls, and eye guards.

### PAC 135 Tennis

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in the basic tennis strokes (forehand, backhand, serve, and volley) and strategies. Students must provide their own equipment.

### PAC 137 Volleyball

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in the fundamental skills of volleyball. Students will be taught in individual and small group settings.

### PAC 140 Baseball/Fastball

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in individual and team activities.

### PAC 145 Golf

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in driving, chipping, pitching and putting. This course requires the payment

of additional miscellaneous fees. See §22.2.3 for details. Students must provide their own equipment.

### PAC 154 Wrestling

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in takedowns and groundwork.

### PAC 160 Gymnastics

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of personal skill in the fundamental movements common to all forms of gymnastics.

### PAC 163 Figure Skating

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in edges, forward inside and outside figure eights, one foot spin, spirals, crossovers and jumps. Must provide own figure skates.

### PAC 173 Athletics (Track and Field)

★1.5 (fi 3) (first term or Spring/Summer, 0-3L-0). Acquisition of theoretical knowledge and personal skill in sprinting, hurdling, cross country running, high jumping, long jumping, discus throwing, javelin throwing, and relays. Note: Students with credit in the old PAC 170 will not be granted credit for PAC 173 or 174.

### PAC 174 Athletics (Track and Field)

★1.5 (fi 3) (second term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in sprinting, hurdling, middle distance running, triple jumping, high jumping, pole vaulting, shot putting, hammer throwing, and relays. Note: Students with credit in the old PAC 170 will not be granted credit for PAC 173 or 174.

### PAC 180 Canoeing and Kayaking

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in strokes, manoeuvres, and rescue. Equipment is available from the Campus Outdoor Centre. Prerequisite: Red Cross AquaQuest Level 8 or RLSS Lifesaving II or YMCA Level 3, or the ability to swim front and back crawl efficiently.

### PAC 181 Cross Country Skiing

★1.5 (fi 3) (second term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in classical/skiing and hill manoeuvres. Note: one required day trip will be scheduled on a weekend during the course. Equipment is available from the Campus Outdoor Centre.

### PAC 182 Indoor Wall Climbing

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in basic climbing techniques, rope management, and belays. Equipment is available from the Campus Outdoor Centre.

### PAC 183 Introduction to Curling

★1.5 (fi 3) (either term, 0-3L-0). Designed to offer students introductory skill and theoretical development fundamental to safe and enjoyable recreational and/or competitive involvement in Curling.

### PAC 199 Physical Activity - Level I

★1.5 (fi 3) (either term, 0-3L-0). Acquisition of theoretical knowledge and personal skill in an individual or team activity. Topics may vary from year to year.

### PAC 310 Analysis and Instruction of Aquatics

★3 (fi 6) (either term, 0-3L-0). This course examines practical and theoretical aspects and techniques related to instructing swimming and aquatic skills. Certification at the Instructor's level is optional provided students meet some extracurricular requirements. Prerequisite: PAC 110 or RLSS Bronze Medallion or the equivalent in swimming skill. Credit may not be taken for both PAC 310 and PAC 300 or 400.

### PAC 311 Analysis and Instruction of Basketball

★3 (fi 6) (either term, 0-3L-0). The theory, practice, and teaching of the fundamental skills of basketball. Prerequisite: PAC 111 or consent of Faculty.

### PAC 313 Analysis and Instruction of Football

★3 (fi 6) (first term, 0-3L-0). Development of individual skills as well as basic unit and team play. Coaching fundamentals and administrative skills are discussed. This course may be inclusive of the content of the NCCP (Football) Technical Levels I and II. Prerequisite: PAC 113 or consent of Faculty.

### PAC 314 Analysis and Instruction of Ice Hockey

★3 (fi 6) (either term, 0-3L-0). The theory, practice, and teaching of fundamental team play. Emphasis will be on the development of concepts and strategies from which effective systems are created. Students must provide their own equipment: Skates, stick, helmet, hockey gloves, elbow and shin pads. Prerequisite: PAC 114 or consent of Faculty.

### PAC 318 Analysis and Instruction of Soccer

★3 (fi 6) (either term, 0-3L-0). The theory, practice, and teaching of the fundamental skills of soccer. Emphasis on skill acquisitions and analysis. Prerequisite: PAC 118 or consent of Faculty.

### PAC 320 Structure and Strategy of Games

★3 (fi 6) (either term, 1-2s-0). A study of similarities and differences in games (sports) through an examination of their specific rules, skills and strategies.

Class members will be exposed to experiences at the practical and theoretical levels in the categories of territory, target, field and court games.

### **PAC 325 The Study of Games for Children and Youth**

★3 (fi 6) (either term, 1-2s-0). An in-depth study of games played by children and youth in informal situations and in organized programs. Opportunities to observe and work with children and youth will be provided. Prerequisite: One of PEDS 293, 294 or 338.

### **PAC 331 Analysis and Instruction of Badminton**

★3 (fi 6) (either term, 0-3L-0). Theory and practice of the skills and strategies of badminton. Students must provide their own racquets and shuttlecocks. Prerequisite: PAC 131 or consent of Faculty.

### **PAC 333 Analysis and Instruction of Squash**

★3 (fi 6) (either term, 0-3L-0). The theory, practice, and teaching of the skills and strategies of squash. Students must provide their own racquets, balls, and eye guards. Students with credit in PAC 334 will not be granted credit in PAC 333. Prerequisite: PAC 133 or consent of Faculty.

### **PAC 335 Analysis and Instruction of Tennis**

★3 (fi 6) (either term, 0-3L-0). Theory and practice of the skills and strategies of tennis. Students must provide their own racquets, balls, and proper shoes. Prerequisite: PAC 135 or consent of Faculty.

### **PAC 337 Analysis and Instruction of Volleyball**

★3 (fi 6) (either term, 0-3L-0). The theory, practice and teaching of the fundamental skills of volleyball. Emphasis will be on volleyball skill instruction, advanced personal skill acquisition and fundamental team systems. May lead to NCCP Level I Technical certification. Prerequisite: PAC 137.

### **PAC 345 Analysis and Instruction of Golf**

★3 (fi 6) (first term, 0-3L-0). The theory, practice, and teaching of the fundamental skills of golf. This course requires the payment of a miscellaneous fee (see \$22.2.3 for details). Students must provide their own equipment. (For BPE students only.) Prerequisite: PAC 145 or consent of Department.

### **PAC 354 Analysis and Instruction of Wrestling**

★3 (fi 6) (either term, 0-3L-0). Emphasis on wrestling takedown and groundwork techniques. Includes theory, history, officiating and coaching principles. Prerequisite: PAC 154 or consent of Faculty.

### **PAC 355 The Theory and Practice of Yoga**

★3 (fi 6) (either term, 0-3L-0). Emphasis on philosophy, scientific basis and unique yoga approach to fitness and stress management along with practice of yoga asanas.

### **PAC 360 Analysis and Instruction of Gymnastics**

★3 (fi 6) (either term, 0-3L-0). Provides theoretical and practical foundations common to recreational and competitive gymnastics. May lead to certification in Level I NCCP. Prerequisite: PAC 160 or consent of Faculty.

### **PAC 365 The Study of Gymnastics for Children and Youth**

★3 (fi 6) (either term, 1-2s-0). A study of a variety of gymnastic programs from the perspective of their potential to meet the needs of children and youth at various ages. Class members will be required to plan, present, and evaluate gymnastic activities for children and youth. Prerequisite: One of PEDS 293, 294, or consent of Faculty.

### **PAC 370 Analysis and Instruction of Track and Field Events**

★3 (fi 6) (either term, 0-3L-0). Sprinting, hurdles, long-jump, high jump, triple jump, pole vault, distance running, relays, shot, discus, hammer, javelin, and related strength training. Prerequisite: PAC 173 or PAC 174 or equivalent course.

### **PAC 380 Analysis, Instruction, and Leadership of Canoeing and Kayaking**

★3 (fi 6) (Spring/Summer, 0-2s-4). The theory and practice of canoeing and kayaking instruction and trip leadership appropriate for various populations. Opportunities may be given to attempt ARCA/Red Cross and CRCA certification. Equipment is available from the Campus Outdoor Centre. Prerequisite: PAC 180 or consent of Faculty.

### **PAC 381 Analysis, Instruction, and Leadership of Cross Country Skiing**

★3 (fi 6) (second term, 0-2s-4). The theory and practice of nordic ski instruction and trip leadership including avalanche safety training. Opportunities may be given to attempt CANSI Ski Instructor and CSA Tour Leader certification. Note: A five-day required ski tour will normally be scheduled during Reading Week. Equipment is available from the Campus Outdoor Centre. Prerequisite: PAC 181 or consent of Faculty.

### **PAC 383 Analysis and Instruction of Curling**

★3 (fi 6) (either term, 0-3L-0). Designed to offer students advanced skill and theoretical development fundamental to safe and enjoyable competitive involvement in Curling as a player, coach, and official. Prerequisite: PAC 183.

### **PAC 390 Applied Resistance Training**

★3 (fi 6) (either term, 2-0-1). The scientific examination of resistance training as an applied training methodology for general conditioning and sport-specific enhancement. Emphasis on resistance training techniques, lifting mechanics,

program design and implementation will be the core element. Supplementary topics include plyometric training, Olympic lifts, and selected population program modifications. Prerequisite: PEDS 200. Pre- or corequisite: PEDS 335.

### **PAC 391 Applied Endurance Training**

★3 (fi 6) (either term, 0-3L-0). An examination of the theoretical and practical aspects of both aerobic and anaerobic endurance training for general conditioning and sport. Topics include: the physiological limitations to endurance exercise; the assessment of endurance capacities; and the development and monitoring of endurance training programs. Prerequisite: PEDS 335.

### **PAC 399 Physical Activity - Level II**

★3 (fi 6) (either term, 3-0-0). The theory, practice and teaching of the fundamental skills of an individual or team activity. Prerequisite: consent of Faculty.

## 201.170 Physical Education and Sport, PEDS

Faculty of Physical Education and Recreation

### Undergraduate Courses

**Note:** See also INT D 304 for a course which is offered by more than one Department or Faculty and which may be taken as an option or as a course in this discipline.

#### **PEDS 100 Structural Anatomy**

★3 (fi 6) (either term, 3-0-2). Introductory study of human anatomy. Students learn structural and functional components of selected systems of the human body. For BPE, BSc Kin students only.

#### **PEDS 101 Introduction to Human Physiology**

★3 (fi 6) (either term, 3-0-0). An introduction to human physiology from the cellular to systemic level with special emphasis on systems that adapt to exercise stress. Note: For BPE/BEd students only.

#### **PEDS 102 Human Physiology**

★6 (fi 12) (two term, 3-0-0; 3-0-1). Introduction to human physiology from the cellular to systemic level, with special emphasis on systems which adapt to exercise stress. For BPE, BSc Kin students only.

#### **PEDS 200 Physiology of Exercise**

★3 (fi 6) (either term, 3-0-2). An introduction to physiological adaptations to stress of exercise and training. Prerequisite: PEDS 102 or equivalent. For BPE, BSc Kin students only.

#### **PEDS 202 Leadership and Instruction in Physical Activity**

★3 (fi 6) (either term, 2-0-2). An introduction to the theory and practice of leadership and instruction in physical activity settings. Instructional techniques are applied to a variety of activities and environments in order to enhance the development of instructional skills which can promote skill learning. For BPE students only.

#### **PEDS 203 Skill Acquisition and Performance**

★3 (fi 6) (either term, 3-0-0). The course presents psychological approach to understanding human motor behavior. The course examines the processes involved in learning motor skills and controlling movement, and the factors that influence acquisition and performance. For BPE, BSc Kin students only.

#### **PEDS 205 Introduction to Outdoor Environmental Education**

★3 (fi 6) (either term, 1-0-3). A conceptual and experiential introduction to outdoor environmental education and leadership. In addition to weekly lecture and lab components, the course includes weekend commitments. This course requires the payment of additional miscellaneous fees. See \$22.2.3 for details.

#### **PEDS 206 Biomechanics**

★3 (fi 6) (first term, 3-0-0). A systematic procedure for qualitative analysis of human motion is presented. Students proceed from the identification of mechanical principles governing motion through to the formation of deterministic models and observational strategies. A weekly one-hour optional tutorial session will be scheduled. For BPE, BSc Kin students only.

#### **PEDS 240 Introduction to Sports Injuries**

★3 (fi 6) (either term, 3-0-1.5). Analysis of practical and theoretical concepts of sports injury. Includes an overview of sports medicine, care and prevention of injuries, and safety in athletics and physical education. Prerequisite: PEDS 100 or equivalent.

#### **PEDS 245 An Introduction to Coaching**

★3 (fi 6) (either term, 3-0-0). Examines the principles of coaching as they relate to the development of the athlete, the role of the coach, and organization of sport in contemporary society. Designed to present basic coaching theory that is applicable to a variety of sport settings with the focus on the practice and the season. Students who meet standards, as set by the Coaching Association of Canada, will receive certification in NCCP Theory-Levels I and II. Note: Credit will only be granted for one of PEDS 245 or 345. Prerequisites: PEDS 100, 102, 200 and 206.

**PEDS 246 Coaching Practicum I**

★3 (fi 6) (either term, variable). Students will be required to coach for a complete season as an Assistant Coach in a program approved by the student's Coaching Mentor. The purpose of the practicum is to provide the student with a practical coaching experience under the guidance of a Head Coach. It is intended to introduce the student to the demands of the profession of coaching. Note: at least 100 hours of outside-classroom time is required. Corequisite: PEDS 245.

**PEDS 293 Introduction to the Movement Activities of Children**

★3 (fi 6) (either term, 1.5-0-2). A study of developmentally appropriate movement activities for children. Students will participate and work with children in a variety of physical activities in recreational, educational and sport environments. Not open to students who have received credit for the former PEDS 292 or equivalent.

**PEDS 294 A Conceptual Approach to Physical Activity**

★3 (fi 6) (either term, 1-2s-0). A study of the fundamental movement concepts that underlie the physical activities engaged in by youth of secondary school age. For BPE and BEd (Physical Education Majors/Minors) only.

**PEDS 302 Human Motor Control**

★3 (fi 6) (either term, 3-0-2). Presents a multi-level approach that focuses on the neural and behavioral foundations underlying the control of movement. Prerequisite: PEDS 203 or consent of Faculty.

**PEDS 303 Psychology of Sport and Physical Activity**

★3 (fi 6) (either term, 3-0-0). This course introduces the student to select psychological theory as it relates to sport and physical activity. Psychological constructs along with their theoretical perspectives will be viewed within a cognitive, emotional, and behavioral framework. An analytical approach is encouraged. Prerequisite: PSYCO 104 (for non-BPE students), BPE students must successfully complete the first two years of the BPE degree.

**PEDS 305 Adventure Education Leadership**

★3 (fi 6) (Spring/Summer, 0-3s-3). Principles and practice of wilderness travel with an emphasis on personal group development through outdoor pursuits. Technical skill development in navigation, rock climbing, minimal impact travel, survival and rescue, and rescue. This course requires the payment of additional miscellaneous fees. See §22.2.3 for details. Prerequisite: PEDS 205.

**PEDS 306 Quantitative Biomechanics of Physical Activity**

★3 (fi 6) (either term, 3-0-2). Further application of the principles of mechanics to understanding, analyzing, and measuring human movement. Topics include linear and angular kinematics and kinetics, photo instrumentation, body segment parameters, the link segment model and work-energy relationships. Prerequisite: PEDS 206 or consent of Faculty.

**PEDS 307 Physical Growth and Psychomotor Development**

★3 (fi 6) (either term, 3-0-0). A study of the sequential changes in physical growth and motor development with emphasis on individual differences. For BPE, Secondary PE Majors, and BPE/BEd students only.

**PEDS 309 Statistics, Measurement, and Evaluation**

★3 (fi 6) (either term, 3-0-0). Descriptive and inferential statistics, classical true-score reliability theory, validity, and evaluation. Emphasis on practical application of tests and measurement related to a variety of sport, community and institutional settings. For BPE, BSc Kin students only. Students cannot receive credit for PEDS 309 if they received credit for PSYCO 211, SOC 210, STAT 141 or STAT 151.

**PEDS 334 Body Composition, Nutrition and Physical Activity**

★3 (fi 6) (either term, 3-0-0). Emphasis on assessment and evaluation of body composition. Other topics include the regulation of body composition, nutritional requirements for athletes, eating disorders, and obesity. Prerequisite: PEDS 200 (no concurrent registration). For BPE, BSc Kin students only.

**PEDS 335 Advanced Conditioning Methodology**

★3 (fi 6) (either term, 3-0-0). A survey of the theoretical bases of conditioning programs. The course emphasis is on the nature of physiological adaptation to selected training regimens and the factors which influence the adaptive process. Prerequisite: PEDS 200 (no concurrent registration) or consent of Faculty.

**PEDS 338 Physical Activity and Sport for Children**

★3 (fi 6) (either term, 0-3s-0). This course focuses on the child from birth to twelve years of age in a wide range of physical activities in both free and structured environments. It will look at activities offered in home, recreational, educational and competitive environments. There will be emphasis on the developing capabilities of the child and the most appropriate types of activity for any age or stage of development. For BPE and BA (Recreation Administration) students only.

**PEDS 345 Introduction to Coaching**

★3 (fi 6) (either term, 3-0-0). This course introduces the student to a variety of coaching topics of both a theoretical and a practical nature. This course is inclusive of the content of the NCC Program (Theory Levels I and II).

**PEDS 346 Coaching Practicum II**

★3 (fi 6) (either term, variable). Students will be required to coach for a complete season as an Assistant Coach in a High Performance program approved by the student's Coaching Mentor. The purpose of this practicum is to provide the

student with an intensive practical coaching experience under the guidance of a highly qualified Head Coach. It is intended to introduce the student to the demands of coaching in a High Performance-oriented program. Note: at least 150 hours of outside-classroom time is required. Prerequisite: PEDS 246.

**PEDS 385 Physical Activity and the Aging Adult**

★3 (fi 6) (either term, 3-0-0). An examination of the role of physical activity on the health and lifestyle of aging adults. Note: Credit will be granted for only one of PEDS 385 or the former PEDS 484.

**PEDS 391 Introduction to the Scientific Basis of Human Movement**

★3 (fi 6) (either term, 3-0-0). Lecture course with an emphasis on introductory knowledge and practical implications of the structural and functional characteristics and capacities of the human body with respect to movement. Not for BPE, BSc Kin degree credit. For BA (Recreation and Leisure Studies) and BEd students only.

**PEDS 400 Human Gross Anatomy**

★3 (fi 6) (either term, 3-0-3). The course is designed to provide in-depth information on the structure of the human body. Lectures and laboratories emphasize the anatomical relationship in the extremities and the trunk as they relate to human movement, athletic therapy, and fitness. Lectures are followed by dissections of the human body and prosection demonstrations. For BPE, BSc Kin students only. Prerequisite: PEDS 100.

**PEDS 401 Applied Ethics in Physical Education and Sport**

★3 (fi 6) (either term, 2-1s-0). A philosophical examination of ethical questions in the professional practice of physical education and sport.

**PEDS 402 Human Factors and Ergonomics**

★3 (fi 6) (either term, 3-0-0). The abilities and limitations of human performance are examined with respect to how we interact with tasks and objects in our environment. Work systems will be analyzed and evaluated in terms of the capabilities and limitations of human participants. This approach can be taken from a number of different and interrelated perspectives such as biomechanics, motor behaviour, motor control, and physiology. Prerequisites: PEDS 203 and 302. Note: For BSc (Kin) and BPE students only.

**PEDS 403 The Application of Psychological Skills to Sport and Physical Activity**

★3 (fi 6) (either term, 3-0-0). The direct application of select psychological skills to sport and physical activity. A strong emphasis is placed on how to apply psychological skills in a variety of settings. Prerequisite: PEDS 303 or consent of Faculty.

**PEDS 405 Outdoor Environmental Leadership**

★3 (fi 6) (either term, 3-0-3). Principles, methods, and supervised practice of outdoor environmental education, environmental philosophy, and issues investigation and action as relevant to those leading and/or participating in the natural environment. Prerequisite: PEDS 205.

**PEDS 409 Introduction to Research**

★3 (fi 6) (either term, 3-0-0). An overview of research in physical education with emphasis on practical application of research techniques and designs. This course is intended for students who possess a minimal knowledge of statistics. Prerequisite: PEDS 309 or an introductory statistics course.

**PEDS 411 Physiology of Emergency Response Occupations**

★3 (fi 6) (either term, 3-0-2). Explores selected issues of work physiology related to emergency response occupations with the main emphasis on fire fighting. Topics will include: human rights legislation and policies related to bona fide occupational requirements; the assessment of workload; the physiological limitations to work capacity; the development and implementation of physical fitness testing programs for applicants and incumbents; and, the development and monitoring of fitness training programs related to work demands. Prerequisite: PEDS 335.

**PEDS 412 Selected Topics in Advanced Exercise Physiology**

★3 (fi 6) (either term, 3-0-0). Covers the acute and chronic response to exercise through an increased understanding of the mechanisms and adaptations that occur within the human body. Invited guest speakers will present topics of current interest that may include different sport modalities, different populations or different disease states to assist in the exploration of the field of exercise science. Prerequisites: PEDS 200, 309.

**PEDS 430 Dimensions of Physical Activity Performance**

★3 (fi 6) (either term, 3-0-0). This course explores the integrated nature of physical activity performance with emphasis on the biological, psychological, technical, and tactical dimensions. Skills in observation, interviewing, intervention, program development, and evaluation will be examined and developed through problem solving techniques. Prerequisite: PEDS 200, 202, 203, 206, and 303. Pre- or corequisite: PEDS 345 (strongly recommend that PEDS 345 be completed as a prerequisite). Recommended: PEDS 240, 302, 335, and 403. Note: Students with credit in the former PEDS 330 may not receive credit in PEDS 430.

**PEDS 440 Advanced Athletic Therapy Methods and Techniques**

★3 (fi 6) (either term, 3-0-0). Recognition of the potentially serious injury.

Advanced prevention, treatment, and sport-specific rehabilitative methods and techniques in athletic therapy. Prerequisites: PEDS 100 and PEDS 240, or consent of Faculty.

#### **PEDS 444 Helping Skills and Strategies in Sport and Physical Activity**

★3 (fi 6) (either term, 1.5-1.5s-0). This course will present the student with counselling theories and helping skills as they relate to a variety of populations in sport and physical activity settings. Time will be spent in the seminar format developing individual and group skills. Prerequisites: PEDS 303 or consent of Faculty. Prerequisite or Corequisite: PEDS 403.

#### **PEDS 446 Coaching Practicum III**

★3 (fi 6) (either term, variable). Students will be required to coach for a complete season as a Head Coach in a program approved by the student's Coaching Mentor. The purpose of this practicum is to provide the students with the practical coaching experience of running their own program for one complete season. It is intended to familiarize the students with the demands of being a Head Coach. Note: at least 250 hours of outside-classroom time is required. Prerequisite: PEDS 346.

#### **PEDS 447 Advanced Topics in Coaching**

★3 (fi 6) (either term, 3-0-0). Study of advanced topics in coaching as they relate to the development of the athlete, the coach, and the organization of sport in contemporary society. Designed to present coaching theory that will guide rising coaches in the development of sport programs that will positively contribute to Canadian society and its sport development model. Students meeting the standards, as set by the Coaching Association of Canada, will receive certification in NCCP Theory Level III. Prerequisites: PEDS 245, 246, and 346.

#### **PEDS 471 Active Living for Individuals with Developmental Disabilities**

★3 (fi 6) (either term, 2-0-2). An in-depth review of characteristics of children with movement difficulties as well as persons with mental deficiency with implications for program planning and service delivery. Prerequisite: PERLS 207.

#### **PEDS 472 Active Living for Individuals with Physical Disabilities**

★3 (fi 6) (either term, 2-0-2). An in-depth review of characteristics of persons with physical disabilities with implications for program planning and service delivery. Prerequisites: PERLS 207 and PERLS 370.

#### **PEDS 485 Educational Gerontology in Physical Activity, Fitness, and Sport**

★3 (fi 6) (either term, 1.5-0-1.5). The study and practical application of the principles of educational gerontology. Involves students in the analysis and instruction of older adults in a variety of sport, fitness, and physical activity settings. Focus is on the issues and challenges of instruction in two populations: (1) aged, frail adults and (2) elderly, athletic adults. Prerequisite: PEDS 385. Note: Credit will be granted for only one of PEDS 485 or the former PEDS 384.

#### **PEDS 490 Professional Practicum**

★6 (fi 12) (variable, variable). A half-time Professional Practicum that may run for a single term for 20 hours per week, two terms for 10 hours per week, or the equivalent time. Students must apply to the Practicum Supervisor. A limited number of placements are available. Restricted to Year 4 BPE, BSc Kin students only. Students will not be allowed to register in more than ★9 concurrently with PEDS 490 unless approved by the Practicum Supervisor.

#### **PEDS 491 Professional Practicum**

★12 (fi 24) (either term, 14 weeks). Fourteen weeks of professional experience in a full-time (approximately 35 - 40 hours per week) route-related placement. Students must apply to the Practicum Supervisor. A limited number of placements are available. Restricted to Year 4 BPE, BSc Kin students only. Students will not be allowed to register in any other course in conjunction with PEDS 491 unless approved by the Practicum Supervisor.

#### **PEDS 497 Selected Topics in Physical Education and Sport**

★3 (fi 6) (variable, variable). A course offered on a topic of current interest in physical education and sport. Topics may vary from year to year. Prerequisite: consent of Faculty.

#### **PEDS 499 Directed Studies**

★3 (fi 6) (variable, variable). A course designed to meet the needs of individual students. Prerequisite: consent of Faculty.

## Graduate Courses

#### **PEDS 500 Seminar in Biomechanics**

★3 (fi 6) (either term, 0-3s-0).

#### **PEDS 511 Exercise Testing and Exercise Prescription**

★3 (fi 6) (either term, 1-1s-2). The theory and practice of exercise tests, interpretation, and exercise prescription for selected populations.

#### **PEDS 515 Exercise Physiology Laboratory Techniques**

★3 (fi 6) (either term, 1-0-3). The study of theoretical and practical issues related to selected laboratory techniques.

#### **PEDS 516 Muscle: Exercise and Training**

★3 (fi 6) (either term, 0-3L-0). This course will examine the developmental,

morphological and metabolic properties of skeletal muscle and the way in which skeletal muscle adapts to acute and chronic exercise.

#### **PEDS 517 Exercise Biochemistry Techniques**

★3 (fi 6) (either term, 1-0-3). This is primarily a laboratory experience for students to gain competencies in performing basic histochemical and biochemical procedures that are common in exercise physiology research. Prerequisite: consent of the Instructor.

#### **PEDS 518 Hormonal Response to Exercise**

★3 (fi 6) (either term, 1.5-2s-0). Designed to increase the student's knowledge about normal endocrine physiology and the hormonal response to acute and chronic exercise. Variables that influence the hormonal response to exercise and its subsequent measurement in circulation will be addressed. The use of hormonal analysis for monitoring health, body composition and training status of athletes will also be discussed. Offered in alternate years.

#### **PEDS 530 Adapted Physical Activity**

★3 (fi 6) (second term, 0-3s-0). Seminar on current theoretical, practical and research issues in adapted physical activity.

#### **PEDS 540 The Psychology of Performance Enhancement in Sport and Physical Activity**

★3 (fi 6) (either term, 0-3s-0). This seminar focuses on the role of psychology as it relates to performance enhancement in the areas of sport and physical activity. Performance constructs and skills along with mental skills training programs will be discussed and evaluated.

#### **PEDS 544 Psychosocial Dimensions of Athletic Behaviour in the Competitive Sport Environment**

★3 (fi 6) (either term, 0-3s-0). A theoretical analysis of psychosocial constructs in sport including competitive anxiety, motivation, perfectionism, burnout, aggression, moral reasoning, enjoyment, and sport injury. Frequently examines the construct validation processes that researchers employ in the development of latent constructs and associated nomological networks.

#### **PEDS 545 Exercise Oncology**

★3 (fi 6) (either term, 0-3s-0). An overview of the potential role of physical exercise in cancer prevention and control. Specifically, physical exercise is examined for purposes related to cancer prevention, coping, rehabilitation, palliation and survival. A multidisciplinary perspective draws on kinesiology, oncology, epidemiology, psychology, rehabilitation medicine and palliative care.

#### **PEDS 577 Sport and Ethics**

★3 (fi 6) (either term, 0-3s-0). An examination of ethical problems in sport. Prerequisite: PEDS 201 or PEDS 407 or consent of Department.

#### **PEDS 580 The Nature of Scientific Inquiry in Physical Education and Sport Studies**

★3 (fi 6) (first term, 0-3s-0). An introduction to the basic philosophy and nature of scientific inquiry as it applies to contemporary research.

#### **PEDS 610 Seminar in Exercise Physiology**

★3 (fi 6) (second term, 0-3s-0). Prerequisite: consent of Faculty.

## 201.171 Physical Education, Recreation and Leisure Studies, PERLS

Faculty of Physical Education and Recreation

### Undergraduate Courses

#### **PERLS 101 Developing Critical Thinking in Physical Education and Recreation**

★3 (fi 6) (either term, 1.5-0-1.5). Introduction to the skills and attitudes of critical thinking. Focus on the elements of reasoning and intellectual standards for assessing thinking. Specific attention to improving critical reading, writing, and listening. The course intends to empower students to be independent, responsible learners during their undergraduate program and beyond. For students in the Faculty of Physical Education and Recreation only.

#### **PERLS 104 Introduction to Sociocultural Aspects of Leisure and Sport**

★3 (fi 6) (either term, 3-0-0). The study of play, physical education, recreation, and leisure as institutionalized ways in which society organizes and teaches attitudes and skills. Provides an introduction to the importance of sociocultural inquiry and the notion of being critical as an empowering process.

#### **PERLS 105 Introduction to the Administration of Sport, Physical Activity and Recreation Programs**

★3 (fi 6) (either term, 3-0-1). This course provides students with the basic skills required to successfully administer a sport and/or recreation program. For Faculty of Physical Education and Recreation students and Bed/PE majors or consent of Faculty. Note: Not open to students with credit in PEDS 105.

#### **PERLS 204 Leisure and Sport in Canadian Society: Historical Perspectives**

★3 (fi 6) (either term, 3-0-0). An examination of the significant changes which

have occurred in leisure and sport, specifically over the last century and with particular reference to Canadian society. Prerequisite: PERLS 104 or consent of Faculty.

**PERLS 207 Physical Activity and Leisure for Special Populations**

★3 (fi 6) (either term, 3-0-0). An introduction into the current trends in the theory and practice in physical education and recreation from special groups. The course includes a survey of special populations and their implications for service delivery.

**PERLS 304 Sport and Leisure in Canadian Society: Sociological Perspectives**

★3 (fi 6) (either term, 2-1s-0). What it means to bring a sociological imagination to the study of sport and leisure with particular reference to Canadian society. Prerequisites: PERLS 104 and 204.

**PERLS 350 Advanced Analysis of Sport and Leisure Organizations**

★3 (fi 6) (either term, 3-0-0). Theoretical consideration for the organization and administration of physical education, sport, recreation, and leisure programs. Prerequisite: PERLS 105.

**PERLS 351 Cultural Studies of Sport and Leisure**

★3 (fi 6) (either term, 0-3s-0). A seminar in cultural studies of sport and leisure that explores key concepts in contemporary cultural studies, such as identity, representation, hegemony, and narrative. Intended to examine the relevance of population culture to the study of sport and leisure in Canada and beyond.

**PERLS 370 Assessment and Service Delivery for Special Populations**

★3 (fi 6) (either term, 3-0-1). An overview of basic qualitative and quantitative assessment principles and their use to deliver quality physical activity and recreation services for special needs populations. Prerequisites: PERLS 207; and PEDS 309 or SOC 210 (or equivalent) (no concurrent registration).

**PERLS 371 Assessment and Evaluation in Physical Activity for Children and Youth**

★3 (fi 6) (either term, 3-0-1). Provides an overview of basic assessment principles and their application in the provision of physical activity for children and youth. Designed for individuals who are particularly interested in assessment of movement, and its concomitant goals, for the purpose of instruction and evaluation. Prerequisites: PERLS 207, PEDS 309 or SOC 210.

**PERLS 450 Process Management**

★3 (fi 6) (either term, 3-0-0). This course will introduce students to some of the concepts associated with process management and how, through the use of strategies associated with these concepts, individuals can assist organizations toward their desired goals. Such human processes as communication; problem solving and decision making; creating, building and maintaining a group; intergroup relationships; initiating and managing change; and assessing performance will be considered. Prerequisite: PERLS 350.

**PERLS 452 Leisure Facilities: Planning and Management**

★3 (fi 6) (either term, 0-3L-0). An examination of the planning, design, and management processes associated with leisure facilities (inclusive of sport, recreation, and tourism facilities). Attention is focused on the provision of leisure opportunities of a predominantly intensive-use nature which tend to occur in an urban or near-urban setting. These facilities will be considered within the context of the communities in which they function. This course requires the payment of additional miscellaneous fees. See §22.2.3 for details.

## Graduate Courses

**PERLS 541 Social Cognitive Approaches to Health Promoting Behaviors**

★3 (fi 6) (either term, 0-3s-0). This course will address social-cognitive theories as they relate to behavioral change in the broad areas of health-promoting-behaviors (HPBS) with particular emphasis on physical activity. The theories and models to be covered will include Stages of Change, Social-Cognitive and Self-efficacy, Reasoned Action and Planned behavior, Self-esteem (various), etc. The specific context areas and order of classes will be determined in consultation with the class members each term. Areas of common interest will be identified and used as the basis for classes and examples throughout the term. The course is appropriate for individuals interested in social psychological and social-cognitive influences on health promoting behaviors and sport performance.

**PERLS 542 Social Science Perspectives of Physical Activity, Fitness, and Well-Being**

★3 (fi 6) (either term, 0-3s-0). An examination of the antecedents and consequences of regular vigorous physical activity involvement. Although a holistic interdisciplinary perspective will be adopted, emphasis will be placed upon social psychological models and methodologies. Attention will be given to a variety of approaches for fostering regular physical activity involvement, ranging from those with a specific individual focus (e.g. individual counselling interventions) to those with a general societal orientation (e.g. general mass media or public education interventions).

**PERLS 544 Aging, Health and Active Living**

★3 (fi 6) (either term, 0-3s-0). An exploration of the benefits and risks of late-life physical activity, as well as life course barriers and incentives to health promotion through active living. The course will examine theoretical explanations for sedentary leisure of older adults through a critical review of the interdisciplinary gerontological literature.

**PERLS 550 Sport and Leisure Organizations and the Public Sector**

★3 (fi 6) (either term, 0-3s-0). Emphasis is on the role of the federal, provincial and municipal governments in Canada in amateur sport and leisure including the interorganizational relations between the public sector and nonprofit/voluntary amateur sport and leisure organizations.

**PERLS 551 Organizational Analysis of Sport and Leisure**

★3 (fi 6) (either term, 0-3s-0). Concepts and perspectives in organizational theory are examined in relation to sport and leisure organizations in the public, nonprofit/voluntary, and commercial sector to help students understand and analyze the complexity of managing sport and leisure organizations effectively. Topics include, but are not limited to, organizational design, organizational environments, strategy and decision-making, organizational culture, power and politics, and conflict and change.

**PERLS 581 Social Research Applications to Leisure and Sport**

★3 (fi 6) (first term, 0-3s-0). An examination of both quantitative and qualitative research methodologies as they apply to the sociocultural area of sport and physical education and to the general field of leisure studies.

**PERLS 582 Graduate Seminar: A Seminar in Current Factors, Problems and Issues**

★3 (fi 6) (either term, 0-3s-0).

**PERLS 590 Research and Directed Studies I**

★3 (fi 6) (first term, 0-3s-0).

**PERLS 591 Research and Directed Studies II**

★3 (fi 6) (second term, 0-3s-0).

**PERLS 599 Directed Studies and Research**

★3 (fi 6) (two term, 0-1.5s-0).

**PERLS 613 Special Topics in the Socio-Cultural Study of Leisure, Sport, and Health**

★3 (fi 6) (either term, 0-3s-0). Explores topics in the socio-cultural study of leisure, sport, and health that are of interest to students enrolled in the course.

**PERLS 690 Directed Studies and Research**

★3 (fi 6) (first term, 0-3s-0).

**PERLS 691 Directed Studies and Research**

★3 (fi 6) (second term, 0-3s-0).

**PERLS 699 Directed Studies and Research**

★3 (fi 6) (two term, 0-1.5s-0).

**PERLS 900 Directed Research Project**

★6 (fi 12) (variable, unassigned). A significant piece of scholarly writing. This course used by course-based Master's students.

## 201.172 Physical Therapy, PThER

Department of Physical Therapy  
Faculty of Rehabilitation Medicine

**Note:** All PThER courses are open to Physical Therapy students only.

### Undergraduate Courses

**PThER 300 Professional Development III**

★1 (fi 2) (either term, 16 hours). Credit. This course will address organizational aspects of physical therapy practice and ethical issues as they apply to physical therapy.

**PThER 321 Electrophysical Agents I**

★3 (fi 6) (either term, 3-0-2). Theory and practice of use and application of therapeutic heat, cold, light, ultrasound, and massage as used in physical therapy. Prerequisites: PThER 311, REHAB 182, 285, 290, 295, and PHYSL 161.

**PThER 322 Electrophysical Agents II**

★3 (fi 6) (either term, 3-0-2). Theory and practice of the use and application of therapeutic electric currents, basic electrophysiologic testing, and EMG biofeedback as used in physical therapy. Prerequisite: PThER 321.

**PThER 371 Introduction to Paediatrics in Physical Therapy**

★3 (fi 6) (either term, 3-0-1.5). The study of child development and application of physical therapy theory and research in paediatric neurology. Corequisite: REHAB 455. Prerequisites: REHAB 285, 290, 295, and PHYSL 161.

**PThER 374 Neurological Physical Therapy I**

★3 (fi 6) (either term, 3-0-2). An introduction to common problems seen in adult

neurology, using Stroke as a representative model, and the study of the physical therapy theory and research related to the assessment and management of these problems spanning physical, psychosocial, cultural, and environmental domains. Corequisite: REHAB 455. Prerequisite: PTher 371.

#### **PTher 375 Neuromuscular Physical Therapy II**

★3 (fi 6) (either term, 0-2s-2). A study of the physical therapy assessment and management of selected neurological conditions including critical appraisal of the related research in neuroscience and rehabilitation. Prerequisites: PTher 374, REHAB 455.

#### **PTher 380 Cardiorespiratory Physical Therapy**

★3 (fi 6) (either term, 3-0-2). An introductory study of the pathology and management of representative conditions affecting the cardiac and respiratory systems. Prerequisites: REHAB 352, 182, 285, 290, 295 and PHYSL 161.

#### **PTher 384 Neuromusculoskeletal Disorders and Assessment**

★4 (fi 8) (either term, 0-6L-0). The study of conditions affecting the musculoskeletal and peripheral nervous systems encountered by physical therapists and methods of physical therapy assessment and diagnosis. Prerequisites: PTher 311, REHAB 182, 285, 290, 295, and PHYSL 161.

#### **PTher 385 Mobilization of Peripheral and Spinal Joints**

★3 (fi 6) (either term, 1-0-2). An introduction to the treatment of peripheral and vertebral joints using selected mobilization techniques. Prerequisites: PTher 384, 396.

#### **PTher 387 Seminar in Therapeutics**

★3 (fi 6) (either term, 0-2s-0). Credit. A seminar series designed to integrate therapeutic treatments in physical therapy, including a critical review of the clinical and research literature. Prerequisites: PTher 380, 322, 384, 396, 375, REHAB 463.

#### **PTher 395 Therapeutic Exercise I**

★3 (fi 6) (either term, 2-0-2). The role of therapeutic exercise in the management of neuromuscular and neuromusculoskeletal conditions. Corequisite: REHAB 352. Prerequisites: PTher 311, 384, and REHAB 455.

#### **PTher 396 Therapeutic Exercise II**

★3 (fi 6) (either term, 1-0-3). Principles of therapeutic exercise and their application to special populations, including theoretical basis of exercise as a therapeutic modality, exercise prescription, and evaluation of exercise effects. Prerequisites: PTher 395, REHAB 352.

#### **PTher 421 Neuromuscular Clinical Practice**

★3 (fi 6) (either term, 5 weeks). Credit. Clinical practice with clients with problems affecting the neuromuscular system. Prerequisite: PTher 374.

#### **PTher 423 Cardiorespiratory Clinical Practice**

★3 (fi 6) (either term or Spring/Summer, 5 weeks). Credit. Clinical practice with clients with problems affecting the cardiovascular and/or respiratory systems. Prerequisite: PTher 380.

#### **PTher 426 Neuromusculoskeletal Clinical Practice**

★3 (fi 6) (either term or Spring/Summer, 5 weeks). Credit. Clinical practice with clients with problems affecting the neuromusculoskeletal system. Prerequisites: PTher 322, 384, and 395.

#### **PTher 428 Clinical Practice IV**

★3 (fi 6) (either term or Spring/Summer, 5 weeks). Credit. Clinical practice in approved clinical affiliations.

#### **PTher 431 Clinical Practice VI**

★1-3 (variable) (either term, 5 weeks). Credit. Clinical practice in approved clinical affiliations.

#### **PTher 433 Clinical Practice VII**

★1-3 (variable) (either term, 5 weeks). Credit. Clinical practice in approved clinical affiliations.

#### **PTher 459 Exercise Physiology for Rehabilitation**

★3 (fi 6) (either term, 3-0-2/2). The short-term and adaptive physiological responses to pathological processes encountered in the practice of physical therapy. Equivalent to REHAB 362. Restricted to MPT students.

#### **PTher 466 Individual Study/Special Subject**

★1-12 (variable) (either term, variable). Registration will be contingent on the student's having made prior arrangements with the Department. Credit for this course may be obtained more than once. Prerequisite: consent of Department.

#### **PTher 467 Individual Study**

★3 (fi 6) (either term, 3-0-0). A course intended to allow the senior undergraduate student to pursue a topic of interest in more depth than the classroom structure permits. This may take the form of directed reading, laboratory work or clinical experience. Prerequisite: consent of Department.

#### **PTher 468 Sports Therapy**

★3 (fi 6) (either term, 3-0-2). An introduction to the prevention and care of sports injuries including the adaptation of therapeutic exercise to the highly trained individual. Prerequisite: consent of Instructor.

#### **PTher 472 Paediatrics and the Physical Therapist**

★3 (fi 6) (either term, 0-3L-0). An examination of typical and atypical infant motor development and application of this knowledge to paediatric physical therapy intervention strategies. Related theory, research and practice issues will be discussed.

#### **PTher 481 Cardiac Rehabilitation**

★3 (fi 6) (either term, 2-0-3). The physiological and psychological aspects of rehabilitation of cardiac patients, with practical experience in their management. Prerequisite: consent of Instructor.

#### **PTher 485 Advanced Manual Therapy for Peripheral and Vertebral Joints**

★3 (fi 6) (either term, 0-2s-1). Lectures, critical discussion and practice in the use and application of selected mobilization and manipulation techniques used in the treatment of peripheral and vertebral joint dysfunction. Prerequisite: PTher 385.

#### **PTher 490 Measurement and Technology in Rehabilitation**

★3 (fi 6) (either term, 0-3s-2). The principles involved in measurement, evaluation and assistive technology and their application to practice in rehabilitation. This course will include measurement of physical impairment, disability and handicap, and assistive technologies for seating and positioning, mobility, computer access and environmental control. Prerequisite: PTher 375 or consent of Instructor.

#### **PTher 495 Medicine and Surgery**

★3 (fi 6) (either term, 0-3s-0). The study of selected clinical problems, their underlying conditions and physical therapy management. Prerequisites: REHAB 283, REHAB 285, REHAB 295, PHYSL 161.

### **Graduate Courses**

#### **PTher 505 Recent Advances in Neuroscience and its Impact on Physical Therapy**

★3 (fi 6) (either term, 0-3s-0). Seminar on the recent advances in neuroscience that could influence the practice of physical therapy.

#### **PTher 507 Instrumentation in Physical Therapy**

★3 (fi 6) (either term, 2-0-2). A course on electronic fundamentals applied to measuring instruments and their basic components as used in physical therapy research.

#### **PTher 510 Rehabilitation Ergonomics**

★3 (fi 6) (either term, 1-2s-0). The application of ergonomic principles in rehabilitation.

#### **PTher 515 Introduction to Physical Therapy Practice**

★3 (fi 6) (either term, 5-6s-0 in 4 weeks). Introduction to the theory and concepts of rehabilitation science as applied to physical therapy in a variety of health care environments. Content will include disability issues, communication, models of disablement and introduction to a model of practice for guiding clinical decisions. Restricted to MPT students.

#### **PTher 516 Anatomy**

★3 (fi 6) (either term, 2.5-0-2 in 14 weeks). Anatomy of the upper limb, lower limb and trunk. Specific emphasis on knowledge of joints, ligaments, nerve supply and deep muscles. Restricted to MPT students.

#### **PTher 517 Clinical Placement I**

★1 (fi 2) (either term, 1 week). Introduction to clinical practice in approved clinical affiliations. Restricted to MPT students.

#### **PTher 518 Clinical Placement II**

★5 (fi 10) (either term, 5 weeks). Clinical practice in approved clinical affiliations. Restricted to MPT students.

#### **PTher 519 Clinical Placement III**

★5 (fi 10) (either term, 5 weeks). Clinical practice in approved clinical affiliations. Restricted to MPT students.

#### **PTher 524 Professional Issues I**

★1 (fi 2) (either term, 1-3s-0 in 4 weeks). Introduction to concepts required for effective clinical experiences. Topics will include ethics, client-centred principles, communication and professional conduct. Restricted to MPT students.

#### **PTher 525 Professional Issues II**

★3 (fi 6) (either term, 3-5s-0 in 4 weeks). Identify, discuss and apply appropriate team relationships and communication behaviors and supervision of support personnel in the context of ethical, professional, cultural, and legal issues relevant to the current health-care environment. Prerequisites: INT D 410 and PTher 524. Restricted to MPT students.

#### **PTher 528 Foundations of Physical Therapy**

★6 (fi 12) (either term, 5-2s-3 in 10 weeks). Introduction to the theory and application of physical therapy skills with an emphasis on assessment and handling techniques. Functional application of anatomy knowledge will be emphasized. Corequisite: PTher 516. Prerequisite: PTher 515. Restricted to MPT students.

**PTHER 529 Movement Analysis I**

★2 (*fi 4*) (either term, 2-0-2 in 10 weeks). Introduction to basic biomechanics pertinent to Physical Therapy. Systematic analyses of posture, balance and basic functional movements will include the influence of person, task and environmental factors. A developmental perspective of movement will be introduced. Corequisite: PTH 516. Restricted to MPT students.

**PTHER 530 Research and Directed Studies**

★3 (*fi 6*) (either term, 3-0-0). Work on a special project under the supervision of a faculty member. Prior approval of the instructor and the student's advisor required.

**PTHER 531 Research and Directed Studies**

★3 (*fi 6*) (either term, 3-0-0). Work on a special project under the supervision of a faculty member. Prior approval of the instructor and the student's advisor required.

**PTHER 532 Research and Directed Studies**

★3 (*fi 6*) (two term, 1.5-0-0). Work on a special project under the supervision of a faculty member. Prior approval of the instructor and the student's advisor required.

**PTHER 533 Research and Directed Studies**

★6 (*fi 12*) (two term, 3-0-0). Work on a special project under the supervision of a faculty member. Prior approval of the instructor and the student's advisor required.

**PTHER 534 Integrated Practice I**

★1.5 (*fi 3*) (either term, 0-1s-1.5 in 10 weeks). Active learning strategies, including the use of case scenarios, will be used to integrate students' learning in the block. Critical thinking skills are required to integrate knowledge of clinical skills, research application, measurement and evaluation, and professional issues. Restricted to MPT students.

**PTHER 538 Musculoskeletal I**

★6 (*fi 12*) (either term, 3-1.5s-4 in 15 weeks). The study of acute musculoskeletal conditions. Areas of practice will include: an understanding of pathology, assessment, intervention, outcome evaluation, relevant therapeutic exercise, electrophysical agents and evidence-based skills. These clinical skills will be integrated into the context of clinical practice with issues in research application, measurement and evaluation. Prerequisites: PTH 528 and 529. Restricted to MPT students.

**PTHER 539 Movement Analysis II**

★2 (*fi 4*) (either term, 1-0-1.5 in 15 weeks). Application of anatomy and biomechanics knowledge to the systematic analysis of complex functional movements. Introduction to the phases of typical gait and application to atypical gait. Prerequisites: PTH 528 and 529. Restricted to MPT students.

**PTHER 540 Practicum**

★0 (*fi 3*) (either term, unassigned). A practicum in the student's area of concentration and interest to be taken by the student if his/her committee feels the student needs, or the student desires, further practical experience. This course may involve experience off campus in any geographical area where the student may gain the necessary experience.

**PTHER 541 Critical Appraisal I**

★3 (*fi 6*) (either term, 2-2s-0 in 10 weeks). Introduction to research methods with an emphasis on issues of measurement and evaluation in rehabilitation science and application of the knowledge to a critical evaluation of a selected measure used in physical therapy. Students will apply advanced information retrieval strategies to rehabilitation science literature. Corequisite: PTH 528. Restricted to MPT students.

**PTHER 542 Critical Appraisal II**

★1 (*fi 2*) (either term, 1.5-1.5s-0 in 4 weeks). Application of research methods through the identification and evaluation of best evidence for a client observed during clinical placement. Prerequisite: PTH 541. Restricted to MPT students.

**PTHER 544 Cardiorespiratory I**

★2 (*fi 4*) (either term, 2-0-2 in 10 weeks). The study of acute cardiorespiratory conditions. Areas of practice will include: an understanding of pathology, assessment, intervention, outcome evaluation, relevant therapeutic exercise, electrophysical agents and evidence-based skills. These clinical skills will be integrated into the context of clinical practice with issues in research application, measurement and evaluation. Prerequisites: PTH 516, 528, 541. Restricted to MPT students.

**PTHER 545 Tissue Mobilization**

★2 (*fi 4*) (either term, 2-1s-4 in 4 weeks). An introduction to the use of mobilization techniques to treat selected peripheral and spinal conditions. Prerequisites: PTH 538 and 539. Restricted to MPT students.

**PTHER 568 Recent Advances in Sports Therapy**

★3 (*fi 6*) (either term, 0-3s-0). Seminar on advances in sports therapy and other related topics.

**PTHER 571 Recent Advances in Paediatric Physical Therapy**

★3 (*fi 6*) (either term, 0-3s-0). A seminar course evaluating theoretical frameworks and intervention strategies used in paediatric physical therapy.

**PTHER 581 Cardiopulmonary Rehabilitation**

★3 (*fi 6*) (either term, 2-0-3). The general principles of cardiopulmonary rehabilitation as applied to patients with selected pathological conditions. Prerequisite: consent of Instructor.

**201.173 Physics, PHYS**

Department of Physics  
Faculty of Science

**Notes**

- (1) Credit may be obtained in only one of PHYS 124, 144 or EN PH 131.
- (2) Credit may be obtained in only one of PHYS 130 or 146.
- (3) Credit may be obtained in only one of PHYS 201, 230 or 281.
- (4) Credit may be obtained for only one of PHYS 208 or 271.
- (5) Credit may normally be obtained for only one of PHYS 211 or 224.
- (6) Also see Astronomy (ASTRO) and Geophysics (GEPH) listings for other courses offered by the Department of Physics.

**Undergraduate Courses****0 PHYS 114 Physics: The Big Picture**

★3 (*fi 6*) (either term, 3-0-0). A qualitative non-mathematical course in which the overall structure and main concepts of physics are examined. Classical versus quantum worlds; order versus chaos; Newton's versus Einstein's universe; selected topics and issues. Prerequisites: Pure or Applied Mathematics 30. Note: This course does not qualify as an equivalent to high school Physics 30. This course also does not qualify as a prerequisite for 200 or higher level ASTRO, GEPH, MA PH, or PHYS courses. Not accepted as part of the Physics requirements for Faculty of Medicine and Dentistry applications.

**0 PHYS 124 Particles and Waves**

★3 (*fi 6*) (first term, 3-0-3). Algebra-based course for students in life, environmental, and medical sciences. It guides the student through two distinct types of motion: motion of matter (particles) and wave motion. Vectors, forces, bodies in equilibrium, review of kinematics and basic dynamics; conservation of momentum and energy; circular motion; vibrations; elastic waves in matter; sound; wave optics; black body radiation, photons, de Broglie waves; models of the atom. Examples relevant in environmental, life, and medical sciences will be emphasized. Prerequisites: Physics 20 or equivalent, Pure Mathematics 30. Physics 30 is strongly recommended. Note: Credit may be obtained for only one of PHYS 124, 144, or EN PH 131.

**0 PHYS 126 Fluids, Fields, and Radiation**

★3 (*fi 6*) (second term, 3-0-3). A continuation of PHYS 124 for students in life, environmental, and medical science. Fluid statics and dynamics, gases, kinetic interpretation; electrostatics; currents and circuits; magnetic field; electromagnetic induction; nuclear radiation, its interaction with matter and applications. Prerequisite: PHYS 124. Note: Credit may be obtained for only one of PHYS 126, 130, or 146.

**PHYS 130 Wave Motion, Optics, and Sound**

★3.8 (*fi 6*) (either term, 3-0-3/2). Geometrical optics, optical instruments, oscillations, waves, sound, interference, diffraction. Prerequisites: Pure Mathematics 30, Mathematics 31, Physics 30. Corequisite: MATH 100 or equivalent. Restricted to Engineering students. Other students who take this course will receive ★3.0.

**0 PHYS 144 Newtonian Mechanics and Relativity**

★3 (*fi 6*) (first term, 3-0-3). A calculus-based course for students majoring in the physical sciences. Newtonian mechanics, including kinematics, dynamics, conservation of momentum and energy, rotational motion and angular momentum; special relativistic kinematics and dynamics, including length contraction, time dilation, and the conservation of energy and momentum in special relativity. Prerequisites: Pure Mathematics 30, Physics 30. Corequisites: MATH 113 or 114 or equivalent. Note: Credit may be obtained for only one of PHYS 124, 144, or EN PH 131.

**0 PHYS 146 Fluids and Waves**

★3 (*fi 6*) (second term, 3-0-3). A calculus-based course for students majoring in the physical sciences. Fluid statics and dynamics, elasticity and simple harmonic motion; sound waves, wave properties of light; quantum waves, wave-particle duality. Prerequisite: PHYS 144. Corequisite: MATH 115 or equivalent. Note: Credit may be obtained for only one of PHYS 130 or 146.

**0 PHYS 200 Relativistic Aspects of Modern Physics**

★3 (*fi 6*) (second term, 3-0-0). Topics included are limitations of classical physics; Einstein's special theory; length contraction; time dilation; twin paradox; equivalence of mass and energy; relativistic mass and momentum; the General



Theory of Relativity including deflection of light, black holes, models of the universe, and curvature of space. Prerequisite: First-year Physics course(s) (two-term). Pre- or corequisite: MATH 113 or 114. Note: This course is not available for credit toward Honors or Specialization Physics and Mathematical Physics degree programs.

#### **0** PHYS 208 Quantum Aspects of Modern Physics

★3 (fi 6) (second term, 3-0-0). Experimental evidence leading to the development of quantum mechanics including the photo-electric effect, the Compton effect, X-ray production and electron diffraction; a discussion of the Heisenberg uncertainty principle and the Schrodinger theory of quantum mechanics including applications of one dimensional potential wells and barriers; tunnelling; the simple harmonic oscillator. Prerequisites: PHYS 101 or 109 or 126 or 146, and MATH 113 or 114. Credit may be obtained in only one of PHYS 208 or 271.

#### **0** PHYS 211 Thermodynamics and Kinetic Theory

★3 (fi 6) (second term, 3-0-0). Temperature: heat, work, and the first law of thermodynamics; entropy and the second law, enthalpy, Helmholtz and Gibbs free energy; thermodynamic equilibrium criteria; Maxwell's relations, phase transitions; elementary kinetic theory of gases. Prerequisite: PHYS 102 or 146 or EN PH 131. Pre- or corequisite: MATH 215 or 317 or equivalent. Credit may normally be obtained in only one of PHYS 211 or 224.

#### **0** PHYS 212 Revolutions in Physics: The Structure of the Universe

★3 (fi 6) (first term, 3-0-0). This course traces the conceptual development of our understanding of the structure of the physical universe from Babylonian astronomy up to Einstein's Theory of Relativity, and its application to cosmology. Prerequisite: PHYS 100 or 109 or 126. Note: Credit may be obtained for only one of PHYS 202 or PHYS 212.

#### **0** PHYS 213 Revolutions in Physics: The Quantum Theory of Matter

★3 (fi 6) (second term, 3-0-0). This course traces the evolution of theories of matter, the limitations of classical causality, and the development and interpretations of Quantum Mechanics including implications for exciting current topics in Physics. Prerequisite: PHYS 100 or 109 or 126. Note: Credit may be obtained for only one of PHYS 202 or PHYS 213.

#### **0** PHYS 224 Thermal Physics

★3 (fi 6) (first term, 3-0-0). Thermal properties of matter: temperature, thermal expansion, ideal gas laws; thermal energy; specific and latent heats, calorimetry, heat conduction, radiation convection; thermodynamics: work, heat, internal energy, first law, thermal processes. Carnot engine, refrigerators, heat pumps, second law; kinetic theory of gases, Maxwell distribution, effusion; mean free path, kinetic theory of transport processes; laws of probability and statistical physics: entropy, arrow of time; applications: diffusion, osmosis, membranes, unwinding of DNA molecules. Prerequisites: PHYS 126 or 146 or EN PH 131, and MATH 113 or 114. This course is part of a sequence with PHYS 124 and 126 for General program students. Credit may normally be obtained in only one of PHYS 211 or 224.

#### **PHYS 230 Electricity and Magnetism**

★3.8 (fi 6) (either term, 3-0-3/2). Electric fields, Gauss' Law; electric potential; capacitance and dielectrics; electric current and resistance; magnetic fields, Ampere's Law; Faraday's Law; inductance; magnetic properties of matter. Prerequisites: PHYS 130 or 146 and MATH 100. Corequisite: MATH 101 or 115. Note: Restricted to Engineering students. Other students who take this course will receive ★3.0.

#### **0** PHYS 234 Introductory Computational Physics

★3 (fi 6) (second term, 3-0-3). Algorithms for scientific data analysis: sorting methods, polynomial fitting, regression, interpolation, and Fourier analysis: techniques for solving physics and geophysics problems with selected topics from mechanics, waves, geometrical optics and ray tracing, electricity and magnetism, statistical physics, decay processes, quantum physics, signal processing. Prerequisites: PHYS 126 or 146 or EN PH 131, and MATH 113 or 114, and MATH 102 or 120 or 125.

#### **0** PHYS 244 Mechanics

★3 (fi 6) (second term, 3-0-0). Particle dynamics; oscillating systems and normal modes; conservative forces and energy; introduction to Lagrangian and Hamiltonian dynamics; central forces; orbital motion and scattering. Prerequisite: PHYS 102 or 146 or EN PH 131. Corequisite: MATH 215 or 317 or equivalent.

#### **0** PHYS 261 Physics of Energy

★3 (fi 6) (first term, 3-0-0). Energy in its various forms; conservation of energy principle; consumption of primary energy resources; space heating, heat transfer, heating degree-days; hydro, tidal, and wind power; ideal gases; heat engines, refrigerators and the second law of thermodynamics; nuclear fission, nuclear reactors; alternative and renewable energy resources. Prerequisites: ★6 in 100-level PHYS courses, and MATH 113 or 114, plus one other MATH course.

#### **0** PHYS 264 Environmental Physics I

★3 (fi 6) (second term, 3-0-0). Principles of materials balance and the calculation of the concentration of pollutants; exponential growth and decay; wet and dry adiabatic lapse rates and the dispersal of air pollutants; thermal conduction, convection and radiation; solar energy and solar technology; photovoltaics; water

vapor and humidity. Prerequisites: ★6 in 100-level PHYS courses and MATH 113 or 114, plus one other MATH course.

#### **0** PHYS 271 Introduction to Modern Physics

★3 (fi 6) (either term, 3-0-0). Experimental evidence for limitations of classical physics; review of special relativity: quantization of charge, light, and energy; blackbody radiation, photoelectric effect, Compton effect; models of the atom; wavelike properties of particles; the uncertainty principle, the Schrodinger Equation, the infinite and finite square well, the harmonic oscillator, tunneling; the hydrogen atom, orbital angular momentum and electron spin; Bose-Einstein and Fermi-Dirac statistics. Prerequisite: PHYS 102 or 146 or EN PH 131, and MATH 115 or equivalent. Note: Credit may be obtained in only one of PHYS 208 or 271.

#### **0** PHYS 281 Electricity and Magnetism

★3 (fi 6) (first term, 3-0-0). Electric fields; Gauss' law; electric potential; capacitance and dielectrics; electric current and resistance; DC circuits; magnetic fields; Ampere's Law; Faraday's Law; inductance; magnetic properties of matter, AC circuits; Maxwell's equations; electromagnetic waves. Prerequisite: PHYS 102 or 126 or 146. Corequisite: MATH 214 or 217 or equivalent.

#### **PHYS 292 Physics Laboratory A**

★3 (fi 6) (two term, 0-0-3). Experiments in mechanics, electromagnetism and atomic physics. Corequisites: PHYS 281 or 230, and MATH 214 or equivalent. Note: Restricted to Engineering students.

#### **0** PHYS 294 General Physics Laboratory

★3 (fi 6) (first term, 0-0-6). Introduction to methods of experimental physics with examples from modern physics. Prerequisite: MATH 113. Pre- or corequisite: PHYS 224. Note: Not to be taken by Specialization or Honors students in Physics, Geophysics or Mathematical Physics. Credit may be obtained in only one of PHYS 294 or 295.

#### **0** PHYS 295 Experimental and Statistical Methods of Physics

★3 (fi 6) (first term, 0-0-6). Detection of radioactive emissions using a Geiger counter, determination of the absolute zero of temperature using a gas thermometer, and other experiments illustrating the analysis of experimental data. Prerequisites: PHYS 101 or 102 or 126 or 146, and MATH 115. Credit may be obtained in only one of PHYS 294 or 295.

#### **0** PHYS 297 Classic Experiments in Physics

★3 (fi 6) (either term, 0-0-6). Choice of modern physics experiments including speed of light, measurement of  $e/m$ , Balmer series in hydrogen, photoelectric effect, and the Millikan oil drop and Franck-Hertz experiments. Prerequisite: PHYS 294 or 295. Corequisites: PHYS 208 or 271, and 281, and MATH 115.

#### **0** PHYS 301 Nuclear Physics and Elementary Particles

★3 (fi 6) (first term, 3-0-0). Topics include the properties and structure of the nucleus; radioactivity, carbon dating, tracer techniques; nuclear fission; fusion; nuclear reactors; elementary particles and particle accelerators. Prerequisite: PHYS 208. Corequisite: MATH 214. Note: This course is not available for credit toward Honors Physics and Mathematical Physics degree programs.

#### **0** PHYS 302 Atomic Molecular and Laser Physics

★3 (fi 6) (second term, 3-0-0). The Rutherford Model of the atom; the Balmer series in hydrogen; the Bohr model; the wave-mechanical model; electron spin; the Pauli exclusion principle and X-ray spectra; molecular bonding; experimental and theoretical aspects of molecular structure; vibrational and rotational spectra of simple molecules; requirements for laser action; population inversion mechanisms; applications of lasers. Prerequisites: PHYS 208 and MATH 214. Note: This course is not available for credit toward Honors Physics and Mathematical Physics degree programs.

#### **0** PHYS 307 Solid State and Materials Physics

★3 (fi 6) (second term, 3-0-0). Crystal structure, diffraction and atomic binding; structural defects; electrons in metals; energy bands; semiconductors, p-n junctions and transistors; low temperature physics; superconductivity; magnetic materials; applications to data storage, integrated circuits, lasers, and other devices. Prerequisites: PHYS 208 and MATH 115. Note: This course is not available for credit toward Honors Physics and Mathematical Physics degree programs.

#### **0** PHYS 309 Statistical Physics with Biological Applications

★3 (fi 6) (first term, 3-0-0). Elements of probability theory with applications; molecular motion and physical properties of gases; random walk in one and three dimensions with application to diffusion and solute flow across boundaries; the diffusion equation; particle conservation; Fick's Law; porous membranes; flow and diffusion of particles; Poisson statistics applied to physical and biological systems. Prerequisite: PHYS 208 or 224. Note: This course is not available for credit toward Honors Physics and Mathematical Physics degree programs.

#### **0** PHYS 311 Statistical Physics I

★3 (fi 6) (first term, 3-0-0). Quantum states, probability distributions, temperature and entropy; canonical ensemble and the partition function; ideal gases, paramagnets; blackbody radiation. Debye model for phonons; quantum statistics; Fermi-Dirac distribution and electrons in metals; Bose-Einstein distribution. Prerequisites: PHYS 211, 271 and MATH 215 or 317 or equivalent.

**PHYS 319 Physical Principles of Electron Microscopy**

★3 (fi 6) (second term, 3-0-0). Application of the basic principles of optics, electricity, and magnetism to the focusing of electron beams and to the design of transmission and scanning electron microscopes; electron scattering by atoms; electron diffraction; interpretation of images of biological and crystalline specimens; microanalysis by X-ray emission spectroscopy. Prerequisite: PHYS 208.

**PHYS 351 Relativity**

★3 (fi 6) (either term, 3-0-0). Lorentz transformations, definition of scalars, vectors, tensors; transformation of electromagnetic field; relativistic kinematics-collisions, centre of momentum, and laboratory frames; applications; introduction to general relativity. Prerequisites: PHYS 244, 281, and MATH 215.

**PHYS 362 Optics and Lasers**

★3 (fi 6) (first term, 3-0-0). Gaussian optics; optical instruments; matrix analysis of lens systems; aberrations; polarization; double- and multiple-beam interference; Fraunhofer and Fresnel diffraction; introduction to laser physics and applications; selected topics from contemporary optics. Prerequisite: PHYS 230 or 281, and MATH 215. For Engineering students, E E 335 is a corequisite in place of MATH 215.

**PHYS 364 Environmental Physics II**

★3 (fi 6) (first term, 3-0-0). Terrestrial thermal environment; molecular absorption of electromagnetic radiation and the carbon dioxide problem; factors affecting the long-term stability of the earth's climate; the ozone problem; aspects of building ventilation; radioactivity and the effect of ionizing radiation on humans, the radon problem. Prerequisites: PHYS 264 and MATH 115.

**PHYS 372 Quantum Mechanics A**

★3 (fi 6) (second term, 3-0-0). Origins of quantum mechanics; wave functions; Schrodinger equation and its application to one dimensional systems, postulates and physical interpretation of quantum mechanics; orbital angular momentum, central potentials and three-dimensional systems. Prerequisites: PHYS 271, and PHYS 230 or 281, and MATH 121 or 225 (or 102 for Engineering students). Corequisite: MATH 337 or equivalent.

**PHYS 381 Electromagnetic Theory I**

★3 (fi 6) (second term, 3-0-0). Review of scalar and vector fields; Gauss and Stokes theorems; curvilinear coordinates; Dirac delta function; electrostatic field and potential; electrostatic energy; conductors, capacitors; Laplace's equation; boundary value problems; methods of images; multipoles; electrostatic field in matter; polarization; displacement; linear dielectrics; magnetostatic field; Biot-Savart and Ampere's law; vector potential; magnetostatic field in matter; magnetization; linear and nonlinear magnetic media. Prerequisites: PHYS 230 or 281, MATH 334 or equivalent. Corequisite: MATH 337 or equivalent.

**PHYS 395 Electronics**

★3 (fi 6) (first term, 3-0-3). DC and AC circuits; filter, diode, and transistor circuits; operational amplifiers, digital circuits, data acquisition, and computers. Lab component of the course provides practical experience in electronics. Prerequisites: PHYS 230 or 281, MATH 120 or 125, and MATH 215. Credit in PHYS 292 or 294 or 295 is strongly recommended.

**PHYS 397 Projects in Experimental Physics**

★3 (fi 6) (either term, 0-0-6). Projects in optics, electricity, magnetism, and modern physics. Prerequisite: PHYS 292 or 295 or 297. Corequisite: PHYS 381 and MATH 337 or equivalent.

**PHYS 400 Industrial Internship Practicum**

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed a physics Industrial Internship Program. Must be completed during the first academic term following return to full-time studies. Note: A grade of F to A+ will be determined by the student's job performance as evaluated by the employer, by the student's performance in the completion of an internship practicum report, and by the student's ability to learn from the experiences of the Internship as demonstrated in an oral presentation. Prerequisite: WKEXP 422 or 423.

**PHYS 413 Statistical Physics II**

★3 (fi 6) (second term, 3-0-0). Grand canonical ensemble; quantum statistical mechanics. Fermi-Dirac and Bose-Einstein distributions; Bose-Einstein condensation; kinetic theory, transport coefficients, and the Boltzmann equation; fluctuations; phase transitions and critical phenomena. Prerequisites: PHYS 311 and 372, and MATH 337 or equivalent.

**PHYS 415 Introduction to Condensed Matter Physics I**

★3 (fi 6) (first term, 3-0-0). Lattice structure and binding; lattice vibrations; electrons in solids, band structure of metals, Fermi surface; semiconductors and junctions; paramagnetism and diamagnetism; introduction to lattice defects. Prerequisites: PHYS 311 and 372, and MATH 337 or equivalent.

**PHYS 417 Introduction to Condensed Matter Physics II**

★3 (fi 6) (second term, 3-0-0). Lattice imperfections, dislocations, crystal growth; first and second order phase transitions; ferro- and antiferro-magnetism; production of low temperatures; superconductivity and superfluidity; dielectric and optical properties of solids; ferro-electricity. Prerequisites: PHYS 415 and MATH 337 or equivalent.

**PHYS 420 Computational Physics**

★3 (fi 6) (first term, 3-0-3). Basic principles; computational methods selected from matrix manipulation, variational techniques, Monte Carlo, random walks, fast Fourier transform, lattice methods; as applied to topics selected from mechanics, nonlinear systems, chaos; electrodynamics; wave propagation; statistical physics; quantum mechanics; condensed matter. Prerequisites: PHYS 244, PHYS 381, MATH 337 or equivalent. Recommended: MA PH 343, PHYS 311, PHYS 372, PHYS 472, and PHYS 481. Familiarity with FORTRAN and/or C programming language strongly recommended.

**PHYS 461 Photonics**

★3 (fi 6) (second term, 3-0-0). Principles and applications of ultrafast lasers; nonlinear optics; quantum optics; light emitting materials; photodetectors; fibre and integrated optics; photonic bandgap structures; optical traps; selected current topics. Prerequisites: PHYS 362, 372, 481; MATH 311, and 337 or equivalent. Recommended: PHYS 415.

**PHYS 472 Quantum Mechanics B**

★3 (fi 6) (first term, 3-0-0). Review of the postulates of quantum mechanics; quantization of angular momentum; matrix representations, spin and parity; approximation methods; perturbation theory; variational and other methods; applications; scattering theory; systems of identical particles. Prerequisites: PHYS 372, and MATH 337 or equivalent, and MATH 311.

**PHYS 475 Medical Radiation Physics: Fundamentals**

★3 (fi 6) (either term, 3-0-0). Basic concepts of dosimetry; microscopic energy distribution in irradiated matter; production of X-rays; photon interactions; charged particle interactions; ionization cavity chambers. Prerequisite: PHYS 271, and 372 or 381.

**PHYS 481 Electromagnetic Theory II**

★3 (fi 6) (first term, 3-0-0). Electromotive force; Faraday's law; inductance; Maxwell's equations in free space and in matter; electromagnetic potentials; gauges; energy and momentum conservation laws; plane waves in vacuum, in non-conducting and in conducting media; reflection and refraction of electromagnetic waves; dispersion, wave guides; dipole radiation; radiation due to moving charge; radiation reaction. Prerequisite: PHYS 381; MATH 311, 337 or equivalent.

**PHYS 484 Nuclear Physics**

★3 (fi 6) (first term, 3-0-0). Nuclear forces and the two nucleon system. Bulk properties of nuclei. Nuclear excitation and decay. Shell and collective models of nuclear structure. Nuclear reactions and gamma and beta decay. Nuclear reactions in astrophysics. Prerequisites: PHYS 372 and MATH 337 or equivalent, and MATH 121 or 225 (or 102 for Engineering students).

**PHYS 485 Introductory Particle Physics**

★3 (fi 6) (second term, 3-0-0). Particles and forces; relativistic kinematics; symmetries and conservation laws; bound states, heavy flavours, and the quark model; Dirac equation and the electrodynamics of leptons; electrodynamics of quarks and the parton model; quantum chromodynamics and the strong interactions; weak interactions and electroweak unification. Prerequisites: PHYS 472, 351; MATH 337 or equivalent, and MATH 121 or 225.

**PHYS 491 Advanced Laboratory**

★3 (fi 6) (first term, 0-0-6). Open-ended experiments in atomic, nuclear, and solid state physics. Prerequisites: PHYS 381 and 395, MATH 337 or equivalent. Corequisite: PHYS 481.

**PHYS 493 Instrumentation B**

★3 (fi 6) (second term, 3-0-0). Topics in instrument design in several fields of experimental physics. Prerequisites: PHYS 397, 481 and MATH 337 or equivalent. (PHYS 395 is also strongly recommended as a prerequisite).

**PHYS 499 Special Projects**

★3 (fi 6) (either term, 0-0-6). Experimental or reading project under the direction of a staff member. This course is intended for both Honors Physics students and Honors Mathematical Physics students. Prerequisites: A 300-level Physics course and consent of Department.

**Graduate Courses**

**Note:** The following undergraduate courses may be taken for credit by graduate students: PHYS 413, 415, 417, 420, 461, 465, 472, 475, 477, 481, 484, 485, 491, 493, 499.

**PHYS 511 Advanced Quantum Mechanics I**

★3 (fi 6) (first term, 3-0-0). Principles of quantum mechanics; central force problems; angular momentum; approximation methods for stationary states; time-dependent perturbation theory; scattering theory; identical particles and second quantization; quantum statistical mechanics.

**PHYS 512 Advanced Quantum Mechanics II**

★3 (fi 6) (second term, 3-0-0). Time-dependent scattering theory; relativistic quantum mechanics; Klein-Gordon and Dirac equations; introduction to quantum field theory.

**PHYS 520 Classical Electrodynamics I**

★3 (*fi 6*) (first term, 3-0-0). Boundary value problems in electrostatics, Green's functions, electrostatics in dielectrics; magnetostatics, time varying fields and Maxwell's equations, gauge transformations; plane electromagnetic waves.

**PHYS 524 Classical Electrodynamics II**

★3 (*fi 6*) (second term, 3-0-0). Wave guides, radiating systems; special relativity, dynamics of relativistic particles and electromagnetic fields; radiation by moving charges; multiple fields. Additional special topics will be discussed.

**PHYS 530 Statistical Mechanics**

★3 (*fi 6*) (either term, 3-0-0). Fundamentals of classical and quantum statistical mechanics, with selected applications.

**PHYS 541 Condensed Matter Physics I**

★3 (*fi 6*) (either term, 3-0-0). Crystal structure and symmetries; electrons and band structure; semiconductors and heterostructures; lattice vibrations and thermal properties.

**PHYS 543 Condensed Matter Physics II**

★3 (*fi 6*) (either term, 3-0-0). Dielectric and optical properties of solids; magnetism; electronic transport; disordered systems; electron-phonon interaction and superconductivity; strongly correlated electronic systems.

**PHYS 574 Experimental Methods in Physics**

★3 (*fi 6*) (either term, 3-0-3/2). Statistics and data analysis: S/N considerations; interactions of photons, neutrons, and charged particles with matter; detectors; vacuum technology. Other topics to be selected according to students' needs and instructor's preference.

**PHYS 580 Advanced Computational Physics**

★3 (*fi 6*) (either term, 3-0-0). Basic numerical methods and algorithms applied to a selected range of physics areas chosen from: mechanics, electrodynamics and optics, quantum physics, statistical physics, condensed matter, fluids and plasmas, and relativity.

**PHYS 590 Particle Physics II**

★3 (*fi 6*) (either term, 3-0-0). Field theory and symmetries; gauge theories; spontaneous symmetry breaking; electroweak interactions of quarks and leptons; quantum chromodynamics; unified theories.

**PHYS 610 Quantum Field Theory I**

★3 (*fi 6*) (first term, 3-0-0).

**PHYS 614 Quantum Field Theory II**

★3 (*fi 6*) (second term, 3-0-0).

**PHYS 643 Superconductivity**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 644 Analytical Electron Microscopy**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 646 Special Topics in Condensed State Physics**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 675 Experimental Topics in Subatomic Physics II**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 691 Advanced Particle Physics I**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 692 Group Theory and Applications**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 696 Black Hole Physics**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 698 Advanced General Relativity**

★3 (*fi 6*) (either term, 3-0-0).

**PHYS 699 Special Topics in Theoretical Physics**

★3 (*fi 6*) (either term, 3-0-0).

## 201.174 Physics/Biomedical Engineering, PH BE

Departments of Biomedical Engineering, and Physics  
Faculties of Medicine and Dentistry, and Science

### Undergraduate Courses

**PH BE 221 Introduction to the Physics of Medicine and Biology**

★3 (*fi 6*) (second term, 3-0-0). A non-calculus course that will review and illustrate by example various topics in physics applicable to medicine and biology. Examples will be drawn from skeletal mechanics; energy, metabolism, and heat loss; pressure and the physics of diving; fluid flow; osmosis and diffusion; physics of the lungs; physics of the cardiovascular system; origin of biopotentials,

membrane and action potentials, and electrocardiography; sound and diagnostic ultrasound; vision and microscopy; biological effects of ionizing radiation, nuclear medicine, and diagnostic medical imaging. Prerequisites: PHYS 101, 102, 109, 126, or 146.

## 201.175 Physiology, PHYSL

Department of Physiology  
Faculty of Medicine and Dentistry

**Note:** Details on the BSc Program in Physiology can be found in the Faculty of Science section.

### Undergraduate Courses

**PHYSL 161 Elementary Physiology**

★6 (*fi 12*) (two term, 3-0-0). Available only to students who intend to enter the Occupational Therapy or Physical Therapy program if they have completed at least one year of University and if they have the consent of the Department of Physiology.

**PHYSL 210 Human Physiology**

★6 (*fi 12*) (two term, 3-0-0). Introductory course in human physiology. Prerequisites: BIOL 107 or 108; CHEM 101 and 102. Pre- or corequisites: CHEM 161 and 163; or CHEM 261 and 263. Credit may be obtained in only one of PHYSL 210 or 211. See PHYSL 211.

**PHYSL 211 Human Physiology**

★6 (*fi 12*) (two term, 3-0-0). Introductory course in human physiology. Required for students in Honors Physiology. Recommended for students in other Honors/Specialization programs. Prerequisites: BIOL 107 or 108; CHEM 101 and 102. Pre- or corequisites: CHEM 161 and 163; or CHEM 261 and 263. Credit may be obtained in only one of PHYSL 210 or 211. Students with credit in PHYSL 210 or 211 may not obtain credit in ZOOL 241 or 242. Students in some Honors/Specialization programs may require PHYSL 210 or 211. See your departmental advisor.

**PHYSL 252 Human Physiology**

★6 (*fi 12*) (two term, 3-0-0). An introductory course on mammalian and human physiology. Available only to students in the Faculties of Pharmacy and Pharmaceutical Science and Agriculture, Forestry, and Home Economics and Dental Hygiene and Medical Laboratory Science.

**PHYSL 372 Systems Neuroscience**

★3 (*fi 6*) (second term, 3-0-0). Introduction to the organization and function of vertebrate nervous systems. Major topics will be neural development, control of movement, integration of sensory information, and the neuronal mechanisms underlying memory and learning. Prerequisite: PHYSL 210 or 211, or ZOOL 242.

**PHYSL 401 Molecular and Cellular Physiology**

★3 (*fi 6*) (first term, 3-0-0). The molecular and cellular aspects of physiological processes. Main areas include the structure and functions of plasma membranes emphasizing transport processes and their regulation. The mechanism of action of hormones (hormone-receptor interactions, receptor regulation and interactions of intracellular mediators). The physiological significance of these processes will be stressed throughout. Prerequisites: PHYSL 210, or 211 and consent of Instructor.

**PHYSL 402 Homeostatic Physiology**

★3 (*fi 6*) (second term, 3-0-0). Principles of regulatory mechanisms in human and mammalian physiology. The interrelationships between different organ systems in the maintenance of homeostasis, some theoretical modelling. Prerequisites: PHYSL 210, or 211 and consent of Instructor.

**PHYSL 403 Neuroendimmunomodulation**

★3 (*fi 6*) (first term, 3-0-0). The physiological and pathophysiological interrelationships between the nervous, endocrine and immune systems. Prerequisites: PHYSL 210 or equivalent.

**PHYSL 404 Cardiovascular Physiology**

★3 (*fi 6*) (first term, 3-0-0). General concepts in human cardiovascular physiology: properties of the myocardium, hemodynamics and control of the cardiovascular system; limited discussion of relevant clinical situations. Prerequisite: PHYSL 210, or 211 or equivalent.

**PHYSL 444 Advanced Topics in Neurophysiology**

★3 (*fi 6*) (first term, 3-0-0). A lecture course emphasizing contemporary aspects of developmental, cellular, systems and cognitive neurophysiology. Topics will include experience-dependent processes in the development of the nervous system, the molecular and cellular mechanisms for learning and memory, and voluntary movement, the representation and transformation of information in the nervous system, and the neuronal events associated with conscious experience. Students will be expected to demonstrate a thorough understanding of selected readings from current and classical literature. Suitable for honours students in Physiology, Pharmacology, Psychology and Neuroscience. Prerequisites: PMCOL 371 and PHYSL 372 and permission of course coordinator.

**PHYSL 465 Undergraduate Research Project**

★3 (fi 6) (either term, 0-0-6). Individual study. Restricted to students in the Physiology Honors Program. Students will spend one term in the laboratory of a faculty member and carry out a laboratory research project. Successful completion of an oral presentation is required at the conclusion of the project. Credit for this course may be obtained more than once.

**PHYSL 466 Undergraduate Tutorial**

★3 (fi 6) (either term, 3-0-0). Individual study. Restricted to students in the Physiology Honors Program. Students will select a faculty member who will guide them through a course of reading at an advanced level on a specialized topic. Successful completion of an oral presentation is required at the conclusion of the project. Credit for this course may be obtained more than once.

**PHYSL 501 Topics in Cardiovascular Physiology**

★3 (fi 6) (second term, 3-0-0). The goal of PHYSL 501 is to develop critical appraisal and presentation skills in advanced undergraduate and graduate students. Through critical review of controversial topics in modern cardiovascular physiology, the participant will learn to appreciate that literature is a dynamic, changing and fallible source of information. Presentation skills are developed through both oral and written assignments and facility with the use of electronic library resources is encouraged. Course content varies from year to year. Prerequisites: PHYSL 210 or 211, PHYSL 404 and consent of Instructor.

**PHYSL 502 Problems in Current Research**

★3 (fi 6) (either term, 0-0-6). Individual study. Credit for this course may be obtained more than once.

**PHYSL 506 Tutorial and Seminar Course**

★3 (fi 6) (either term, 3-0-0). Guided reading course. Credit for this course may be obtained more than once.

**PHYSL 512 Physiology of the Respiratory System**

★3 (fi 6) (first term, 3-1s-0). Cellular and molecular physiology of airways and the lung. Major topics include ion transport mechanisms, fluid balance, epithelial electrophysiology, cystic fibrosis, cellular mechanisms of asthma, neural and chemical control of respiration, and perinatal control of breathing. Designed for advanced undergraduate and graduate students. Prerequisites: PHYSL 210, 211 or 252 or consent of Department.

**PHYSL 513 Fetal Physiology**

★3 (fi 6) (second term, 3-0-0). The course stresses experimental approaches to understanding fetal physiology as well as the development and function of the fetus from ovulation to birth and adaptation to independent life. This course also deals with maternal physiology during pregnancy, complications of pregnancy, and newborn health. Prerequisites: PHYSL 210 or PHYSL 211 and consent of Instructor.

**PHYSL 527 Experimental Approaches in Neuroscience**

★3 (fi 6) (second term, 3-0-0). Lecture course designed to provide an appreciation and understanding of the vast array of experimental approaches used in neurobiological research. Topics will include electrophysiological, neuropharmacological, and anatomical approaches used to understand how the nervous system functions at the molecular, cellular, and system levels. For advanced undergraduate and graduate students. Prerequisite: PHYSL 372 or PMCOL 371. Offered in alternate years.

**PHYSL 545 Physiology of Transport Systems**

★3 (fi 6) (second term, 3-0-0). A consideration of transport mechanisms primarily from the physiological rather than biochemical viewpoint. Major models considered are the erythrocyte and a variety of epithelia from vertebrates. Designed for advanced undergraduate and graduate students. Offered in alternate years. Prerequisites: PHYSL 210 or 211 or 252, or ZOO 241 or 242.

**Graduate Courses****PHYSL 544 Physiology of Reproduction**

★3 (fi 6) (first term, 3-0-0). Selected topics in reproductive physiology. Prerequisite: ZOO 343 or PHYSL 401.

**PHYSL 600 Colloquia in Physiology**

★3 (fi 6) (either term, 0-3s-0). This discussion course will provide an opportunity for Provisional PhD candidates in the Department of Physiology, prior to their candidacy examination, to research, present and critique publications in areas relevant to their research, but not their own research. Graded on a pass/fail basis. Prerequisite: consent of Department. Open to other graduate students in the Department of Physiology.

**201.176 Physique, PHYSQ**

Faculté Saint-Jean

**Cours de 1er cycle****PHYSQ 124 Particules et ondes**

★3 (fi 6) (premier semestre, 3-0-3). Cours basé sur l'algèbre, pour les étudiants

en sciences de la vie et de la santé. Particules: vecteurs, cinématique et dynamique, équilibre, mouvement circulaire, principes de conservation. Ondes: vibrations, ondes élastiques dans la matière, optique, son, photons, modèles de l'atome. Applications en biologie et en médecine. Préalable(s): Mathématiques 30, Physique 20 ou l'équivalent. Physique 30 est fortement recommandé. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYSQ 131, PHYS 144 ou EN PH 131.

**PHYSQ 126 Fluides, champs et radiation**

★3 (fi 6) (deuxième semestre, 3-0-3). Suite de PHYSQ 124, pour les étudiants en sciences de la vie et de la santé. Statique et dynamique des fluides, gaz, interprétation cinétique. Electrostatique, courants et circuits, champs magnétiques, induction électromagnétique. Radiation nucléaire et ses applications. Préalable(s): PHYSQ 124. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYSQ 130, PHYS 146.

**PHYSQ 130 Ondes, optique et son**

★3 (fi 6) (premier semestre, 3-0-3/2). Optique géométrique, instruments d'optique, oscillations, ondes, son, interférence, diffraction. Préalable(s): Mathématiques 30, Physique 30. Concomitant(s): MATHQ 100 ou 113, ou l'équivalent. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYSQ 100, 126, PHYS 109 ou 146.

**PHYSQ 131 Mécanique**

★3 (fi 6) (deuxième semestre, 3-1s-3/2). Cinématique et dynamique des particules; gravitation; travail et énergie; moments linéaire et angulaire; systèmes de particules; dynamique des corps rigides. Préalable(s): MATHQ 100 ou 113, PHYSQ 130. Concomitant(s): MATHQ 115 ou MATH 101. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYSQ 102, 124, PHYS 101, 108, 144 ou EN PH 131.

**PHYSQ 211 Thermodynamique et théorie cinétique**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Température, chaleur, travail et première loi de la thermodynamique. Entropie et la deuxième loi de la thermodynamique. Enthalpie, énergie libre de Helmholtz et de Gibbs. Critères d'équilibre thermodynamique. Relations de Maxwell. Transitions de phase. Introduction élémentaire à la théorie cinétique des gaz. Préalable(s): PHYSQ 102 ou 131 ou PHYS 146. Préalable(s) ou concomitant(s): MATHQ 215 ou MATH 317 ou l'équivalent. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYS 224.

**PHYSQ 230 Electricité et magnétisme**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-3/2). Champs électriques: loi de Gauss, potentiel électrique, condensateurs et diélectriques. Courant électrique et résistance. Champ magnétique: loi d'Ampère, loi de Faraday, inductance. Circuits. Propriétés magnétiques et la matière. Préalable(s): PHYSQ 130 et MATHQ 100. Concomitant(s): MATHQ 101 ou 115.

**PHYSQ 264 Physique de l'environnement I**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Mathématiques de la croissance et de la décroissance. Consommation des ressources. Mécanismes de transfert de chaleur, isolation thermique. Énergie solaire, technologie solaire active et passive. Eau, vapeur et humidité. Construction de bâtiments pour un climat froid. Préalable(s): ★6 en physique de première année et MATHQ 113 ou 114 ou 100 ainsi que ★3 de mathématiques de première année. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYS 263.

**PHYSQ 271 Introduction à la physique moderne**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Contradictions expérimentales de la physique classique: relativité restreinte, quantification de la charge, de la lumière et de l'énergie. Corps noir, effet photoélectrique, effet Compton. Modèles atomiques, propriétés ondulatoires des particules, principe d'incertitude. Équation de Schrödinger, puits carrés infini et fini, oscillateur harmonique, effet tunnel, atome d'hydrogène. Moment cinétique et spin de l'électron, statistiques de Bose-Einstein et de Fermi-Dirac. Préalable(s): PHYSQ 102 ou 131 ou PHYS 146 et MATHQ 115 ou 101 ou l'équivalent. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYS 208.

**PHYSQ 351 Relativité**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Transformations de Lorentz; définitions de scalaires, vecteurs et tenseurs; transformation du champ électromagnétique; cinématique et dynamique relativistes; applications; introduction à la relativité générale. Préalable(s): MATHQ 215, PHYSQ 230 ou PHYS 281, et PHYS 244. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour PHYSQ 200 ou PHYS 251.

**201.177 Plant Science, PL SC**

Department of Agricultural, Food and Nutritional Science  
Faculty of Agriculture, Forestry, and Home Economics

**Note:** See also Agricultural, Food and Nutritional Science (AFNS), Animal Science (AN SC), Environmental and Conservation Sciences (ENCS), Interdisciplinary (INT D), Nutrition (NUTR), Nutrition and Food Sciences (NU FS),

Renewable Resources (REN R) and Soil Sciences (SOILS) course listings for related courses.

The following courses were renumbered effective 1995/96:

Old	New	Old	New
PL SC 356	ENCS 356	PL SC 407	ENCS 407
PL SC 406	ENCS 406	PL SC 471	ENCS 471

The following course was renumbered effective 1997/98:

Old	New
PL SC 460	PL SC 360

## Undergraduate Courses

### 0 PL SC 220 Principles of Crop and Horticultural Science

★3 (fi 6) (first term, 3-0-0). An introduction to the role and importance of field and horticultural crop plants within agricultural systems. History of crop development; crop growth, management, improvement and protection, and crop/environment interactions. Given concurrently with PL SC 221. Not open to students with credit in PL SC 221.

### 0 PL SC 221 Principles of Crop and Horticultural Science

★3 (fi 6) (first term, 3-0-3/2). An introduction to the role and importance of field and horticultural crop plants within agricultural systems. History of crop development; crop growth, management, improvement and protection, and crop/environment interactions. Given concurrently with PL SC 220. Not open to students with credit in PL SC 220.

### 0 PL SC 301 Developmental Physiology and Biotechnology of Crop Plants

★3 (fi 6) (first term, 3-0-0). A theoretical approach to plant and plant cell developmental physiology as it relates to crop production and crop improvement through biotechnology, including use of tissue culture and recombinant DNA technologies. Topics covered will include changes through the lifecycle and in response to environmental stress, and genomic and expressional control of these changes. Prerequisites: CHEM 161/163 and BIOL 107.

### 0 PL SC 324 Field and Horticultural Crop Physiology

★3 (fi 6) (second term, 3-0-3). The study of crop growth and development, with emphasis on the interactions among physiology, environment and management. Topics may include hormonal control of growth and development, photosynthetic efficiency, canopy structure, growth analysis, intercropping, crop stress, global warming, use of genetically modified organisms, and contrasting world crop production systems. Prerequisite: One of PL SC 221, BOT 240, or ENCS 204.

### 0 PL SC 331 Plant Biochemistry I

★3 (fi 6) (first term, 3-0-3). An introduction to biochemistry emphasizing the basic similarity of all organisms, and the different ways of studying biochemical reactions. Prerequisite: CHEM 161 and 163.

### 0 PL SC 335 Plant Propagation

★3 (fi 6) (second term, 3-0-3). Study of the physiological and practical aspects of sexual and asexual plant propagation. Propagation by seed and cuttings, layering, grafting, and micropropagation. Prerequisite: PL SC 221 or consent of Instructor.

### 0 PL SC 352 Weeds and Weed Control

★3 (fi 6) (second term, 3-0-3). Crop-weed relationships, methods of control, herbicide properties and uses, weed identification. Prerequisite: PL SC 221 recommended.

### 0 PL SC 354 Forage Crops

★3 (fi 6) (second term, 3-0-3). The establishment, management, conservation and utilization of forages. Morphological structure and adaptation of the principal forage grasses and legumes. Prerequisite: PL SC 221 or consent of Instructor.

### 0 PL SC 355 Cereal, Oilseed, and Pulse Crops

★3 (fi 6) (first term, 3-0-3/2). The role of cereals, oilseeds, and pulse crops in Western Canadian agricultural systems. Their botanical, physiological, agricultural, and market quality characteristics. Prerequisite: PL SC 221 or consent of Instructor.

### 0 PL SC 357 Greenhouse Crops

★3 (fi 6) (second term, 3-0-3). History and present status of protected cropping industry; greenhouse structural design; systems of environmental control; cultural procedures for some commonly grown greenhouse crops. Offered in alternate years beginning in 1998/99. Prerequisite: PL SC 221 or consent of Instructor.

### 0 PL SC 360 Landscape Planning and Design

★3 (fi 6) (first term, 3-0-3). Site planning; introduction to design; graphic techniques, grading and surface drainage. Prerequisite: ★3 in natural sciences or consent of Instructor.

### 0 PL SC 380 Principles of Plant Pathology

★3 (fi 6) (first term, 3-0-3). An introduction to plant diseases; the nature of nonparasitic and parasitic causal agents such as air pollutants, temperature, viruses, bacteria, fungi, higher plants and nematodes; principles involved in disease prevention and control. Prerequisite: BIOL 107 recommended.

### 0 PL SC 385 Forest Pathology

★3 (fi 6) (first term, 3-0-3). An introduction to forest diseases. Lectures and discussions focus on the biology and management of the major types of tree diseases causing economic loss. Labs focus on disease identification. A basic knowledge of forestry is assumed.

### 0 PL SC 432 Plant Biochemistry II

★3 (fi 6) (second term, 3-0-3). A continuation of PL SC 331. Emphasis is on the use of energy for synthetic processes. Chemistry and biochemistry of cellular structures, isoprenoids and steroids. Photosynthesis. Nitrogen and protein biochemistry. Enzyme kinetics. Regulation and control of chemical reactions in living organisms. Offered in alternate years commencing in 1999/00. Prerequisite: PL SC 331 or ★3 in Biochemistry.

### 0 PL SC 465 Principles of Plant Breeding

★3 (fi 6) (first term, 3-0-0). Basic principles of crop improvement by plant breeding. Development of plant breeding methods and their relationship to the major crop species. Intended for undergraduate students. Graduate students may not register for credit (see AFNS 565). Prerequisites: BIOL 207 and ★3 of statistics.

### 0 PL SC 470 Physiology of Herbicidal Action

★3 (fi 6) (first term, 3-0-0). Absorption, translocation, degradation, mechanism of action. Offered in alternate years commencing in 1994-95. Prerequisites: PL SC 352 and BOT 240.

### 0 PL SC 481 Diseases of Field and Horticultural Crops

★3 (fi 6) (second term, 0-3s-0). Diseases of cereal, oilseed, pulse, forage, vegetable, fruit, and ornamental crops. Offered in alternate years commencing in 2002/03. Intended for undergraduate students. Graduate students may not register for credit (see AFNS 582). Prerequisite: PL SC 380 or consent of Instructor.

### PL SC 487 Principles of Insect Pest Management

★3 (fi 6) (second term, 3-0-3). The principles and practice of integrated insect pest management, with an emphasis on insect control strategies in field, greenhouse, and forage crops in western Canada. Topics include methods for sampling and monitoring, estimating yield losses, developing economic thresholds, and reducing crop losses by integrating management strategies. Prerequisite: ENT 207 or 280 or equivalent.

### 0 PL SC 495 Integrated Crop Protection

★3 (fi 6) (second term, 0-3s-0). Integrated agronomic, mechanical, biological, and chemical control of insects, disease organisms, and weeds that interfere with field crop and horticultural crop production. Offered in alternate years beginning in 2001/02. Intended for undergraduate students. Graduate students may not register for credit (see AFNS 595). Prerequisite: At least two of ENT 207, PL SC 352 or PL SC 380, and the third as a corequisite.

## Graduate Courses

### Notes

- 400-level courses in PL SC and ENCS 407 may be taken for credit by graduate students with approval of the student's supervisor or supervisory committee. 300-level courses may be taken for credit by graduate students with approval of the AFNS Graduate Program Committee. (See §174.1.1(1))
- See Agricultural, Food and Nutritional Science (AFNS) listings for related courses.

## 201.178 Polish, POLSH

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

### Notes

- The Department reserves the right to place students in the language course appropriate to their level of language skill.
- Placement tests may be administered in order to assess prior background. Students with Polish language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- The Department will withhold credit if a course is completed which the student is deemed ineligible to take, based on their prior background. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- See also INT D courses offered by the Faculty of Arts.

## Undergraduate Courses

### **P** POLSH 111 Beginners' Polish I

★3 (fi 6) (either term, 5-0-0). Essentials of grammar, reading, pronunciation. Designed to give a working knowledge of the Polish language. Note: not to be taken by students with credit in POLSH 100, or with native or near native proficiency, or with Polish 30 or its equivalents in Canada and other countries

### **P** POLSH 112 Beginners' Polish II

★3 (fi 6) (either term, 5-0-0). Prerequisite: POLSH 111 or consent of Department. Note: not to be taken by students with credit in POLSH 100, or with native or near native proficiency, or with Polish 30 or its equivalents in Canada and other countries.

### **P** POLSH 211 Second-Year Polish I

★3 (fi 6) (either term, 4-0-0). Intermediate grammar, composition, and oral practice based on selected texts of Polish classical and contemporary literature. Prerequisite: POLSH 112 or consent of Department. Note: not to be taken by students with credit in POLSH 201 or 202.

### **P** POLSH 212 Second-Year Polish II

★3 (fi 6) (either term, 4-0-0). A continuation of POLSH 201, with greater emphasis on reading and composition. Prerequisite: POLSH 211. Note: not to be taken by students with credit in POLSH 202.

### **P** POLSH 303 Advanced Polish I

★3 (fi 6) (either term, 3-0-0). Films, short literary texts and journalistic prose serve as the basis for composition and discussion. Prerequisite: POLSH 202 or consent of Department.

### **P** POLSH 304 Advanced Polish II

★3 (fi 6) (either term, 3-0-0). Prerequisite: POLSH 303 or consent of Department.

### **P** POLSH 407 Business Polish

★3 (fi 6) (either term, 3-0-0). Specialized language of business in Polish, especially its managing and marketing aspects. Prerequisite: POLSH 304 or consent of Department. Note: not to be taken by students with credit in POLSH 307.

### **P** POLSH 414 Polish Literature of Renaissance, Baroque, and Classicism

★3 (fi 6) (either term, 3-0-0). Survey of Polish literature and culture from its origins to the end of the eighteenth century. Masterpieces of the Polish renaissance, baroque, and classicism read in the original and/or with the aid of English translations. Prerequisite: POLSH 202 or consent of Department. Note: Not open to students with credit in POLSH 411.

### **P** POLSH 443 Polish-English Translation

★3 (fi 6) (either term, 3-0-0). Introduction to translation theories and practice as applied to Polish. Exercises in translation of minimal textual units (written and oral) with emphasis on nonliterary texts. Prerequisite: POLSH 202 or consent of Department. Note: Formerly POLSH 441. Not open to students with credit in POLSH 441.

### **P** POLSH 444 English-Polish Translation

★3 (fi 6) (either term, 3-0-0). Semantic-syntactic theories of translation and practice. Exercises in translation of written and oral textual units with emphasis on literary and artistic texts. Prerequisite: POLSH 202 or consent of Department. Note: Formerly POLSH 442. Not open to students with credit in POLSH 442.

## 201.179 Political Science, POL S

Department of Political Science  
Faculty of Arts

**Note:** See also INT D 346, 393, 447, and 468 for courses which are offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.

## Undergraduate Courses

### **P** POL S 100 Introduction to Government and Politics

★6 (fi 12) (two term, 3-0-0). An introduction to the institutions, processes and problems of democratic states with particular emphasis on the Anglo-American democracies. Some of the topics considered are ideologies, the role of government, democracy, the roles of the executive, legislative and judicial branches of government, political parties and interest groups, and political behavior, including elections. Formerly POL S 200.

### **P** POL S 103 Modern Political Issues

★3 (fi 6) (either term, 3-0-0). An introduction to contemporary issues and events. Note: This course is designed for students not contemplating a Political Science major. Not open to students who are taking or have taken POL S 100. Formerly POL S 203.

### **P** POL S 110 Politics of Globalization

★3 (fi 6) (either term, 3-0-0). The myths and realities of the 'so-called' globalization of the international political economy; the historical organization of the global

economy; the rise of transnational corporations, changing relations between the north and the south; new roles for the nation-state and implications for democracy, citizenship and political change.

### **P** POL S 200 Introduction to Comparative Politics

★6 (fi 12) (two term, 3-0-0). Historical and contemporary comparisons among selected countries and regions. Themes include political institutions, social change, development, and democratization. Note: this is the core course in comparative politics and the prerequisite for most 300- and 400-level courses in the field. Formerly POL S 300.

### **P** POL S 210 History of Political Thought

★6 (fi 12) (two term, 3-0-0). An historical and critical survey of the development of political and social philosophy from ancient Greece to the present time, with selected readings from major political writers. This is the core course in the field of political philosophy and the prerequisite for 400-level courses in the field. Formerly POL S 310.

### **P** POL S 212 Ethics and Politics

★3 (fi 6) (either term, 3-0-0). An examination of some moral issues that arise in the political realm, such as the law regarding abortion and euthanasia, capital punishment, obscenity, and the rights of aboriginal peoples. Note: Not intended for students specializing in political science. Not open to students who are taking or have taken POL S 210. Formerly POL S 312.

### **P** POL S 220 Canadian National Government and Politics

★6 (fi 12) (two term, 3-0-0). The structure and function of the government of Canada, especially of the Commons, Senate, Cabinet System, Civil Service, and the role of political parties. Note: This is the core course in the field of Canadian government and politics and a prerequisite for most 400-level courses in the field. Formerly POL S 320.

### **P** POL S 221 Canadian Political Realities

★3 (fi 6) (either term, 3-0-0). This introduction to Canadian politics is designed for students who do not intend to take more senior courses in Canadian politics. It provides an overview of Canadian political development, the key institutions and actors in Canadian politics, and a survey of Canada's most pressing and persistent political challenges. Not open to students who are taking or have taken POL S 100 or POL S 220.

### **P** POL S 222 Local Government and Administration

★3 (fi 6) (either term, 3-0-0). The structure and functions of local government in Canada with primary emphasis on the Province of Alberta. Note: Designed primarily for students who want one senior course in political science. Not intended for students specializing in political science. Not open to students who are taking or have taken POL S 223. Formerly POL S 322.

### **P** POL S 223 City Government and Politics

★3 (fi 6) (either term, 3-0-0).

### **P** POL S 260 International Relations

★6 (fi 12) (two term, 3-0-0). An introduction to contemporary international relations that attempts to develop an understanding of political events at the international level. The course covers the nature of foreign policy, the dynamics of interactions between states, the causes of war, imperialism and the role of non-state actors. Note: This is the core course in the field of international relations and a prerequisite for most 400-level courses in the field. Formerly POL S 360.

### **P** POL S 290 Introduction to Political Behavior

★3 (fi 6) (either term, 3-0-0). An introduction to the behavioral approach to the study of politics and its application in selected substantive research areas. Formerly POL S 390.

### **P** POL S 302 Classic Works of Political Thought

★3 (fi 6) (either term, 3-0-0). Critical examination of some major works in Political Philosophy not normally covered in POL S 210. Prerequisite: POL S 210 or consent of Department.

### **P** POL S 303 The Politics of Financial Crises

★3 (fi 6) (either term, 3-0-0). Role of governments and institutions of governance in global finance. Prerequisite: POL S 200 or 260 or consent of Department.

### **P** POL S 306 Rights, Equality and Democracy

★3 (fi 6) (either term, 3-0-0). Analysis of selected leading principles and concepts of rights and equality in democratic theory. Prerequisite: POL S 210 or consent of Department.

### **P** POL S 307 Liberalism and its Critics

★3 (fi 6) (either term, 3-0-0). Recent critiques of the liberal tradition, including feminist, anti-racist, post-colonial and Marxist criticism. Prerequisite: POL S 210 or consent of Department.

### **P** POL S 315 Analysis of Political Science

★6 (fi 12) (two term, 3-0-0). A philosophical investigation of the basic issues involved in the scientific study of politics. Prerequisite: POL S 210 or consent of Department. Formerly POL S 313 and 314.

### **P** POL S 321 The Politics of Health Care in Canada I

★1.5 (fi 3) (either term, 18 hours). The development of Canada's health care

system, its legislative and philosophical grounds, as well as financing and delivery. Open only to students in the Faculty of Nursing.

### **POL S 322 The Politics of Health Care in Canada II**

★3 (fi 3) (either term, 18 hours). Current stresses in the health care system such as challenges to universality; alternative health delivery system from a comparative perspective. Open only to students in the Faculty of Nursing. Prerequisite: POL S 321.

### **POL S 324 Topics in Canadian Politics**

★3 (fi 6) (either term, 3-0-0). Prerequisite: POL S 220 or consent of Department.

### **POL S 325 Canadian Political Economy**

★3 (fi 6) (either term, 3-0-0). This course explores the political economy tradition in Canada, which emphasizes the historical interrelationships among the international political economy, Canadian public policy, political conflict and political movements. Prerequisite: POL S 220 or consent of the Department.

### **POL S 327 Aboriginal Peoples and the Canadian State**

★3 (fi 6) (either term, 3-0-0). This course examines the recent history of relationships between Canada's Aboriginal peoples and the Canadian State. It examines the ways that European political practices and public institutions were imposed upon the First Nations and Aboriginal reactions and resistance to these legal and political changes. Prerequisite: One of POL S 220, NS 210, or 211.

### **POL S 328 Managing Modern Government**

★3 (fi 6) (either term, 3-0-0). Topics include government organization and administration, budgets, policy making, and democratic control and accountability. The focus is on Canada, but other countries are also considered. Prerequisite: POL S 200 or POL S 220.

### **POL S 332 Introduction to United States Politics and Government**

★3 (fi 6) (either term, 3-0-0). The actors, institutions, and processes of American politics and governance, and the forces that influence them. Prerequisite: any 200-level Political Science course. Not open to students with credit in POL S 232.

### **POL S 333 Ecology and Politics**

★3 (fi 6) (either term, 3-0-0). This course examines different approaches to understanding the links between politics, society and ecology. Prerequisites: POL S 200 or consent of Department.

### **POL S 345 Issues in Globalization and Governance**

★3 (fi 6) (either term, 3-0-0). Prerequisite: POL S 200 or 260.

### **POL S 350 Women and Politics in Canada**

★3 (fi 6) (either term, 3-0-0). An introduction to women's participation in various aspects of Canadian political life, including the women's movement, party and electoral politics, legislatures and the legal system. Prerequisites: POL S 200 or POL S 210 or POL S 220 or W ST 200.

### **POL S 354 Topics in Comparative Politics**

★3 (fi 6) (either term, 3-0-0). The focus of this course changes yearly to reflect current issues in comparative politics and faculty research interests. Information about the specific topics can be obtained from the Department. Prerequisite: POL S 200 or consent of Department.

### **POL S 357 The Third World in Global Politics**

★3 (fi 6) (either term, 3-0-0). Explores the opportunities and constraints imposed on third world governments in an era of globalization and trade liberalization. Of particular interest are the politics of African and South American countries. Prerequisite: POL S 200 or 260 or consent of Department.

### **POL S 359 Topics in International Politics**

★3 (fi 6) (either term, 3-0-0). This course examines contemporary controversies in international politics. Information about specific topics are available from the Department. Prerequisite: POL S 260 or consent of Department.

### **POL S 361 Pacific Rim Relations**

★3 (fi 6) (either term, 3-0-0). An introduction to the politics and economics of the Asia-Pacific region, and of Canada's relations with the area. Prerequisite: POL S 260 or consent of Department. No prerequisite for students in the BA East Asian Studies program specializing in Political Science.

### **POL S 364 Politics of the International Economy**

★3 (fi 6) (either term, 3-0-0). This course provides an introduction to the ideas, institutions, and forces which are shaping the new international political economy. It examines the politics of trading blocks such as NAFTA and the EU, North-South relations, and the interactions of markets and states in the global economy. Prerequisite: POL S 200 or POL S 260.

### **POL S 365 Canadian Foreign Policy**

★3 (fi 6) (either term, 3-0-0). Major trends and developments in Canadian foreign policy since 1945. Prerequisite: POL S 260.

### **POL S 370 Politics of the European Union**

★3 (fi 6) (either term, 3-0-0). An examination of European Union institutions, processes, politics, and policy issues. Prerequisite: POL S 200, or 260, or consent of Department.

### **POL S 375 Politics of East Asia**

★3 (fi 6) (either term, 3-0-0). A comprehensive introduction to East Asian politics

in the postwar period, covering Greater China (Mainland, Taiwan and Hong Kong), Japan and the two Koreas. Prerequisite: POL S 200 or 260 or East Asian Studies Major/Minor or consent of Department.

### **POL S 376 Issues in Development Studies**

★3 (fi 6) (either term, 3-0-0). This course examines the politics of development, focusing specifically on Latin America, Africa, and Asia. It reviews various approaches to development undertaken by national governments and international agencies such as the United Nations, the World Bank and the International Monetary Fund as well as alternative models advanced by popular political movements. Issues of democratization, ecology, gender equality, and the rights of indigenous peoples also are examined. Prerequisite: POL S 200.

### **POL S 380 Politics in the Middle East**

★3 (fi 6) (either term, 3-0-0). Evolution, future, and global significance of Middle Eastern regional politics. Prerequisite: POL S 200 or consent of Department.

### **POL S 385 Regional Politics in Western Canada**

★3 (fi 6) (either term, 3-0-0). Political issues, including rural impacts of globalization, urbanization, economic diversification, First Nations' aspirations, government downsizing. Prerequisite: POL S 220 or consent of Department.

### **POL S 390 Law and Politics**

★3 (fi 6) (either term, 3-0-0). Relationships between law and politics in Canada and the United States including dispute resolution, societal and governmental influences on the judiciary, the policy-making role of courts, and the criminal process. Prerequisite: POL S 220 or 332/232; also open to Law students.

### **POL S 391 Canadian Political Parties**

★3 (fi 6) (either term, 3-0-0). Topics include party systems; ideologies and programs, members and supporters, organization and resources, and electoral and governmental activities. Prerequisite: POL S 220 or consent of Department.

### **POL S 392 Interests, Power and Influence in Canadian Politics**

★3 (fi 6) (either term, 3-0-0). This course examines how influence is asserted in Canadian politics and the policy-making process outside the formal democratic institutions of political parties, elections, and legislative representation. Among the topics included are social movements, interest groups, business interests, the media and international organizations. Prerequisite: POL S 220 or consent of Department.

### **POL S 395 Political Attitudes and Ideologies**

★3 (fi 6) (either term, 3-0-0). A study of the cognitive psychology of political attitudes and ideologies and their impact on the individual citizen's involvement in politics. Not to be taken by students with credit in POL S 495. Prerequisite: POL S 200 or 220 or consent of Department.

### **POL S 396 Human Rights and World Politics**

★3 (fi 6) (either term, 3-0-0). This course examines the evolution of the concept of human rights and the current debates on related issues in world politics. Prerequisite: POL S 200, or POL S 212, or POL S 260, or consent of Department.

### **POL S 397 Elections and Voting Behavior**

★3 (fi 6) (either term, 3-0-0). Analysis of contemporary politics; the various factors that shape party competition and voting behavior and determine election outcomes, and the consequences of these outcomes focusing mainly on recent Canadian federal elections. Prerequisite: POL S 200 or 220 or consent of Department.

### **POL S 398 The Mass Media and Democratic Politics**

★3 (fi 6) (either term, 3-0-0). The course covers the role of the mass media, their effects, and their influence on democratic politics. It draws most heavily on the experience of Canada, the United States, and Britain. Different approaches to, and theories of mass media effects and influence are considered and empirical studies in electoral and non-electoral contexts are examined. Prerequisite: POL S 200 or 220 or consent of Instructor.

### **POL S 404 Topics in Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 406 Topics in the History of Political Thought I**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 407 Topics in the History of Political Thought II**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 408 Topics in Modern Political Theory I**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 409 Topics in Modern Political Theory II**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 410 Topics in Contemporary Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). A critical examination of contemporary trends in political philosophy. Prerequisite: POL S 210 or equivalent.

### **POL S 411 Topics in Contemporary Continental Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or equivalent.

### **POL S 412 Topics in Post-Hegelian Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 210 or consent of Department.

**POL S 415 Marx and Marxism**

★3 (*fi 6*) (either term, 0-3s-0). An introduction to Marx's political thought and recent debates in Marxism. Prerequisite: POL S 210 or consent of Department. Not open to students with credit in POL S 305.

**POL S 419 Politics of the Canadian Constitution**

★3 (*fi 6*) (either term, 0-3s-0). The political implications of judicial decisions in the areas of civil liberties, federal-provincial relations and international agreements. Prerequisite: POL S 220, or consent of Department.

**POL S 421 Issues in Canadian Politics**

★3 (*fi 6*) (either term, 0-3s-0). The focus of this seminar changes yearly to reflect current issues in Canadian politics and faculty research interests. Information about the specific topic is available from the department. Prerequisite: POL S 220 or consent of Department.

**POL S 423 Canadian Federalism**

★3 (*fi 6*) (either term, 0-3s-0). The analysis of the development and theories of Canadian Federalism. Attention will be given to current problems of the federal system. Prerequisite: POL S 220 or consent of Department.

**POL S 424 Canadian Political Behavior**

★3 (*fi 6*) (either term, 0-3s-0). An advanced seminar on current topics and controversies regarding political behavior among elites and the mass public in Canada. Information about the specific topic is available from the department. Prerequisite: POL S 200 or 220 or consent of Department.

**POL S 428 Provincial Government and Politics**

★3 (*fi 6*) (either term, 0-3s-0). A study of structures, functions and processes of selected provincial governments in Canada. Prerequisite: POL S 220 or consent of Department.

**POL S 429 Government and Politics of Alberta**

★3 (*fi 6*) (either term, 0-3s-0). The study of selected aspects of Alberta government and politics. Topics may range from political institutions, through political parties, to areas of public policy. Prerequisite: POL S 220 or consent of Department.

**POL S 431 Globalization and the Canadian Political Economy**

★3 (*fi 6*) (either term, 0-3s-0). Canada's entry into a continental trading bloc, NAFTA, and its obligation to comply with international trading regulations, have fundamentally altered both the domestic policy environment and governmental practices. This course examines these changes as they affect governmental organization, federal-provincial relations, social equity, national sovereignty and democratic processes. Prerequisite: POL S 220 or POL S 260 or consent of Department.

**POL S 432 Politics of the Canadian North**

★3 (*fi 6*) (either term, 0-3s-0). An analysis of the politics of native claims, constitutional change and the non-renewable and renewable resource economics of Canada north of 60 degrees. Prerequisite: POL S 220 or consent of Department.

**POL S 433 City Politics**

★3 (*fi 6*) (either term, 0-3s-0). The theory and practice of city politics in modern Canada. The course will normally employ as resource persons senior elected and appointed officials from governments. Prerequisite: POL S 223 or permission of the instructor.

**POL S 434 Cities and Globalization**

★3 (*fi 6*) (either term, 0-3s-0). The global forces shaping urban economies, geographies, and cultures; urban social movements; the privatization of urban space and politics; and shifting conceptions of locality, community, and urbanity. Prerequisite: POL S 200 or POL S 223 or POL S 336, or consent of Department.

**POL S 435 Metropolitan Government**

★3 (*fi 6*) (either term, 0-3s-0). The comparative study of the political economy of metropolitan government. Prerequisite: POL S 200 or POL S 223 or consent of Department.

**POL S 437 Politics of Canadian Cultural Industries**

★3 (*fi 6*) (either term, 0-3s-0). Canadian cultural politics and policy after NAFTA; impacts of trade agreements for cultural industries (publishing, music, television). Prerequisite: POL S 200 or 220 or consent of Department.

**POL S 440 Topics in Canadian Public Policy**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics of contemporary interest in Canadian public policy. Information about the specific topic is available from the Department. Prerequisite: POL S 200 or POL S 220 or consent of Department.

**POL S 441 Gender and Public Policy**

★3 (*fi 6*) (either term, 0-3s-0). The relationship between gender and public policy in Canada. Of particular concern are effects of restructuring, decentralization, privatization and deregulation on women. Prerequisite: POL S 200 or POL S 220 or consent of Department.

**POL S 442 The Canadian State and Identity Politics**

★3 (*fi 6*) (either term, 0-3s-0). The relative power, impact and interconnections of both territorial (regional) divisions and other non-territorial divisions (e.g., gender, race, ethnicity, and class). Prerequisite: POL S 220 or consent of Instructor.

**POL S 443 Globalization, Ethnic Politics and the Nation-State**

★3 (*fi 6*) (either term, 0-3s-0). Theories of nationalism and the nation-state in an era of globalization. Prerequisite: POL S 200 or consent of Instructor.

**POL S 445 Topics in Globalization and Governance**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: POL S 200 or 260.

**POL S 446 Nation-States in the New International Political Economy**

★3 (*fi 6*) (either term, 0-3s-0). Pressures faced by nation-states in the new international political economy, especially in relation to macro-economic politics, national sovereignty, economic development, and democratic processes. Prerequisite: POL S 260 or consent of Department.

**POL S 450 Topics in Comparative Theory**

★3 (*fi 6*) (either term, 0-3s-0). Seminar in major areas of comparative theory such as political economy and the politics of collective action. Prerequisite: POL S 200 or consent of Department.

**POL S 454 Feminism and Social Change**

★3 (*fi 6*) (either term, 0-3s-0). This course looks at the interaction between feminism(s) and a variety of areas of social theory. A background in feminist theory is recommended. Topics may include: psychoanalysis, sociology, political economy, epistemology, social science methodology, cultural theory, and comparative development. Prerequisites: POL S 200 and consent of Instructor.

**POL S 457 Foreign Policy Analysis**

★3 (*fi 6*) (either term, 0-3s-0). Analysis of those main variables contributing to the formation of the foreign policies of selected nations. Prerequisite: POL S 260 or consent of Department.

**POL S 458 United States Foreign Policy**

★3 (*fi 6*) (either term, 0-3s-0). The contemporary foreign policies of the United States and their causes. Prerequisite: POL S 260 or consent of Department.

**POL S 459 Topics in International Politics**

★3 (*fi 6*) (either term, 0-3s-0). Prerequisite: POL S 260.

**POL S 460 Global Security**

★3 (*fi 6*) (either term, 0-3s-0). Historical and contemporary political issues of global security are examined from various theoretical perspectives. Prerequisite: POL S 260 or consent of Department.

**POL S 461 Selected Problems in International Politics**

★3 (*fi 6*) (either term, 0-3s-0). The study of selected contemporary problems and/or methods in international relations. Prerequisite: POL S 260 or consent of Department.

**POL S 462 Political Economy of Global Governance**

★3 (*fi 6*) (either term, 0-3s-0). Competing analytical frameworks within international political economy; social and ideological dimensions of governance in a globalized world. Prerequisite: POL S 364 or consent of Department.

**POL S 463 War and International Conflict**

★3 (*fi 6*) (either term, 0-3s-0). A survey covering theorists and theories of war, conventional strategy, and revolutionary strategy. Prerequisite: POL S 260.

**POL S 467 The Politics of Pacific Rim**

★3 (*fi 6*) (either term, 0-3s-0). Current developments in the political economy of the Pacific Rim. The potential for security, political and economic cooperation, and conflict among countries in the region. Prerequisite: POL S 361 or consent of Department.

**POL S 468 International Organization**

★3 (*fi 6*) (either term, 0-3s-0). An examination of theoretical debates on international cooperation and international institutions and their application to contemporary international politics. Prerequisite: POL S 260 or consent of Department.

**POL S 470 Selected Topics in Comparative Politics**

★3 (*fi 6*) (either term, 0-3s-0). Selected topics of current interest in comparative politics and government. Prerequisite: POL S 200 or consent of Department.

**POL S 471 Politics of Japan**

★3 (*fi 6*) (either term, 0-3s-0). This is a course on the domestic politics of postwar Japan which deals with the political structure, political parties and the political economy of the Japanese development model. Prerequisites: POL S 200 or East Asian Studies Major/Minor, or consent of Department.

**POL S 473 Politics of China**

★3 (*fi 6*) (either term, 0-3s-0). This course is a comprehensive discussion of the domestic politics of China after 1949. It deals with revolution and modernization in Chinese politics, assesses the role of the communist party, and the prospects for reform. Prerequisite: POL S 200 or East Asian Studies major/minor, or consent of Department.

**POL S 477 Issues in Islamic Politics**

★3 (*fi 6*) (either term, 3-0-0). Political ideas and practice in Islamic countries, including historical and contemporary constructions of Islam. Prerequisite: POL S 200 or consent of Department.



**POL S 478 Topics in Latin American Politics**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 200 or consent of Department.

**POL S 479 The Politics of Latin America**

★3 (fi 6) (either term, 0-3s-0). An intensive and general survey of Latin American societies and politics, including competing approaches to the state, development models, political movements, social classes. Prerequisite: POL S 200 or consent of Department.

**POL S 483 United States Constitutional Law**

★3 (fi 6) (either term, 0-3s-0). Individual liberties and the equal protection of groups in the United States, focusing on court rulings about the Bill of Rights and 14th Amendment, controversies over constitutional interpretation, and the political of rights. Prerequisite: POL S 390 or POL S 419 or consent of Department; also open to Law students.

**POL S 484 Issues in United States Politics and Policy**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: POL S 232 or 332, or consent of Department.

**POL S 485 Issues in European Politics**

★3 (fi 6) (either term, 0-3s-0). This course begins a survey of the development of political party systems and social cleavages in Western Europe during the post-World War II era. It focuses on the transition from the Fordist to a post-Fordist era, entailing the crisis of social democracy and processes of political dealignment. Prerequisite: POL S 200 or consent of Department.

**POL S 486 Topics in European Politics**

★3 (fi 6) (either term, 0-3s-0). This course focuses on current debates in Europe, including such topics as the emergence of new radical right parties, the successes or problems of green parties and movements, the effects of market liberalization and political change in Eastern and Central Europe, and the resurgence of nationalist discourses. Prerequisite: POL S 200.

**POL S 492 Psychology of Politics**

★3 (fi 6) (either term, 0-3s-0). Advanced study of the role of cognitive processes in the psychology of politics. Prerequisites: POL S 200 or 220. Open to Psychology majors.

**POL S 496 Representation and Electoral Systems**

★3 (fi 6) (either term, 0-3s-0). An examination of the institutional framework within which the electoral process operates under representative government, with emphasis on voting as a mechanism of social choice.

**POL S 499 Honors Essay: Fourth-Year Honors Political Science**

★6 (fi 12) (two term, 0-3s-0). Preparation of the Honors essay, required in the fourth year of the Honors program.

**Graduate Courses****Notes**

- (1) See also INT D 546 and 593 for courses which are offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.
- (2) Consent of Department is required for all 500- and 600-level courses.

**POL S 501 Comparative Institutions and Processes**

★3 (fi 6) (either term, 0-3s-0).

**POL S 508 Nature of Political Science I**

★3 (fi 6) (either term, 0-3s-0). An examination of the classical (e.g., Aristotelian) conception of political science, and of the modern conception which replaced it (including some of the political and theoretical problems connected with this modern view).

**POL S 509 Nature of Political Science II**

★3 (fi 6) (either term, 0-3s-0). An examination of some particular problems involved in attempting to understand political life (including language and history) scientifically. Prerequisite: POL S 508.

**POL S 512 Early Modern Political Theory**

★3 (fi 6) (either term, 0-3s-0). Concentration on one or more works by major political theorists in the early modern period.

**POL S 513 Ancient Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Examination of one or more texts by ancient (primarily Greek or Roman) political philosophers.

**POL S 514 Topics in Contemporary Political Philosophy**

★3 (fi 6) (either term, 0-3s-0).

**POL S 515 Topics in Political Philosophy**

★3 (fi 6) (either term, 0-3s-0).

**POL S 516 Problems in Marxist Political Theory**

★3 (fi 6) (either term, 3-0-0).

**POL S 522 Canadian Federalism**

★3 (fi 6) (either term, 0-3s-0).

**POL S 524 Canadian Political Culture**

★3 (fi 6) (either term, 0-3s-0).

**POL S 526 Selected Topics in Urban Politics**

★3 (fi 6) (either term, 0-3s-0).

**POL S 540 Topics in Public Policy**

★3 (fi 6) (either term, 0-3s-0).

**POL S 542 The Canadian State and Identity Politics**

★3 (fi 6) (either term, 0-3s-0). The relative power, impact and interconnections of both territorial (regional) divisions and other non-territorial divisions (e.g., gender, race, ethnicity, and class).

**POL S 543 Globalization, Ethnic Politics and the Nation-State**

★3 (fi 6) (either term, 0-3s-0). Theories of nationalism and the nation-state in an era of globalization.

**POL S 551 Topics in Comparative Politics: Industrialized Countries**

★3 (fi 6) (either term, 0-3s-0).

**POL S 552 Readings in Comparative Politics: Industrialized Countries**

★3 (fi 6) (either term, 0-3s-0).

**POL S 554 Comparative Party and Group Politics**

★3 (fi 6) (either term, 3-0-0).

**POL S 562 Canadian Foreign Policy**

★3 (fi 6) (either term, 0-3s-0). An assessment of contemporary Canadian foreign policy and competing approaches to its study.

**POL S 563 International Security**

★3 (fi 6) (either term, 0-3s-0). A review of analytical approaches to traditional and non-traditional international security issues.

**POL S 565 Topics in Foreign Policy Analysis**

★3 (fi 6) (either term, 0-3s-0). Current approaches to the study of foreign policy that focuses the explanations upon factors within the state.

**POL S 566 Topics in International Political Economy**

★3 (fi 6) (either term, 0-3s-0).

**POL S 567 The Political Economy of Global Finance**

★3 (fi 6) (either term, 0-3s-0). The role of states and political institutions of governance in the new international financial architecture.

**POL S 571 Topics in Comparative Politics: Comparative Development**

★3 (fi 6) (either term, 0-3s-0).

**POL S 572 Readings in Comparative Politics: Comparative Development**

★3 (fi 6) (either term, 0-3s-0).

**POL S 578 Asian Systems**

★3 (fi 6) (either term, 0-3s-0).

**POL S 581 Studies in United States Politics**

★3 (fi 6) (either term, 0-3s-0).

**POL S 592 Political Psychology**

★3 (fi 6) (either term, 3-0-0).

**POL S 595 Feminist Theory**

★3 (fi 6) (either term, 0-3s-0). An intensive examination of feminist theory in western political thought, as well as critiques provided by the non-western and post-colonial literatures.

**POL S 600 Theories and Methods of Comparative Politics**

★3 (fi 6) (either term, 0-3s-0). Traditional and critical perspectives.

**POL S 608 Advanced Study in Comparative Politics**

★3 (fi 6) (either term, 0-3s-0).

**POL S 612 Classical Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Texts selected for doctoral students preparing for comprehensive exams in political philosophy.

**POL S 613 Modern Political Philosophy**

★3 (fi 6) (either term, 0-3s-0). Survey of major works in Western political philosophy.

**POL S 619 Readings in Political Philosophy**

★3 (fi 6) (either term, 0-3s-0).

**POL S 621 Canadian Government and Politics**

★3 (fi 6) (either term, 0-3s-0). The advanced study of politics, government and political science in Canada.

**POL S 622 Contemporary Canadian Political Issues**

★3 (fi 6) (either term, 0-3s-0). Current debates in Canadian politics and public policy.

**POL S 625 Readings in Urban Analysis**

★3 (fi 6) (either term, 0-3s-0).

**POL S 629 Readings in Canadian Politics**★3 (*fi 6*) (either term, 0-3s-0).**POL S 650 Comparative Studies in Industrialized Countries**★3 (*fi 6*) (either term, 0-3s-0). A survey of the study of the politics of industrialized countries. Concepts, theories, and analyses of various state and society issues will be examined.**POL S 660 Theories of International Politics I**★3 (*fi 6*) (either term, 0-3s-0). A review and critique of the traditional theories of international politics and their contemporary challenges.**POL S 661 Theories of International Politics II**★3 (*fi 6*) (either term, 0-3s-0). Contemporary and critical approaches to the study of international politics.**POL S 668 Readings in International Studies**★3 (*fi 6*) (either term, 0-3s-0).**POL S 670 Studies in Comparative Development**★3 (*fi 6*) (either term, 0-3s-0). A survey of the critical concepts and theories in development politics.**POL S 690 Gender and Politics**★3 (*fi 6*) (either term, 0-3s-0). A survey of various theoretical perspectives on gender, ranging from liberal to postmodern, as well as issues and debates in gender research. Also addressed are questions of difference, identity, and conflict arising from, among others, race, class, sexuality, and north-south relations.**POL S 696 Readings in Gender and Politics**★3 (*fi 6*) (either term, 0-3s-0).**POL S 900 Directed Research Project**★3 (*fi 6*) (variable, unassigned).**201.180 Portuguese, PORT**

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

**Notes**

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with Portuguese language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit if a course is completed which the student is deemed ineligible to take, based on their prior background. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) Student who have or will attain advanced standing in Spanish equivalent to SPAN 300 are not permitted to claim more than ★6 credit for the study of Portuguese.

**Undergraduate Courses****PORT 111 Beginners' Portuguese I**★3 (*fi 6*) (either term, 5-0-0). A basic course for students with no previous knowledge of Portuguese. Note: not to be taken by students with credit in PORT 100, or with native or near native proficiency or with Portuguese 30 or its equivalents in Canada and other countries.**PORT 112 Beginners' Portuguese II**★3 (*fi 6*) (either term, 5-0-0). Prerequisite: PORT 111 or consent of Department. Note: not to be taken by students with credit in PORT 100, or with native or near native proficiency or with Portuguese 30 or its equivalents in Canada and other countries.**PORT 211 Intermediate Portuguese I**★3 (*fi 6*) (either term, 3-0-0). Intended to consolidate a basic understanding of Portuguese through a systematic grammar review and practice in various language skills. Prerequisite: Portuguese 30 (or equivalent), PORT 112 or SPAN 212 or consent of Department.**PORT 212 Intermediate Portuguese II**★3 (*fi 6*) (either term, 3-0-0). Prerequisite: PORT 211 or consent of Department.**201.181 Postgraduate Medical Education, PGME**

Faculty of Medicine and Dentistry

**Undergraduate Courses****PGME 901 One-Month Medical Traineeship**★0 (*fi 1*) (either term, 4 weeks). This represents a contract period of registration with variable start and end dates for MD graduates who are completing training either as a Resident or as a Fellow. The focus of the traineeship is based upon the area of specialization. Prerequisites: MD degree and approval by the Division of Postgraduate Medical Education.**PGME 902 Two-Month Medical Traineeship**★0 (*fi 2*) (either term, 8 weeks). This represents a contract period of registration with variable start and end dates for MD graduates who are completing training either as a Resident or as a Fellow. The focus of the traineeship is based upon the area of specialization. Prerequisites: MD degree and approval by the Division of Postgraduate Medical Education.**PGME 903 Three-Month Medical Traineeship**★0 (*fi 3*) (either term, 12 weeks). This represents a contract period of registration with variable start and end dates for MD graduates who are completing training either as a Resident or as a Fellow. The focus of the traineeship is based upon the area of specialization. Prerequisites: MD degree and approval by the Division of Postgraduate Medical Education.**PGME 904 Four-Month Medical Traineeship**★0 (*fi 4*) (either term, 16 weeks). This represents a contract period of registration with variable start and end dates for MD graduates who are completing training either as a Resident or as a Fellow. The focus of the traineeship is based upon the area of specialization. Prerequisites: MD degree and approval by the Division of Postgraduate Medical Education.**PGME 912 Twelve-Month Medical Traineeship**★0 (*fi 12*) (two term, 52 weeks). This represents a contract period of registration with variable start and end dates for MD graduates who are completing training either as a Resident or as a Fellow. The focus of the traineeship is based upon the area of specialization. Prerequisites: MD degree and approval by the Division of Postgraduate Medical Education.**201.182 Psychiatry, PSYCI**

Department of Psychiatry  
Faculty of Medicine and Dentistry

**Undergraduate Courses****PSYCI 546 Psychiatry Student Internship**★6 (*fi 12*) (either term, 6 weeks). Student internship in psychiatry for students registered in the MD program.**PSYCI 556 Psychiatry Student Internship**★3 (*fi 6*) (either term, 3 weeks). Student internship in psychiatry for students registered in the MD Program.**Graduate Courses****PSYCI 511 Biological Aspects of Psychiatry**★3 (*fi 6*) (second term, 3-0-0). Lectures and seminars on: classification, description and measurement of psychiatric disorders; sleep disorders; biochemical theories of psychiatric disorders, and discussions of how the actions of the drugs used to treat these disorders relate to these theories; practical aspects of drug treatment; biological markers; brain imaging; women's health issues; herbal products and psychiatry. Prerequisite: Permission of Department.**PSYCI 601 Theory and Practice of Psychiatry**★3 (*fi 6*) (either term, 3-0-0). An in-depth analysis of current psychiatric practice in relation to diagnosis, choice of treatment and evaluation of clinical responses. Emphasis will be placed on current research in selected areas of psychiatry. Prerequisite: consent of Department.**PSYCI 602 Advanced Topics in Psychiatry**★3 (*fi 6*) (either term, 3-0-0). A discussion of selected topics of current interest in psychiatry including neurobiological and psychosocial aspects of the etiology and treatment of mental disorders. Prerequisite: consent of Department.**PSYCI 603 Psychiatry Tutorial, Research and Reading Course**★3 (*fi 6*) (either term, 3-0-0). This course allows a student to study an area of psychiatry in much greater detail than usual. Format is usually a reading/tutorial

in which the student carries out directed reading and meets with the tutor regularly. Term papers will be used for evaluation purposes. The course requires independent study. Students who have a particular interest in any specific area in psychiatry are encouraged to meet with Faculty members to explore the possibility of arranging a suitable topic. Prerequisite: consent of Department.

#### PSYCI 688 Graduate Seminar

★0 (fi 2) (two term, 0-1s-0). Graduate students in the Department of Psychiatry will be required to attend this weekly seminar series. Each student will be required to present two seminars per two-term period; one related directly to his/her own research, and one on another topic.

## 201.183 Psychologie, PSYCE

Faculté Saint-Jean

### Cours de 1er cycle

#### 201.183.1 Domaine des Arts

##### PSYCE 105 Comportement social et individuel

★3 (variable) (deuxième semestre, 3-0-1/4). Introduction à l'étude de l'individualité humaine, de la personnalité et des processus sociaux. Le cours peut inclure l'étude de quelques aspects du développement humain normal et anormal, du jugement et du traitement psychologiques. Préalable(s): PSYCE 104. Cours à distance. Voir \$200. [Domaine des Arts]

##### PSYCE 223 Psychologie de la croissance

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Les aspects biologiques, cognitifs et sociaux du développement psychologique au cours de la petite enfance, de l'enfance et de l'adolescence. Préalable(s): PSYCE 104 et 105 ou l'équivalent. [Domaine des Arts]

##### PSYCE 233 Psychologie de la personnalité

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction aux différentes approches théoriques et à la recherche dans le domaine de la personnalité. Préalable(s): PSYCE 104 et 105 ou l'équivalent. [Domaine des Arts]

##### PSYCE 241 Psychologie sociale

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction aux théories et à la recherche sur l'individu dans un contexte social. Préalable(s): PSYCE 104 et 105 ou l'équivalent. Note: PSYCE 241 et SOC 241 ne peuvent pas être suivis tous les deux pour crédits. [Domaine des Arts]

##### PSYCE 258 Psychologie cognitive

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Une introduction à l'étude des processus cognitifs. Les principaux sujets abordés: la perception, l'attention, la représentation des connaissances, la mémoire, l'apprentissage, le langage, le raisonnement, et la résolution de problèmes. Préalable(s): PSYCE 104 et un parmi STATQ 151 ou SCSOC 322.

##### PSYCE 339 Psychopathologie

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction générale à l'histoire, à la classification, au diagnostic et au traitement des troubles psychopathologiques. Préalable(s): PSYCE 233. [Domaine des Arts]

##### PSYCE 498 Etude personnelle II

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Cours destiné à permettre aux étudiants au niveau du baccalauréat d'approfondir personnellement un sujet de leur choix. Sous forme de bibliographie dirigée ou de travaux de laboratoire. Préalable(s): l'approbation du Vice-doyen aux affaires académiques. [Domaine des Arts]

#### 201.183.2 Domaine des Sciences

##### PSYCE 104 Procédés psychologiques de base

★3 (variable) (premier semestre, 3-0-1/4). Principes et développement de la perception, motivation, apprentissage et réflexion et leur relation avec le fonctionnement psychologique de l'individu. Ce cours est un préalable pour la plupart des cours de psychologie et est normalement suivi de PSYCE 105. Cours à distance. Voir \$200. [Domaine des Sciences]

##### PSYCE 267 Perception

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Une introduction aux théories et à la recherche dans le domaine de la perception. Préalable(s): PSYCE 104 et un parmi STATQ 151 ou SCSOC 322. [Domaine des Sciences]

##### PSYCE 275 Cerveau et comportement

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à la fonction du cerveau et à son rapport à la sensation, à la perception, au mouvement, à l'apprentissage, à la motivation et à la pensée. Préalable(s): PSYCE 104 et Biologie 30 ou l'équivalent. [Domaine des Sciences]

##### PSYCE 281 Principes du changement de comportement

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction aux techniques de changement de comportement. Le cours examinera l'origine de telles techniques dans l'expérimentation sur les animaux et la théorie de l'apprentissage, et fera

une évaluation de leur efficacité quand elles sont appliquées aux populations qui ont des problèmes spécifiques. Préalable(s): PSYCE 104. [Domaine des Sciences]

##### PSYCE 377 Neuropsychologie humaine

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à la neuropsychologie et à l'organisation fonctionnelle du cerveau. Dommages cérébraux et leurs effets sur les fonctions mentales, le langage et le comportement moteur. Préalable(s): PSYCE 275. [Domaine des Sciences]

##### PSYCE 458 Psychologie avancée de la cognition

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Etude plus approfondie d'un ou de plusieurs thèmes dans le domaine de la cognition humaine. Préalable(s): PSYCE 258. [Domaine des Sciences]

## 201.184 Psychologie de l'éducation, PS ED

Faculté Saint-Jean

### Cours de 1er cycle

##### PS ED 200 Introduction à la psychologie du développement

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Etude du comportement humain à travers les différentes étapes de son développement. Les notions de développement physique, intellectuel, social et moral sont abordées en relation avec le comportement en milieu scolaire.

##### PS ED 201 Psychopédagogie de l'apprentissage

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Théories générales de l'apprentissage et les différents facteurs qui influencent l'apprentissage en milieu scolaire. Etude des applications de ces théories dans l'enseignement avec une insistance particulière sur la mesure et l'évaluation.

##### PS ED 250 La communication et relations interpersonnelles

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Saisir le rôle précis de chacun des éléments impliqués dans la communication interpersonnelle et leur interdépendance dans la construction d'un message. Le processus de la communication humaine et ses principaux éléments. Les effets de la communication ainsi que la création des différentes versions du réel.

##### PS ED 300 L'adaptation scolaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction aux diverses dimensions de l'adaptation scolaire: aspects cognitif, socio-affectif, culturel, scolaire; dépistage et identification des problèmes de l'adaptation scolaire; modèles d'intervention; politiques d'intégration et guides pédagogiques du ministère de l'Éducation. Préalable(s) ou concomitant(s): PS ED 200 et PS ED 201 ou l'accord du Vice-doyen aux affaires académiques.

##### PS ED 482 Sensibilisation aux difficultés d'apprentissage chez l'enfant d'âge scolaire

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Concepts d'apprentissage et de difficultés d'apprentissage. Etude des difficultés d'apprentissage les plus fréquentes en milieu scolaire. Impact de ces difficultés sur la vie émotive de l'enfant, sur sa vie à l'école, sur les parents, et sur la famille en général. Possibilités d'interaction et d'aide de l'enseignant face à ces difficultés.

##### PS ED 496 Etude de l'administration des organismes étudiants

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Etude individuelle portant sur l'administration des organismes étudiants et le développement des connaissances dans le domaine des relations interpersonnelles et de la dynamique de groupe. Préalable(s) ou concomitant(s): ★3 en psychologie, en sociologie, ou en psychologie de l'éducation, et l'approbation du Vice-doyen aux affaires académiques.

## 201.185 Psychology, PSYCO

Department of Psychology  
Faculties of Arts and Science

### Undergraduate Courses

#### 201.185.1 Faculty of Arts Courses

**Note:** Prerequisites to some Arts courses in the Department may be found in the following Science section of this listing.

##### PSYCO 105 Individual and Social Behavior

★3 (fi 6) (either term, 3-0-1/4). Introduction to the study of human individuality, personality, and social psychological processes. Some aspects of normal and abnormal human development, psychological assessment and treatment may be reviewed. Fulfillment of the 1/4 laboratory credit typically entails serving as a research participant but alternatively can be fulfilled through a directed written assignment. Prerequisite: PSYCO 104.

**PSYCO 106 Psychological Principles for Nursing**

★3 (fi 6) (second term, 3-0-0). Psychological principles and processes as they relate to nursing, including research design and analysis, lifespan development, memory and cognitive processing, social psychological processes, personality, psychological disorders and their treatment. Note: Open only to students enrolled in Nursing. Not open to students with credit in PSYCO 104 or 105.

**PSYCO 212 Introduction to Research Methods in Psychology**

★3 (fi 6) (either term, 3-0-0). Experimental and nonexperimental methods in psychology. Topics covered include philosophy of science; measurement; reliability and validity of methods, measures, and effects; experimental, quasi-experimental, and single-subject designs; biases in experimentation; and research ethics. Prerequisites: PSYCO 104, 105, and STAT 151 or former PSYCO 211.

**PSYCO 223 Developmental Psychology**

★3 (fi 6) (either term, 3-0-0). Biological, cognitive and social aspects of psychological development, with special emphasis on infancy, childhood and adolescence. Prerequisites: PSYCO 104 and 105 or equivalent.

**PSYCO 233 Personality**

★3 (fi 6) (either term, 3-0-0). An introductory survey including representative theoretical points of view and research relevant to the major problems of the study of personality. Prerequisites: PSYCO 104 and 105 or equivalent.

**PSYCO 241 Social Psychology**

★3 (fi 6) (either term, 3-0-0). A survey of theories and research on the individual in a social context. Prerequisites: PSYCO 104 and 105 or equivalent. Note: PSYCO 241 and SOC 241 may not both be taken for credit.

**PSYCO 258 Cognitive Psychology**

★3 (fi 6) (either term, 3-0-0). A survey of findings of theoretical issues in the study of cognition, such as perception, attention, knowledge representation, memory, learning, language, reasoning, and problem solving. Prerequisites: PSYCO 104 and STAT 151 or former PSYCO 211.

**PSYCO 300 Honors Seminar I**

★3 (fi 6) (two term, 3-0-0). A range of conceptual and methodological issues in psychology are considered, and students receive intensive training and practice in both written and oral communications. The seminar meets once a week for the full Fall/Winter period. Restricted to, and required of, third-year students in the Honors Psychology program.

**PSYCO 301 History of Psychology**

★3 (fi 6) (either term, 3-0-0). History of psychology, with an emphasis on 19th and early 20th century (i.e. pre-1950) developments. Significant trends in contemporary psychology will also be discussed. Prerequisites: PSYCO 104 and 105; one of PSYCO 223, 233, 241, 258; and one of PSYCO 267, 275, 281.

**PSYCO 305 Special Topics in Psychology I**

★3 (fi 6) (either term, 3-0-0). Review and discussion of special topics or methods in one or more of the areas of contemporary psychology such as developmental, social, personality, cognitive. Prerequisites: PSYCO 104 and 105 and consent of Department. Note: Students are encouraged to check with the Department for the topic for the current year.

**PSYCO 323 Perceptual and Cognitive Development**

★3 (fi 6) (either term, 3-0-0). The development of the ability to process information from the environment including topics such as attention, memory, and concept formation in infants and young children. Prerequisite: PSYCO 223.

**PSYCO 325 Applied Research in Developmental Psychology**

★3 (fi 6) (either term, 3-0-0). Relations between research in developmental psychology and practical problems in human development. To gain insights about development, students work with infants, children, or adolescents as volunteers in local agencies and schools. Prerequisites: PSYCO 223, and STAT 151 or former PSYCO 211.

**PSYCO 339 Abnormal Psychology**

★3 (fi 6) (either term, 3-0-0). Nature and treatment of psychological disorders, such as cross-disciplinary perspectives and an emphasis on improving understanding of psychopathology in everyday life. Prerequisite: At least one 200-level PSYCO (PSYCO 233 and 275 recommended).

**PSYCO 350 Human Memory**

★3 (fi 6) (either term, 3-0-0). An introduction to the study of human memory. Topics include verbal learning and interference theory, the short-term/long-term memory distinction, semantic memory, working memory, sensory memory, autobiographical memory, amnesia, and implicit memory. The emphasis will be on developing coherent theoretical accounts of the evidence. Prerequisite: PSYCO 258.

**PSYCO 357 Language Processing**

★3 (fi 6) (either term, 3-0-0). A survey of theories and research on the production and comprehension of spoken and written language. Topics include speech perception, printed word recognition, sentence production and comprehension, discourse processing, reading, language development, and language pathologies. The focus will be on the processing mechanisms implicated by findings in the area. Prerequisite: PSYCO 258.

**PSYCO 400 Honors Seminar II**

★3 (fi 6) (two term, 3-0-0). A continuation of PSYCO 300, with an emphasis on the development of professional skills. Topics include the new information technologies, the publication process, ethical issues, and the application of research findings to real-world problems. The seminar meets once a week for the full Fall/Winter period. Prerequisite: PSYCO 300. Restricted to, and required of, fourth-year students in the Honors Psychology program.

**PSYCO 405 Special Topics in Psychology II**

★3 (fi 6) (either term, 3-0-0). Review and discussion of special theoretical or methodological topics, or a novel or emerging research areas in contemporary psychology. Prerequisites: PSYCO 104 and 105, and STAT 151 or former PSYCO 211, and consent of Department. Note: Students are encouraged to check with the Department for the topic for the current year.

**PSYCO 411 Cooperative Program Practicum**

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed the on-site portion of the Psychology Cooperative Program. The course will involve completion and defense of the practicum report and discussion of related issues. Prerequisites: WKEXP 961, WKEXP 962, and WKEXP 963.

**PSYCO 423 Advanced Topics in Developmental Psychology**

★3 (fi 6) (either term, 3-0-0). An in-depth review and analysis of research in an area of developmental psychology. Prerequisites: STAT 151 or former PSYCO 211, and PSYCO 323 or consent of Department. Note: Students are encouraged to check with the Department for the topic for the current year.

**PSYCO 431 Theory and Practice of Psychometrics**

★3 (fi 6) (either term, 3-0-3). The nature of psychological tests; survey of the various types of standardized tests; some practical work in administration, scoring and interpretation of tests. Prerequisites: STAT 151 or former PSYCO 211, and PSYCO 339.

**PSYCO 435 Introduction to Clinical Psychology**

★3 (fi 6) (either term, 3-0-0). The study of the profession of clinical psychology, including topics such as using case studies to examine diagnosis and assessment, judgement and decision making, and psychotherapeutic and community interventions. Prerequisite: PSYCO 339.

**PSYCO 436 Psychology of Self-Estrangement**

★3 (fi 6) (either term, 3-0-0). Basic description of self-deception and self-estrangement in psychoanalytic and existential humanistic theories. Discussion of basic determinants of self-deception and, alternatively, self-awareness, as well as considerations of the methods of inquiry appropriate to the area. Prerequisite: PSYCO 339.

**PSYCO 441 Experimental Social Psychology**

★3 (fi 6) (either term, 3-0-3). An intensive study of methods in social psychology. The evaluation of published research, design of experiments, analysis and communication of results will be stressed. Prerequisites: STAT 151 or former PSYCO 211; PSYCO 212; PSYCO 241; and consent of Department.

**PSYCO 443 Social Cognition**

★3 (fi 6) (either term, 3-0-0). Advanced treatment of topics in the study of how we think about the world of persons and events. Topics may include the role of categories, schemas, theories, and heuristics in social cognition, factors underlying the stereotyping of persons and groups, and the question of motivated bias in social perception. Prerequisites: STAT 151 or former PSYCO 211, and PSYCO 241.

**PSYCO 450 Topics in Memory and Problem Solving**

★3 (fi 6) (either term, 3-0-0). Examines theoretical and empirical issues in human memory and problem solving. Topics include memory representations, real-world memory, memory-based decision making, expert-novice differences in memory and problem solving. Prerequisite: PSYCO 350.

**PSYCO 490 Honors Thesis II: Thesis Research**

★3 (fi 6) (two term, 0-0-6). Under the direction of a faculty member, students conduct an empirical research project culminating in the Honors Thesis. Prerequisite: PSYCO 390. Restricted to, and required of, fourth-year students in the honors psychology program.

**PSYCO 493 Phenomenology and Psychological Research**

★3 (fi 6) (either term, 3-0-2). An intensive study of methods for investigating variations in self-reported experience. The development, use, and validation of methods for studying self-reported experience in psychological research will be stressed. Supervised research. Prerequisites: PSYCO 212; PSYCO 233 or 241; STAT 151 or former PSYCO 211; 300-level Arts Psychology course or consent of Department.

**PSYCO 495 Psychology of Aesthetics**

★3 (fi 6) (either term, 3-0-0). An introduction to the psychological analysis of response to art. Consideration is both theoretical and empirical. Illustrative materials are drawn from several arts, including painting, sculpture and literature. The contribution of aesthetic behavior to personality development is considered. Prerequisites: PSYCO 233 or 241; a senior level course in C LIT, DES, DRAMA, ENGL, F ST, or MUSIC.

**PSYCO 498 Individual Study**

★3 (fi 6) (either term, 0-3s-3). A course intended to allow the senior undergraduate student the opportunity to pursue a research topic in greater depth than the classroom structure permits. This pursuit may take the form of directed reading, library research, and/or laboratory experience. A formal paper, research proposal, research report, annotated bibliography, lab notes, and/or essay is required. Prerequisites: A 300-level psychology course and consent of Department.

**201.185.2 Faculty of Science Courses****PSYCO 104 Basic Psychological Processes**

★3 (fi 6) (either term, 3-0-1/4). Principles and development of perception, motivation, learning, and thinking and their relationship to the psychological functioning of the individual. Fulfillment of the 1/4 laboratory credit typically entails serving as a research participant but alternatively can be fulfilled through a directed written assignment. The course is a prerequisite to all courses in the department and is normally followed by PSYCO 105 (see §201.185.1).

**PSYCO 267 Perception**

★3 (fi 6) (either term, 3-0-0). An introduction to theoretical and experimental issues associated with sensory and perceptual experience. Prerequisites: PSYCO 104 and STAT 151 or the former PSYCO 211.

**PSYCO 275 Brain and Behavior**

★3 (fi 6) (either term, 3-0-0). An introduction to brain mechanisms involved in sensation, perception, movement, motivation, learning, and cognition, as studied in both humans and lower animals. Prerequisites: PSYCO 104 and Biology 30 or equivalent.

**PSYCO 281 Principles of Behavior**

★3 (fi 6) (either term, 3-0-0). An introduction to behavior change techniques. The course will examine how contingencies of the environment affect the behavior of organisms. Prerequisite: PSYCO 104.

**PSYCO 302 Special Topics in Psychological Research**

★3 (fi 6) (either term, 3-0-0). Review and discussion of special topics or methods in one or more of the areas of contemporary psychology such as experimental, perception, physiological, learning, memory, behavior, quantitative. Prerequisites: PSYCO 104, 105, and consent of Department. Note: Students are encouraged to check with the Department for the topic and prerequisites for the current year.

**PSYCO 354 Foundations of Cognitive Science**

★3 (fi 6) (either term, 3-0-0). An introduction to the theories and research practices of cognitive science by examining contributions of cognitive psychology, artificial intelligence, linguistics, and neuroscience to a variety of research areas. Prerequisites: STAT 151 or the former PSYCO 211, and PSYCO 258.

**PSYCO 356 Research Methods in Cognition**

★3 (fi 6) (either term, 3-0-3). A detailed examination of some of the common methods used for investigating cognitive processes. Topics include response time methods, priming paradigms, tachistoscopic presentation techniques, reading time measurement, and the use of recognition and recall tests. The focus of the course will be on the application of these methods to current theories and issues in cognitive psychology. Laboratories will provide students with first-hand experience at applying these methods to research problems. Prerequisite: PSYCO 258.

**PSYCO 364 Methods in Perception**

★3 (fi 6) (either term, 0-0-6). Laboratory methods used to study perception. Course emphasizes lab experience, data collection, analysis and interpretation, literature search, and report writing. Prerequisites: STAT 151 or the former PSYCO 211; PSYCO 267.

**PSYCO 365 Advanced Perception**

★3 (fi 6) (either term, 3-0-0). Covers the origin and current status of several major problem areas within the study of perception. Topics may include the historical background and knowledge of recent theoretical and experimental contributions required to understand current conceptual schemes and disputes. Prerequisite: PSYCO 267.

**PSYCO 371 The Neurobiology of Learning and Memory**

★3 (fi 6) (either term, 3-0-0). The aim of this course is to provide students with an introduction to the neural basis of learning and memory. The course begins with a review of the historical background, experimental methods, and principles of neurobiology. Learning and memory are then analyzed at different levels of biological organization, including molecular, cellular, neural circuit, neural system, and behavioral levels. Prerequisite: PSYCO 275.

**PSYCO 372 Behavior in Relation to Genetics**

★3 (fi 6) (either term, 3-0-0). An examination of the influence of genetic variations on behavioral differences in infra-human and human populations. Prerequisites: PSYCO 104 and 105 and STAT 151 or the former PSYCO 211, and BIOL 207.

**PSYCO 377 Human Neuropsychology**

★3 (fi 6) (either term, 3-0-0). Changes in mood, motivation, perception, attention, memory and language as revealed by studies of structural alterations in the human brain. Prerequisite: PSYCO 275.

**PSYCO 381 Principles of Learning**

★3 (fi 6) (either term, 3-0-0). Principles and processes of learning including a consideration of classical conditioning, instrumental learning, and memory. Research involving non-human animals will be emphasized. Prerequisites: STAT 151 or the former PSYCO 211, and PSYCO 281.

**PSYCO 385 Applications of Learning**

★3 (fi 6) (either term, 3-0-0). An examination of the ways in which principles of conditioning and learning have been applied to areas of human concern. Biomedical and behavioral implications of learning principles will be examined in terms of the empirical foundations of the principles, and the successes or problems encountered in applying the principles to the understanding or treatment of human behavior. Prerequisite: PSYCO 381.

**PSYCO 390 Honors Thesis I: Research Apprenticeship**

★3 (fi 6) (two term, 0-0-6). Under the direction of a Faculty member, students pursue a topic of interest leading to the development of a thesis proposal and, during their fourth year, the thesis research. The work normally involves both directed readings and empirical research experience. Restricted to, and required of, third-year students in the Honors Psychology program.

**PSYCO 402 Recent Advances in Experimental Psychology: Methods and Phenomena**

★3 (fi 6) (either term, 3-0-2). Discussion and demonstration of the techniques and discoveries of selected fields within experimental psychology. The course will provide laboratory experience with the empirical findings of these fields. Students are encouraged to check with the Department regarding the topic for the current year. Prerequisites: STAT 151 or the former PSYCO 211, a 300-level Psychology course and consent of Department.

**PSYCO 403 Recent Advances in Experimental Psychology: Models and Theories**

★3 (fi 6) (either term, 3-0-0). Discussion of advanced concepts and theories developed by selected fields within experimental psychology. The course will examine the relation between theory and data in these fields. Students are encouraged to check with the Department regarding the topic for the current year. Prerequisites: STAT 151 or the former PSYCO 211, a 300-level Psychology course and consent of Department.

**PSYCO 410 Industrial Internship Practicum**

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed the on-site portion of the Science Psychology Industrial Internship Program. The course will involve completion and defence of the practicum report and discussion of related issues. Prerequisites: WKEXP 931, 932, and 933.

**PSYCO 452 Minds and Machines**

★3 (fi 6) (either term, 3-0-0). Computational models are playing an increasingly important role in cognitive psychology. The purpose of this course is to provide students with the theoretical background for using such models, as well as some hands-on experience. Students will learn about the history of these models in cognitive psychology, how one might characterize good and bad models, and how cognitive psychologists attempt to experimentally validate their models. Prerequisite: PSYCO 354.

**PSYCO 458 Advanced Topics in Cognition**

★3 (fi 6) (either term, 3-0-0). In depth examination of one or more topics in cognitive psychology. Topics may include knowledge representation, visual cognition, memory, learning, decision making, language, reasoning and problem-solving. Prerequisites: one of PSYCO 350, 354, 356, 357, or 365.

**PSYCO 459 Human Aging: Cognitive Processes**

★3 (fi 6) (either term, 3-0-0). A survey of the sensory, perceptual, memory, and cognitive changes in normal aging. Topics may include the relationship of psychological, environmental, social and health factors to cognitive processes. Prerequisites: PSYCO 258 and a 300-level Psychology course.

**PSYCO 475 Biological Bases of Behavior**

★3 (fi 6) (first term, 0-0-6). Basic neuroanatomy and neuropsychology of sensory and motor systems. Prerequisite or corequisite: PSYCO 371 or 377.

**PSYCO 478 Behavior and Brain Chemistry**

★3 (fi 6) (either term, 3-0-0). The influence of environmental and genetic factors on the relationship between chemistry of the brain and the behavior of humans and animals. Prerequisite: PSYCO 371 or 377.

**PSYCO 482 Methods of Behavior and Learning**

★3 (fi 6) (either term, 0-0-6). Laboratory methods used to study Pavlovian conditioning, instrumental conditioning and decision processes. Prerequisite: PSYCO 381.

**PSYCO 485 Theory in Learning and Comparative Cognition**

★3 (fi 6) (either term, 3-0-0). A theoretical analysis of topics such as Pavlovian conditioning, instrumental learning, working memory, timing, concept learning, and order and numerical competence. Also discussed will be the purposes and nature of theories and the historical development of theory in learning and comparative cognition. Prerequisite: PSYCO 381.

**PSYCO 486 Advanced Topics in Learning**

★3 (fi 6) (either term, 3-0-0). An in-depth review and analysis of research and

issues on specific advanced topics in the area of learning. Prerequisite: PSYCO 381. Note: Students are encouraged to check with the Department for the topics for the current year.

#### **PSYCO 496 Individual Research**

★3 (fi 6) (either term, 0-3s-3). A course designed to allow the senior undergraduate student the opportunity to pursue a research topic in greater depth than the classroom structure permits. This pursuit may take the form of directed reading, library research, and/or laboratory experience. A formal paper, research proposal, research report, annotated bibliography, lab notes, and/or essay is required. Prerequisite: A 300-level psychology course and consent of Department.

### Graduate Courses

#### 201.185.3 Faculty of Arts Courses

##### **PSYCO 502 Professional and Ethical Issues**

★2 (fi 4) (either term, 3-0-0).

##### **PSYCO 541 Advanced Social Psychology**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 600 Individual Studies**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 620 Topics in Cognition**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 622 Topics in Developmental Psychology**

★3 (fi 6) (either term, 3-0-0).

#### 201.185.4 Faculty of Graduate Studies and Research Courses

##### **PSYCO 900 Second-Year Research Project**

★6 (fi 12) (two term, 0-0-6).

#### 201.185.5 Faculty of Science Courses

##### **PSYCO 505 Conference Course in Psychology**

★3 (fi 6) (either term, 3-0-3).

##### **PSYCO 531 Design and Analysis in Psychological Research I**

★3 (fi 6) (first term, 3-0-1).

##### **PSYCO 532 Design and Analysis in Psychological Research II**

★3 (fi 6) (second term, 3-0-1). Prerequisite: PSYCO 531 or equivalent.

##### **PSYCO 560 Memory and Cognition**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 561 Advanced Psychology of Conditioning and Learning**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 567 Psychology of Development**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 575 Advanced Physiological Psychology**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 576 Cognitive Neuroscience**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

##### **PSYCO 590 First-Year Research Project**

★6 (fi 12) (two term, 0-0-6).

##### **PSYCO 606 Topics in Instrumentation**

★3 (fi 6) (either term, 3-0-0).

##### **PSYCO 690 Second-Year Research Project**

★6 (fi 12) (two term, 0-0-6).

### 201.186 Public Health Sciences, PHS

Department of Public Health Sciences  
Faculty of Medicine and Dentistry

### Graduate Courses

#### **PHS 500 Introduction to Health Systems and Health Policy**

★3 (fi 6) (first term, 3-0-0). A review and development of the Canadian health and welfare system and its structure and functions. An analysis of selected issues in the delivery of health and welfare services.

#### **PHS 505 Fundamentals of Public Health**

★3 (fi 6) (first term, 3-0-0). This course provides an overview of the various disciplines making up and impacting on public health. Discussions will cover the

Canadian health care system, infectious and chronic disease epidemiology and control, environmental health, occupational health, health care evaluation, disease prevention, health promotion, and disease and exposure assessment.

#### **PHS 509 Field Practicum**

★6 (fi 12) (Spring/Summer, 16 weeks).

#### **PHS 510 Chemical Principles, Fate, and Behavior of Environmental Contaminants**

★3 (fi 6) (either term, 3-0-0). Concepts of chemical speciation, equilibrium, phase distribution, and biodegradation. Application of chemical principles to study speciation, distribution, transformation, biodegradation, and bioaccumulation of environmental contaminants. Introduction to human exposure to contaminants.

#### **PHS 511 Environmental Contaminant Exposure Assessment**

★3 (fi 6) (either term, 3-0-0). Principles and practice of monitoring exposure to environmental contaminants, external and internal dose. Biomarkers for environmental contaminant dose estimation. Environmental and biological sampling. Routes of exposure, absorption, and distribution.

#### **PHS 512 Environmental Risk Assessment and Management**

★3 (fi 6) (either term, 3-0-0). Concepts of risk to health and environment, assessment, management and communication of risk, hazard identification, links to exposure assessment, toxicology and epidemiology, dose response assessment, risk characterization, regulatory and policy science.

#### **PHS 520 Occupational and Environmental Diseases**

★3 (fi 6) (either term, 0-3s-0). This course is designed to provide students with an overview of the pathophysiology and epidemiology of selected occupational and environmental diseases. Prerequisite: consent of Instructor.

#### **PHS 521 Occupational Hygiene**

★3 (fi 6) (either term, 3-0-0). This course is an introduction to occupational hygiene theory, principles, and practice. It covers the recognition, evaluation, and control of common occupational health hazards including chemicals, biological agents, physical agents, and ergonomic issues. The course is not designed to prepare hygienists for practice. Prerequisite: consent of Instructor.

#### **PHS 522 Principles of Toxicology**

★3 (fi 6) (either term, 3-0-0). This course is geared to health care professionals who need to understand the basic principles of toxicology, to appreciate the physiological and/or biochemical mechanisms underlying target organ toxicity, and to be able to make initial qualitative risk assessments on the potential toxicity of agents. It will emphasize toxins in the work and home environment. Prerequisite: consent of Instructor.

#### **PHS 530 Data Analysis in Public Health Sciences**

★3 (fi 6) (either term, 3-0-1). Introduction to data management and analysis. Statistical software for data capture, editing and management; as a basis for the design of research including sample size and power; as well as data presentation, including graphics; to culminate in intermediate level ability to apply a range of statistical analytical techniques. No previous computer experience is needed. Prerequisite: PHS 591 or consent of Instructor.

#### **PHS 540 Population Health Research Methods: Qualitative and Participatory Approaches**

★3 (fi 6) (either term, 3-0-0). This course will provide the student with a theoretical understanding of qualitative research design. A range of techniques will be discussed, and examples of each examined for strengths, weaknesses and appropriateness. The student will become thoroughly familiar with community-based health research methods through a review of reports, articles and research documents.

#### **PHS 541 Population Health I: Determinants of Health**

★3 (fi 6) (either term, 3-0-0). This course will introduce the student to the Health Fields Concept and Health Determinants as a conceptual base to describe health and disease in the Canadian population. A broad view is adopted as a framework for consideration of the many aspects of life in Canada which interact to produce health and ill health. The perspectives of both the public and health professionals will be analysed. Programming needs in relation to the determinants of health will be addressed.

#### **PHS 542 Case Studies in International Primary Health Care**

★3 (fi 6) (first term, 3-0-0). This introductory course helps students to understand the approaches used by various countries in solving their health and medical problems. Some of the current important issues in international health will be analyzed and discussed, using examples from selected developing countries. The relevance to countries in the developed world (or Canadian context) is also examined. This course introduces interventions to some of the major diseases and health problems in developing countries. Students also become familiar with the role of major international health organizations.

#### **PHS 543 Health Ethics, Law and Policy**

★3 (fi 6) (either term, 0-3s-0). Students will understand the connections and distinctions among ethics, law and public policy in health contexts, and should be able to reason critically about legal and policy influences on public health and health care. Several different approaches to ethical analysis are studied, as

are brief introductions to policy-making processes and legal principles and structures in Canada. Special attention is paid to justification (rather than mere opinion or imposition) and the limits of ethics, laws and policies to identify or enforce the best practices in health contexts. Several problem areas (e.g., health care system reform, health research, organization and management ethics, human rights and multiculturalism) are examined in light of the theoretical foundations in pursuit of effective and justified health policy.

#### **PHS 544 Population Health II: A Multicultural Perspective**

★3 (fi 6) (either term, 3-0-0). This course is designed to introduce the student to some of the theoretical approaches that have been taken in the design of health care in Canada, with a special focus on Aboriginal, immigrant and refugee populations. The perspectives of both clients and health care professionals, and models for community-level programming are considered within the framework of ethnic diversity.

#### **PHS 550 Introduction to Health Care Finance**

★3 (fi 6) (either term, 3-0-0). Financial structure of the health care system, Introduction to managerial accounting with special emphasis on the management of health care agencies. Principles of costing. Multiproduct and case mix measures. Resource use decisions, budgeting and control, and pricing analysis for health care organizations.

#### **PHS 560 Health Data and Information Management**

★3 (fi 6) (either term, 3-0-0). Introduction to data base management systems; source of health data and information. An overview of health information systems, trends and issues. Health indicators and use of administrative health data for quality assurance and outcome oriented analyses; life table and survival analysis, forecasting health services needs. Prerequisite: an introductory statistics and practical skills in using spreadsheets (Lotus) and statistical package (SPSS/W).

#### **PHS 570 Introduction to Health Care Economics**

★3 (fi 6) (either term, 3-0-0). A survey of health economic theory and empirical studies, topics and areas covered include: (1) demand, supply, and utilization; (2) production and costs (3) resource allocation in health care labor markets; (4) selected facets of health care planning; (5) benefit cost analysis. The empirical studies examined in the course require an understanding of simple and multiple regression techniques.

#### **PHS 580 Management and Design of Health Care Organizations**

★3 (fi 6) (first term, 3-0-0). The purpose of this course is to prepare students to become effective managers and leaders in the health service organizations and health care systems. It facilitates this objective by providing a foundation for the acquisition of the knowledge of the managerial process through an analysis and understanding of the psychological, sociological and political basis of complex social systems, as well as providing a basis for acquiring conceptual and practical skills in the effective management and design of health service organizations and health care networks.

#### **PHS 590 Introduction to Epidemiology**

★3 (fi 6) (first term, 3-0-0). An introduction to the principles and methods of epidemiology and their application in public health and clinical settings. Course includes core elements of descriptive, analytical and interventional study designs, especially the role of bias, confounding, and chance in the interpretation of studies. Specific topics include disease occurrence, transmission, determinants, risk, causation, screening, diagnosis, prognosis, intervention and ethics. Students cannot receive credit for both PHS 590 and 596.

#### **PHS 593 Issues in Injury Control**

★3 (fi 6) (either term, 3-0-0). An introductory course that highlights injuries as a major and neglected public health problem. Leading causes of injuries, including motor vehicle, falls, fires, violence, drowning, occupational, and recreational will be addressed in informal lectures and class discussions. The biomechanics of injury and the structure of emergency medical systems will also be covered. Prevention strategies and evaluation of various interventions will be introduced. Prerequisite: consent of Instructor.

#### **PHS 596 Epidemiology Methods I**

★3 (fi 6) (first term, 3-0-0). An introduction to the theory of epidemiology with an emphasis on study design. Topics include the nature of epidemiologic reasoning, indices used to describe and measure health status, evaluation of statistical associations, causation, descriptive studies, analytic studies, intervention studies, bias, confounding, screening and ethics. Students cannot receive credit for both PHS 590 and 596.

#### **PHS 598 Biostatistics I**

★3 (fi 6) (either term, 3-0-1). An introduction to elementary biostatistical methods used to analyze epidemiologic data. Topics will include analysis of 2 x 2 tables, nonparametric methods, linear regression, analysis of variance, direct and indirect standardization, and analysis of censored data. Prerequisite: Introductory statistics course or consent of Instructor.

#### **PHS 600 Health Policy Development**

★3 (fi 6) (second term, 0-3s-0). An overview of the principles and methods underlying the analysis of health policy. Application of health policy principles to selected issues and problems in health policy.

#### **PHS 605 Technology Assessment for Health Care**

★3 (fi 6) (first term, 3-0-0). This course will provide an overview of the nature, science, and practicalities of health technology assessment (HTA), which can then be used as a basis for further work in this area. Issues covered will include health care technologies and their management, methods used in assessment, sources of information and application of HTA finding to policy and administrative decisions. Prerequisite: consent of Instructor.

#### **PHS 630 Health Care Research Methods**

★3 (fi 6) (either term, 3-0-0). An overview of research methods for the health and social sciences fields. Content includes both quantitative and qualitative approaches to theoretical foundations, reliability, validity, research design, sampling, data collection, and data processing. Discussions on survey research, measurement issues, statistical analyses, and current and relevant publications in public health sciences complete this course. Prerequisites: introductory statistics course and consent of Instructor.

#### **PHS 631 Health Program Evaluation**

★3 (fi 6) (either term, 3-0-0). Deals with the application of program evaluation for the health and social sciences fields. Emphasis is on the theory of program evaluation using various models, research design, and the application of these concepts by performing a program evaluation. Discussions will be centred around the ethics, reliability, validity, process, outcomes, and implications of various program evaluation models. Current and relevant publications in public health sciences complete this course. Prerequisite: PHS 630 or consent of Instructor.

#### **PHS 650 Health Finance**

★3 (fi 6) (either term, 3-0-0). The structure of case-mix measures. Case-mix based hospital funding systems. Population-based health care funding. The analysis of management decisions in a case-mix environment.

#### **PHS 670 Health Care Economics**

★3 (fi 6) (either term, 3-0-0). A detailed analysis of the use of economic tools to selected economic issues including health care funding policies, the introduction of user fees, and the introduction of managed care.

#### **PHS 671 The Economic Evaluation of Health Care**

★3 (fi 6) (either term, 3-0-0). The application of economic principles to the evaluation of health care practices. The use of various outcome measures. Cost effectiveness and cost benefit analysis.

#### **PHS 673 Technology Assessment for Health Care**

★3 (fi 6) (first term, 3-0-0). An overview of the nature, science and practicalities of health technology assessment (HTA), which can then be used as the basis for further work and research. Issues covered will include health care technologies and their management, methods used for assessment, sources of information and application of HTA findings to policy and administrative decisions. Emphasis placed on assessments that have been undertaken by national and regional agencies in Canada and other countries to provide information to governments, health care providers and others. Diagnostic, screening, rehabilitation and information technologies will be considered.

#### **PHS 680 Health Care Marketing and Planning**

★3 (fi 6) (second term, 3-0-0). Health care marketing and planning involves the analysis, evaluation, implementation and control of carefully formulated programs designed to bring about voluntary exchanges with a target audience for the purpose of achieving organizational objectives. The purpose of this course is to provide the students with a general understanding of the contribution of marketing and strategic planning to the effective management of health care institutions and public health programs. The course facilitates this objective by providing a foundation for the acquisition of marketing concepts, terms, and skills relevant for understanding the role that marketing and planning play in health care institutions and health systems, the design of health care programs, and as a vehicle for social change.

#### **PHS 693 Critical Appraisal of Health Science Literature in Epidemiology**

★3 (fi 6) (second term, 0-3s-0). Methods for efficiently and critically identifying, appraising, and applying the health sciences literature are learned in an interactive group setting. Topics include studies of prognosis, diagnosis, therapy, causation outcomes research, economic analysis, and systematic reviews. Prerequisite: PHS 590 or consent of Instructor.

#### **PHS 695 Epidemiology of Injuries/Design and Evaluation of Injury Interventions**

★3 (fi 6) (either term, 3-0-0). An advanced course focusing on the review of current epidemiologic knowledge of injuries relating to the leading causes of injury, morbidity, and mortality. Strategies for data acquisition and use in injury research will be introduced. Tools will be presented that will allow students to develop the practical skills needed to design, implement, and evaluate injury prevention programs. Prerequisite: PHS 593.

#### **PHS 696 Epidemiology Methods II**

★3 (fi 6) (second term, 3-0-0). Epidemiologic methods related to specific study designs and general issues relating to the conduct of epidemiologic studies at an advanced level. Topics covered include confounding, interaction,

misclassification, matching, ecologic studies, justification of the odds ratio in case-control studies, and age-period-cohort analysis. Prerequisite: PHS 596 and 598, or consent of Instructor.

#### PHS 698 Biostatistics II

★3 (fi 6) (either term, 3-0-1). Advanced biostatistical methods used to analyze epidemiologic data with an emphasis on multivariate regression. Topics include multiple regression, unconditional and conditional logistic regression, proportional hazards regression, and Poisson regression. Prerequisite: PHS 598 or consent of Instructor.

#### PHS 702 Project in Health Policy Development

★3 (fi 6) (either term, 0-3s-0).

#### PHS 709 Individual Directed Reading and Research in Health Services Administration

★3 (fi 6) (either term, 0-3s-0).

#### PHS 719 Individual Directed Reading and Research in Environmental Health

★3 (fi 6) (either term, 0-3s-0).

#### PHS 729 Individual Directed Reading and Research in Occupational Health

★3 (fi 6) (either term, 0-3s-0).

#### PHS 749 Individual Directed Reading and Research in Population Health

★3 (fi 6) (either term, 0-3s-0).

#### PHS 799 Individual Directed Reading and Research in Epidemiology

★3 (fi 6) (either term, 0-3s-0).

## 201.187 Radiology and Diagnostic Imaging, RADDI

Department of Radiology and Diagnostic Imaging  
Faculty of Medicine and Dentistry

#### Notes

- Undergraduate training in radiology is included in ANAT 411; MED 422, 423, 431; and NEURO 421.
- See also Oncological (ONCOL) listing.

### Graduate Courses

#### RADDI 512 Physics of Diagnostic Imaging: Imaging Modalities

★3 (fi 6) (two term, 2-0-0). This course will build on the curriculum presented in RADDI 511 and will discuss in detail the physics involved in the following imaging modalities: Fluoroscopy, Conventional Tomography, Digital Techniques (DSA), Computed Tomography (CT), Mammography, Nuclear Medicine, Ultrasound, Magnetic Resonance Imaging (MRI). This course will be offered in alternate years to RADDI 511. Prerequisites or corequisites: RADDI 511, PHYS 475/477 or consent of Department.

#### RADDI 600 Special Topics in Radiology Research

★2 (fi 4) (second term, 0-2s-0). A seminar course for advanced students covering selected topics from the current literature in the fields of medical imaging, radiological physics, radiation biology and radiation biophysics.

## 201.188 Recreation and Leisure Studies, RLS

Faculty of Physical Education and Recreation

#### Notes

- See also INT D listings for courses which are offered by more than one department or Faculty and which may be taken as options or as a course in this discipline.
- Priority will be given to recreation students in all recreation courses that are required for the BA (Recreation and Leisure Studies) degree program.
- All out-of-Faculty students are recommended to complete RLS 100 in order to take any other recreation course.
- Where an appropriate background can be demonstrated, prerequisites may be waived, with the consent of the Faculty.

### Undergraduate Courses

#### RLS 100 Life, Leisure, and the Pursuit of Happiness

★3 (fi 6) (either term, 3-0-0). Examination of the nature, characteristics, and functions of leisure in modern Canada. Review of relationships between leisure and time, play, work, family, education, ethnicity, gender, and environment. Discussion of ideas about conventional leisure, serious leisure, and deviant leisure. Overview of the structure of the Canadian recreation and tourism delivery systems. Not open to BA (Recreation and Leisure Studies) students.

#### RLS 122 Leadership in Recreation and Leisure Organizations

★3 (fi 6) (either term, 2-0-2). Introduction to leadership and followership as they apply to recreation and leisure organizations. Emphasis is on practical skills including oral and written communication, group dynamics, conflict management, organizational ethics and politics, professional careers, and other topics as relevant.

#### RLS 133 The Human-Nature Relationship in Leisure

★3 (fi 6) (either term, 3-0-1). This course will explore the relationship between leisure/recreation and natural spaces. The topics will include perspectives by nature writers, environmental audits of recreation facilities, and facets of outdoor recreation (e.g., benefits of outdoor recreation, adventure therapy, and outdoor leadership competencies).

#### RLS 210 Recreation and Leisure Scholarship

★3 (fi 6) (either term, 3-0-1). This course will examine systematic processes of recreation and leisure scholarship. Topics may include the nature of inquiry, paradigmatic questions, quantitative and qualitative methodologies, evaluation and applied research, and other topics as relevant to the areas of recreation and leisure.

#### RLS 223 Leisure and Human Behavior

★3 (fi 6) (either term, 3-0-0). A social psychological examination of leisure experiences and leisure behaviors. Focus is on the individual in dynamic interactions with other individuals, groups or cultures within a leisure context.

#### RLS 225 Principles and Processes in Planning for Leisure

★3 (fi 6) (either term, 3-0-0). Examination of the planning process with particular reference to the roles of recreation professionals, planners, and citizens in planning for leisure opportunities.

#### RLS 230 Recreation and Community Development

★3 (fi 6) (either term, 3-0-0). Analysis of the social and political processes through which groups and individuals work to mobilize resources and establish relationships to fulfil community needs.

#### RLS 232 Program Planning, Marketing, and Implementation

★3 (fi 6) (either term, 3-0-0). An examination of the general principles involved in designing, marketing, implementing and evaluating recreation and leisure programs. Emphasis will be placed upon the utilization of systematic program planning and marketing approaches to matching opportunities to client needs and consumer demands. Prerequisite: RLS 225 or consent of Faculty.

#### RLS 263 Principles of Tourism

★3 (fi 6) (either term, 3-0-1). This course presents an overview and explores the basic principles of the tourism system (tourist, travel, destinations, and marketing), underlying influences such as cultural, social, economic, and psychological aspects, areas of major tourist activity such as natural spaces, constructed facilities, and cultural events, and the impact of tourism upon the attraction, local communities, and national arenas. Note: Not open to students with credit in RLS 463.

#### RLS 300 Philosophies of Leisure

★3 (fi 6) (either term, 3-0-0). This course examines selected philosophical perspectives related to leisure, recreation, work, play, and quality of life. The course explores the philosophical implications for the recreation profession in Canada and issues related to the future of leisure in Canadian society. Prerequisite: any PHIL course. Note: Not open to students with credit in the former RLS 220.

#### RLS 331 Leisure Education

★3 (fi 6) (either term, 3-0-0). A total development process through which individuals develop an understanding of self, leisure, and the relationship of leisure to their own lifestyles and the fabric of society. Examination of determining the place and significance leisure has in one's life.

#### RLS 335 Volunteers and Voluntary Organizations in Recreation

★3 (fi 6) (either term, 3-0-0). An examination of (1) the nature of volunteer involvement in the delivery of recreation; and (2) the structure and processes of the voluntary organizations that make up the recreation delivery system.

#### RLS 441 Practicum Seminar

★3 (fi 6) (either term, 0-3s-0). A seminar, taken concurrently with RLS 449, which seeks to relate the professional work experience to the academic and professional preparation elements within the BA program. Students will not be allowed to register in any other course in conjunction with RLS 441/449 unless approved by the Practicum Supervisor.

#### RLS 444 Issues in Recreation Practice

★3 (fi 6) (either term, 0-3s-0). A seminar for graduating students in Recreation and Leisure Studies centring upon issues relevant to the beginning professional. The seminar seeks to provide a synthesis appropriate to the final-year student. Note: Must be taken in the final term of the student's program.

#### RLS 449 Professional Practicum

★12 (fi 24) (either term, 14 weeks). Fourteen weeks of professional experience in full-time placement. Must be taken concurrently with RLS 441. Students will not be allowed to register in any other course in conjunction with RLS 441/449 unless approved by the Practicum Supervisor.



**RLS 452 Parks Planning, Management, and Maintenance**

★3 (fi 6) (either term, 3-0-1). An examination of parks as recreation environments together with an analysis of the relationship between park planning, design and subsequent management and maintenance in terms of meeting the requirements of the park agency, the park user and the resource base. Attention is focused on both the common themes in park management and the specific problems of parks operation and maintenance associated with particular types of parks contained within a comprehensive park system. This course requires the payment of additional miscellaneous fees. See §22.2.3 for details. Prerequisite: RLS 225.

**RLS 462 Outdoor Recreation Resources**

★3 (fi 6) (either term, 3-0-1). An examination of the principles of resource allocation and land use in a recreational context together with an analysis of the patterns and trends in outdoor recreation and their impact on the resource base. Particular attention is given to evaluating a variety of environmental settings in terms of their suitability for outdoor recreation and the types of recreational experiences associated with them. This course requires the payment of additional fees. §22.2.3 for details. Prerequisite: RLS 225.

**RLS 463 Issues in Tourism Development**

★3 (fi 6) (either term, 3-0-1). Critical issues in tourism development will be examined within the context of tourism transformation models and fundamental development concepts such as commodification, authenticity, globalization, sense of place, economic impact, socio-cultural impact and environmental impact. This course requires the payment of additional miscellaneous fees (see §22.2.3). Prerequisite: RLS 263.

**RLS 464 Commercial Recreation**

★3 (fi 6) (either term, 3-0-0). This course will examine the provision of leisure-related products or services by private enterprise. The course is also intended to provide insight into the applicability and implications of entrepreneurial practices in the public and non-profit sectors of the leisure delivery system. Prerequisite: RLS 232 or PERLS 350, or consent of Faculty.

**RLS 473 Principles and Processes in Therapeutic Recreation**

★3 (fi 6) (either term, 2-0-2). The therapeutic recreation programming process is emphasized. Primary focus is on specialized programs in therapeutic recreation settings. The relationship between therapeutic recreation services and recreation and special populations is addressed. Therapeutic recreation service methods, such as systems approach programming, activity analysis, leisure assessment techniques and instruments, as well as treatment approaches and facilitation strategies employed in therapeutic recreation settings are presented. Professional issues such as client rights, standards of practice, and credentialing will also be addressed. Prerequisite: PERLS 207 or consent of Faculty.

**RLS 490 Selected Topics**

★3 (fi 6) (variable, variable). Topics of current interest in leisure and recreation. Prerequisite: consent of course coordinator. Restricted to third- and fourth-year Recreation students.

**RLS 499 Directed Study**

★3 (fi 6) (variable, variable). Individual or group study on a theme or issue in recreation, carried out under the direction of a member of the academic staff. Restricted to fourth year Recreation students.

**Graduate Courses****RLS 510 Concepts and Theories of Leisure and Recreation**

★3 (fi 6) (first term, 3-0-0).

**RLS 531 Socio-Psychological Dimensions of Recreation Involvement**

★3 (fi 6) (second term, 3-0-0).

**RLS 541 Parks, Protected Areas, and Outdoor Recreation Environments: Planning and Management**

★3 (fi 6) (either term, 3-0-0). An interdisciplinary perspective on policy, planning, and management issues associated with parks, protected areas, and the stewardship of natural and cultural heritage resources within working landscapes. The provision and management of outdoor recreation opportunities within these different environments is also examined.

**201.189 Rehabilitation Medicine, REHAB**

Faculty of Rehabilitation Medicine

**Note:** Normally all REHAB courses are restricted to students in Rehabilitation Medicine. Students from other faculties require consent of the instructor offering the course.

**Undergraduate Courses****REHAB 250 Introductory Human Anatomy**

★3 (fi 6) (either term, 3-0-0). An introductory anatomical study of the gross structures and systems of the human body.

**REHAB 311 Rehabilitation Health Issues**

★3 (fi 6) (either term, 39 hours in 9 weeks). Introduction to current issues confronting health care practitioners such as the determinants of health, health promotion, community-based services and social issues. Implications of ethical, legal, educational, and governmental influences on occupational therapy practice. Corequisite: OCCTH 307. [Note: Corequisite applicable to Occupational Therapy students only.]

**REHAB 351 Neuroanatomy**

★3 (fi 6) (either term, 3-0-0). A detailed study of the structure and function of the human nervous system. Prerequisite: REHAB 283. Corequisite: PHYSYL 161.

**REHAB 352 Work Physiology for Rehabilitation Therapists**

★3 (fi 6) (either term, 3-0-2/2). The acute and chronic physiological response to pathology and levels of physical activity in individuals seen by the rehabilitation team and their treatment. Prerequisite: PHYSYL 161 or equivalent. Note: Labs of two hours each will be offered to two groups of students on alternate weeks. All Occupational Therapy students obtaining Advance Standing or Advance Placement must attend lab section.

**REHAB 354 Clinical Neurology**

★3 (fi 6) (either term, 3-0-0). An overview of neurological conditions which are referred to rehabilitation therapists for treatment. Corequisite: REHAB 353.

**REHAB 362 Human Systems #2 Applied and Clinical Work Physiology for Rehabilitation**

★3 (fi 6) (either term, 3-0-2/4). The acute and chronic physiological responses to physical work and its impact on the practice of occupational therapy as it relates to self-care, productivity and leisure activities in health, injury and disease. Prerequisite: PHYSYL 161 or equivalent. Note: Students will take three labs of two hours each during the course.

**REHAB 383 Human Systems #1 Applied and Clinical Anatomy for Rehabilitation**

★4 (fi 6) (either term, 3-0-1). An anatomical study of the structure of tissue in normal and selected pathological conditions as related to the biomechanics of the human musculoskeletal system. Prerequisite: consent of Department.

**REHAB 419 Occupational Performance Across the Lifespan**

★3 (fi 6) (either term, 39 hours in 8 weeks). The study of occupational performance across the lifespan. Includes changing physical, psychosocial and environmental factors as they relate to lifespan issues for individuals. Prerequisites: OCCTH 328 and completion of all Year 3 academic courses. Corequisite: OCCTH 414. [Note: Prerequisites/Corequisite applicable to Occupational Therapy students only.]

**REHAB 454 Clinical Neurology**

★3 (fi 6) (either term, 39 hours in 8 weeks). An overview of neurological conditions encountered in rehabilitation. Prerequisite: REHAB 455. Corequisite: OCCTH 415 or 512. [Note: Corequisite applicable to Occupational Therapy students only.]

**REHAB 455 Human Systems #3 Neuroanatomy and Neuroscience for Rehabilitation**

★3 (fi 6) (either term, 39 hours in 8 weeks). Structures and functions of the human nervous system and the mechanisms of neural activity and signalling. Emphasis is on integration and function. Prerequisite: REHAB 383 and REHAB 362.

**REHAB 462 Research in Rehabilitation**

★3 (fi 6) (either term, 3-0-0). Critical evaluation of rehabilitation research based on knowledge of the theory and principles of research design procedures with an emphasis on evidence based practice.

**REHAB 463 Aging and Rehabilitation**

★3 (fi 6) (either term, 0-3s-0). A seminar course addressing topics on age-related changes, pathology, health promotion, and the continuum of health and social services as they relate to rehabilitation of older adults.

**REHAB 464 Administration**

★3 (fi 6) (either term, 2-1s-0). An introduction to health care policy and delivery and business administration in rehabilitation.

**REHAB 468 Research in Rehabilitation**

★3 (fi 6) (either term, 39 hours in 8 weeks). The theory and principles of scientific method and research design procedures, from both qualitative and quantitative perspectives. Application to rehabilitation in practice settings will be explored. Prerequisite: OCCTH 362.

**REHAB 476 Ergonomics**

★3 (fi 6) (either term, 2-0-1). Ergonomics from an industrial and health care perspective.

**REHAB 498 Special Seminars**

★3 (fi 6) (either term, 0-3s-0). Content varies from year to year. Topics will be announced prior to registration period. Prerequisite: consent of Department.

**Graduate Courses****REHAB 500 Conducting Rehabilitation Research**

★3 (fi 6) (either term, 0-3s-0). Preparation of a plan to conduct research including

writing a proposal. Students will discuss critically various aspects, such as the selection of the problem, the review of the literature, the research hypothesis, the collection and analysis of the data, and the significance of the research.

#### REHAB 510 Assistive Technologies in Rehabilitation

★3 (fi 6) (either term, 0-2s-1). A study of assistive technologies used to ameliorate the problems of persons who have disabilities. The integration of assistive technologies into rehabilitation practice is discussed. Assistive technologies for augmentative communication, computer access, sensory (auditory, visual and tactile) assistance, seating and positioning, mobility and manipulation are included. Case studies, interactive demonstrations and review of current literature are included. Prerequisites: A background in assistive technologies such as provided by OCCTH 312, PTHER 486 or 490, or SPA 523 or equivalent is recommended. For students without this background, a set of self-study competency modules must be completed during the first few weeks of the term.

#### REHAB 599 Directed Individual Reading and Research

★3 (fi 6) (either term, 0-3s-0). May be repeated. Open to graduate students in Master's and PhD degree programs in the Faculty of Rehabilitation Medicine or any of the other health sciences Faculties who wish to pursue individual reading and research studies with an academic staff member within the Faculty of Rehabilitation Medicine. Prerequisites: consent of student's graduate supervisor and instructor of record.

#### REHAB 600 Theory and Issues in Rehabilitation Science

★3 (fi 6) (either term, 0-3s-0). The course will provide an orientation to the theoretical base of rehabilitation science and its historical development. Students will critically examine existing theory and compare the theoretical base of rehabilitation science to other health related fields. Methods of theory development will be addressed, as well as a variety of ways of testing theoretical approaches. Students will study the field of rehabilitation science through selected readings, discussion, and research seminars.

#### REHAB 601 Research Design in Rehabilitation Science

★3 (fi 6) (either term, 0-3s-0). An orientation to the unique features of rehabilitation science that impact on research methodology, design, ethical issues, measurement, and statistical analyses. Issues such as chronicity of disease, low incidence of specific conditions resulting in small sample sizes, small increments of change over long periods of time, ordinal data, wide variability in patient characteristics, group data versus single subject data, etc. will be studied in terms of appropriate research design, measurement, and analyses.

#### REHAB 603 Seminars in Rehabilitation Science

★3 (fi 6) (two term, 0-1.5s-0). This seminar is designed to allow students in the doctoral program to learn more about the scope of research in rehabilitation science. Students attend a weekly seminar presented by staff and graduate students in the Faculty of Rehabilitation Medicine and other health science faculties. Students registered in the PhD program in Rehabilitation Science must enrol in this seminar within the first two years of their doctoral programs and must present at least one seminar during each of the terms in which they are enrolled.

#### REHAB 899 Directed Individual Research

★3 (fi 6) (either term, 0-3s-0). May be repeated once. Restricted to students in the PhD program in Rehabilitation Science who did not write a master's thesis and for whom an in-lieu-of thesis experience is required in the plan of study. Prerequisite: Recommendation of PhD supervisor.

## 201.190 Religious Studies, RELIG

Department of Comparative Literature, Religion and Film/  
Media Studies  
Faculty of Arts

**Note:** Students who have completed RELIG 100 may substitute that course for RELIG 101 for prerequisite purposes.

### Undergraduate Courses

#### RELIG 101 Introduction to the Religions of the World

★6 (fi 12) (two term, 3-0-0). An introduction to the major religious traditions of the past and present.

#### RELIG 200 The Study of Religion

★3 (fi 6) (either term, 3-0-0). An introduction to theoretical and methodological issues.

#### RELIG 201 Introduction to Biblical Hebrew

★6 (fi 12) (two term, 3-0-2). This is an introduction to Hebrew alphabet, grammar, vocabulary, and syntax. The goal is to enable the student to read parts of the Hebrew Bible/Old Testament. The course serves also as foundation for the study of Mishnaic, Medieval, and Modern Hebrew. Designed for students with no previous knowledge of Hebrew.

#### RELIG 202 Introduction to Old Testament/Hebrew Bible

★3 (fi 6) (either term, 3-0-0). An introduction to the critical study of the Old Testament/Hebrew Bible. Note: Not open to students with credit in RELIG 231.

#### RELIG 205 Introduction to Judaism

★3 (fi 6) (either term, 3-0-0). An introduction to the varied world of Judaism: its ways of life, beliefs, history and thought. Note: Not open to students with credit in RELIG 235.

#### RELIG 211 Introduction to Early Christian Writings

★3 (fi 6) (either term, 3-0-0). Critical introduction to the New Testament and other early Christian Writings in their historical cultural context.

#### RELIG 212 Christian Traditions

★3 (fi 6) (either term, 3-0-0). A survey of the Christian traditions in historical context. Note: Not open to students with credit in HIST 297.

#### RELIG 215 Introduction to Community Action and Christianity

★3 (fi 6) (either term, 3-0-0). Explores the link between Christian traditions and community action and considers the latter as a significant expression of faith. In addition to normal academic requirements, there will be relevant field trips.

#### RELIG 220 Introducing Islam, from Prophetic Origins to World Tradition

★3 (fi 6) (either term, 3-0-0). A survey of the main elements of the Muslim tradition and their role in the formation of Islamic culture. Note: Not open to students with credit in RELIG 221.

#### RELIG 225 The Life of the Prophet Muhammad: Muslim and Western Approaches

★3 (fi 6) (either term, 3-0-0). Selected readings on and approaches to the life of the Prophet.

#### RELIG 230 Introduction to Hinduism

★3 (fi 6) (either term, 3-0-0). A study of the major traditions of classical Hinduism, and of the religious thinking and experience formed through these traditions. Note: Not open to students with credit in RELIG 208 or 301.

#### RELIG 239 Introduction to Sanskrit I

★3 (fi 6) (either term, 3-0-2). Fundamentals of the Sanskrit language for reading and translation purposes. Designed for students with no previous knowledge of Sanskrit.

#### RELIG 240 Introduction to Buddhism

★3 (fi 6) (either term, 3-0-0). A study of the emergence of Buddhism as a religion, its basic ideas, spirituality, and literature.

#### RELIG 249 Introduction to Sanskrit II

★3 (fi 6) (either term, 3-0-2). Prerequisite: RELIG 239 or consent of Department.

#### RELIG 252 Introduction to Chinese Religions

★3 (fi 6) (either term, 3-0-0).

#### RELIG 270 Contemporary Issues in Religion

★3 (fi 6) (either term, 3-0-0).

#### RELIG 274 Studies in Witchcraft and the Occult

★3 (fi 6) (either term, 3-0-0).

#### RELIG 277 Women and World Religions

★3 (fi 6) (either term, 3-0-0). Attitudes towards women in selected world religious traditions, specifically with respect to their participation in ritual and religious leadership.

#### RELIG 279 Religion and Literature

★3 (fi 6) (either term, 3-0-0). A discussion of selected works of literature that express and articulate religious experiences. The range of selected works, varying from year to year, may contain specimens from the classical ages to the present, and from Asian to North American cultures (e.g. Dostojewski, H Hesse, U Le Guin).

#### RELIG 285 Religions of Western Canada

★3 (fi 6) (either term, 3-0-0). A survey of the history, structure, and socio-cultural impact of religious groups in Western Canada.

#### RELIG 297 Special Topics in Religious Studies

★3 (fi 6) (either term, 0-3s-0).

#### RELIG 301 Readings in Hebrew Literature

★3 (fi 6) (either term, 3-0-0). Readings in Hebrew literature of religious character. Prerequisite: RELIG 201 or consent of Department. Note: Only one of RELIG 301 or C LIT 490 can be taken for credit.

#### RELIG 302 Studies in the Old Testament/Hebrew Bible

★3 (fi 6) (either term, 3-0-0). An intermediate level study of the Old Testament/Hebrew Bible, focusing on a variety of genres and critical approaches.

#### RELIG 303 Biblical Narrative

★3 (fi 6) (either term, 3-0-0). Narrative art in the Old Testament/Hebrew Bible.

#### RELIG 304 Poets, Prophets, and Sages

★3 (fi 6) (either term, 3-0-0). Literary-critical reading of the poetic books of the Old Testament/Hebrew Bible.

**0 RELIG 305 Ancient Near East I**

★3 (fi 6) (either term, 3-0-0). Religion, society and culture in Sumer, Babylon, Assyria and ancient Israel. Note: not open to students with credit in CLASS 376.

**0 RELIG 306 Ancient Near East II**

★3 (fi 6) (either term, 3-0-0). Religion, society and culture in Egypt, the Hittite Empire and Phoenicia. Note: Not open to students with credit in CLASS 377.

**0 RELIG 307 The Kabbalah**

★3 (fi 6) (either term, 3-0-0). Studies in Jewish mysticism from the earliest period to modern times. Note: Not open to students with credit in RELIG 340.

**0 RELIG 308 From Cyrus to Jesus**

★3 (fi 6) (either term, 3-0-0). Religion, society and culture in Palestine from the Persian conquest to the time of Jesus. Note: Not open to students with credit in CLASS 380.

**0 RELIG 312 Eastern Orthodoxy**

★3 (fi 6) (either term, 3-0-0). History, sacral art, liturgy, spirituality and distinguishing points of doctrine.

**0 RELIG 313 Studies in Early Christian Writings**

★3 (fi 6) (either term, 3-0-0). Social and literary study of select early Christian texts.

**0 RELIG 314 Jesus**

★3 (fi 6) (either term, 3-0-0). A study of representations of Jesus in various historical and social contexts.

**0 RELIG 315 Christianity in the Age of the Reformation**

★3 (fi 6) (either term, 3-0-0). A study of the main thinkers of the Reformation.

**0 RELIG 320 Qur'anic Studies**

★3 (fi 6) (either term, 3-0-0). An examination of the style, structure, and doctrine of the Qur'an in the light of the Western critical evaluation of the text. Note: Not open to students with credit in RELIG 327.

**0 RELIG 322 Contemporary Movements in Islam**

★3 (fi 6) (either term, 3-0-0). Recent developments in the philosophical, social, and religious life of Islam throughout the world. Note: Not open to students with credit in RELIG 328.

**0 RELIG 331 Devotional Hinduism (bhakti)**

★3 (fi 6) (either term, 3-0-0). A study of the various strands of devotional and mystical Hinduism (such as Vishnuism, Shivaism, Shaktism).

**0 RELIG 337 Contemporary Hinduism**

★3 (fi 6) (either term, 3-0-0). A critical examination of the responses of Hinduism to the challenges of colonialism, modernity, and religious pluralism, and of its ensuing transformation.

**0 RELIG 343 Zen/Ch'an Buddhism**

★3 (fi 6) (either term, 3-0-0). A study of the history of Zen/Ch'an Buddhism in China, Tibet, and Japan in terms of the major movements, their main figures, and samples of the representative texts.

**0 RELIG 344 Buddhism in Tibet and in the Himalayas**

★3 (fi 6) (either term, 3-0-0). A study of the dissemination of Buddhism in the Himalayas and in Tibet, its incorporation of local beliefs, the formation of monasticism, religious thought and literature.

**0 RELIG 375 Thanatology**

★3 (fi 6) (either term, 3-0-0). A consideration of death and dying in the great religious traditions, with particular emphasis on the recent literature.

**0 RELIG 378 Shamanism**

★3 (fi 6) (either term, 3-0-0). A study of shamanism in the history of religions with special attention to myths, rituals, symbols, and the ecstatic experience. Note: Not open to students with credit in RELIG 366.

**0 RELIG 379 The Religions of Aboriginal North-Americans**

★3 (fi 6) (either term, 3-0-0). A critical analysis of native North-American beliefs of the past and present. Note: Not open to students with credit in RELIG 280.

**0 RELIG 390 Readings of Sacred Texts of Asia in the Original Language II**

★3 (fi 6) (either term, 3-0-0). Intermediate readings of the sacred texts of Asia in any one of the sacred languages of Asian religions.

**0 RELIG 397 Special Topics in Religious Studies**

★3 (fi 6) (either term, 0-3s-0).

**0 RELIG 402 Historical and Textual Studies in the Old Testament/Hebrew Bible**

★3 (fi 6) (either term, 3-0-0). Detailed studies of the individual books of the Old Testament/Hebrew Bible and related themes. Prerequisite: One course in the Old Testament/Hebrew Bible or consent of Department.

**0 RELIG 404 Literary Studies in Old Testament/Hebrew Bible**

★3 (fi 6) (either term, 3-0-0). Prerequisite: One course in Old Testament/Hebrew Bible or consent of Department.

**0 RELIG 409 Midrash and Literature**

★3 (fi 6) (either term, 3-0-0). Rabbinic Midrash (exposition of Scripture) in

relation to contemporary literary theory and the construction of religious community, with textual examples. Prerequisite: one course in Judaism, Hebrew Bible, or consent of Department.

**0 RELIG 415 Advanced Studies in Christianity**

★3 (fi 6) (either term, 3-0-0). Prerequisite: one course in Christianity or consent of Department.

**0 RELIG 422 Advanced Studies in Islam**

★3 (fi 6) (either term, 3-0-0). Prerequisite: one course in Islam or consent of Department.

**0 RELIG 442 Advanced Studies in Buddhism**

★3 (fi 6) (either term, 3-0-0). Prerequisite: one course in Buddhism or consent of Department.

**0 RELIG 445 Hermeneutics**

★3 (fi 6) (either term, 3-0-0). History and development of hermeneutics with emphasis on its relevance to the study of literary and religious texts. Note: Equivalent to C LIT 445. Prerequisite: one course in RELIG or consent of Department.

**0 RELIG 475 Methodology in Religious Studies**

★3 (fi 6) (either term, 3-0-0). Theories and methods in the study of religion, religions, and religious practices. Required for Honors students. Prerequisite: at least one senior-level course in RELIG, or consent of Department.

**RELIG 480 Directed Reading in Religious Studies**

★3-6 (variable) (variable, 3-0-0). Prerequisite: consent of Department.

**0 RELIG 497 Special Topics in Religious Studies**

★3 (fi 6) (either term, 0-3s-0).

**RELIG 499 Honors Essay in Religious Studies**

★6 (fi 12) (two term, 0-3s-0). Preparation of the Honors essay. Formerly RELIG 501.

## Graduate Courses

**RELIG 500 Seminar on World Religions**

★6 (fi 12) (two term, 0-3s-0). Advanced seminar on world religions that includes the study of the teaching of world religions at the undergraduate level.

**RELIG 502 Historical and Textual Studies in the Old Testament/Hebrew Bible**

★3 (fi 6) (either term, 3-0-0).

**RELIG 504 Literary Studies in the Old Testament/Hebrew Bible**

★3 (fi 6) (either term, 3-0-0).

**RELIG 509 Advanced Studies in Midrash and Literature**

★3 (fi 6) (either term, 3-0-0).

**RELIG 510 Selected Topics in Religious Studies**

★3 (fi 6) (either term, 3-0-0).

**RELIG 516 Special Topics in Early Christianity**

★3 (fi 6) (either term, 3-0-0).

**RELIG 520 Specialized Studies in Islam**

★3 (fi 6) (either term, 3-0-0). An in-depth study of the problems of Islamic Studies.

**RELIG 540 Specialized Studies in Tibetan Buddhism**

★3 (fi 6) (either term, 3-0-0). The course addresses the problems of academic study of Tibetan Buddhism and it does not require competence in Tibetan language.

**RELIG 545 Specialized Studies in Tibetan Texts**

★3 (fi 6) (either term, 3-0-0). An in-depth reading of Tibetan Buddhist texts in Tibetan and their explication.

**RELIG 574 Advanced Studies in Religion and Psychoanalysis**

★3 (fi 6) (either term, 3-0-0).

**RELIG 575 Advanced Studies: Methodologies of Religious Studies**

★3 (fi 6) (either term, 3-0-0).

**RELIG 580 Directed Reading Course I**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**RELIG 581 Directed Reading Course II**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

## 201.191 Renewable Resources, REN R

Department of Renewable Resources  
Faculty of Agriculture, Forestry, and Home Economics

**Note:** See also Agricultural and Resource Economics (AREC), Animal Science (AN SC), Environmental and Conservation Sciences (ENCS), Forest Economics

(FOREC), Forest Engineering (FOREN), Forest Science (FOR), Plant Science (PL SC), Soil Science (SOILS), and Interdisciplinary (INT D) Undergraduate Course listings for related courses.

The following tables lists renumbered courses effective 1996/97:

Old	New	Old	New
ENCS 485	REN R 485	FOR 490	REN R 490
FOR 110	REN R 110	FOR 601	REN R 601
FOR 120	REN R 120	FOR 602	REN R 602
FOR 321	REN R 321	LDRES 410	REN R 410
FOR 420	REN R 420	LDRES 510	REN R 510
FOR 421	REN R 421	LDRES 590	REN R 590
FOR 430	REN R 430	SOILS 425	REN R 425
FOR 439	REN R 439	SOILS 545	REN R 545
FOR 475	REN R 475		

## Undergraduate Courses

### REN R 110 Natural Resource Measurement

★3 (fi 6) (second term, 3-0-3). Designed to introduce students to the principles and practices of measuring a variety of wildland resources including: timber, water, range, wildlife, and recreation.

### REN R 120 Woody Plants I

★3 (fi 6) (first term, 3-0-4). Identification, classification, distribution, habitat, and basic ecology of trees, important shrubs and herbaceous species in forests of Alberta and Canada. There will be field trips to sites where living specimens can be examined. This course requires the payment of additional miscellaneous fees. See §22.2.3 for details.

### REN R 220 Woody Plants II

★3 (fi 6) (second term, 3-0-3). Developmental morphology and anatomy of woody plants; cell and tissue structure; biology of reproduction with the elements of genetics; relationship between form, function, and environment. Prerequisite: CHEM 161.

### REN R 321 Tree Physiology

★3 (fi 6) (first term, 3-0-3). Study of physiological processes in trees. Emphasis on primary and secondary metabolism, gas exchange, transport processes, growth, and environmental effects. ★3 Chemistry and one of BIOL 107 or REN R 220 are strongly recommended.

### REN R 401 Special Topics in Renewable Resources

★3-6 (variable) (either term, variable). Directed study in the multiple aspects of renewable resources. Open to third or fourth year students upon consent of instructor.

### REN R 410 Principles of Remote Sensing

★3 (fi 6) (first term, 3-0-3). Basic principles of spectral reflectance and emittance, and atmospheric effects as they apply to the acquisition and analysis of imagery; digital image analysis for geographical information systems; application to renewable resource inventory and management and environmental impact assessment. Prerequisite: A 300-level course in at least one of the natural sciences.

### REN R 421 Advanced Tree Physiology

★3 (fi 6) (second term, 3-0-0). Stress physiology of trees and tree seedlings; mechanisms of stress action and stress resistance; effects of silvicultural practices on growth and physiology; planting stress. Prerequisite: consent of Instructor. Offered in alternate years.

### REN R 426 Geographical Information Systems Applications in Renewable Resources

★3 (fi 6) (second term, 0-0-3). A combination of computer lab instruction and directed studies in applied GIS. The focus of the course is an individual project of the student's choosing. Prerequisite: EAS 221 or consent of Instructor.

### REN R 430 Forest Resources Management

★3 (fi 6) (first term, 3-0-3). Analytical techniques used by renewable resource managers for management of wildland areas for single or multiple outputs; problems of defining optimality when confronted with competing uses and multiple outputs. Prerequisites: FOR 302, 303, 304 and (FOREC 345 or INT D 365) required; FOR 210 strongly recommended.

### REN R 432 Social Factors in Forest Management Planning

★3 (fi 6) (second term, 3-0-0). The impact of social, cultural, and political factors or forest management planning is assessed through evaluation of alternative institutions of forest management, and forms of public, stakeholder, and aboriginal involvement. Topics include aboriginal forest uses and management; land tenure; multiple use of forested lands; conflict resolution and mediation; co-management planning. Prerequisite: ★60 university credit.

### REN R 439 Forest Management Planning

★3 (fi 6) (second term, 0-3s-0). Seminar presentations and discussions by students of contemporary forest management planning. Prerequisite: REN R 430.

### REN R 450 Environmentally Sustainable Agriculture

★3 (fi 6) (second term, 3-0-0). Land-management issues that influence the

sustainability of both agriculture and the land resource. Role of ecological processes in determining sustainability and the development and adoption of practices that facilitate long-term viability of both agriculture and biophysical resources. The concept of the agro-ecosystem and application of ecological principles to agricultural land management. Use of environmental indicators to measure and predict long-term sustainability of agricultural land management. Prerequisites: ★60 at university level including SOILS 210, and (BIOL 208 or PL SC 221).

### REN R 468 Management and Conservation of Genetic Resources

★3 (fi 6) (second term, 3-0-0). Principles and issues in conserving and managing plant and animal genetic resources from the global perspective. Lectures will be supplemented with case studies. Students are assigned tasks, individually and in groups. Prerequisite: consent of Instructor.

### REN R 475 Revegetation

★3 (fi 6) (first term, 3-3s-0). Principles, practices, and philosophy of revegetation of disturbed lands. Topics include site preparation, seed mix design, planting methods, species selection, monitoring, determining success, plant community ecology and change, bioengineering, phytoremediation, vegetative reclamation, restoration. Illustrated with case studies. Revegetation project plan required. Prerequisites: ★90 university credit including introductory courses in soil science, hydrology, and ecology; and ★6 in vegetation science at the 300- or 400-level (e.g. botany, forestry, plant ecology, plant resources, plant science, range science, weed science); and ★3 in soil science at the 300- or 400-level. ENCS 406 recommended.

### REN R 477 Wildlife-Human Activities: Conflicts, Assessment and Mitigation

★3 (fi 6) (second term, 3-0-0). Behavioral and ecological responses of wildlife species to human activities, including forestry operations, oil and gas exploration, recreational developments and agriculture-related activities. Topics include harassment and disturbance, habitat loss, habituation, assessment of impacts and mitigation, and cumulative impacts. Identification of ecological and social issues associated with human activities. Prerequisite: fourth-year standing or consent of Instructor.

### REN R 485 Land Reclamation

★3 (fi 6) (second term, 3-3s-0). Principles, practices and philosophy of land reclamation; types of land disturbances and regulations governing their reclamation. Team project-based course. Should be taken in students' last year as the Capstone Course for the land reclamation major. Prerequisite: ★90 university credit including introductory courses in soils, hydrology, ecology, and vegetation science; and ★9 in soil science at the 300- or 400-level. REN R 475 and ENCS 455 recommended.

**Note:** 400-level courses listed under ENCS, FOR, REN R or SOILS and offered by the Department of Renewable Resources may be taken for graduate credit under certain circumstances. FOREC 445, 473, and INT D 421, 465 may also be taken for graduate credit under certain circumstances. (See §174.1.1(1)).

## Graduate Courses

### REN R 501 Special Topics in Renewable Resources

★3-6 (variable) (either term, variable). Directed study in the multiple aspects of renewable resources. Open to fourth year or graduate students upon consent of instructor.

### REN R 510 Advanced Remote Sensing

★3 (fi 6) (second term, 3-0-3). A quantitative approach to remote sensing for land resource studies; specialized techniques for hard copy and digital image analyses; remote sensing and soil-vegetation-landscape models; literature review and laboratory project on a selected problem. Prerequisite: REN R 410.

### REN R 535 Computer-based Modeling for Forest Resources Management

★3 (fi 6) (second term, 3-0-3). Exploration of computer-based models as decision aids for forest resources management, in the contexts of landscape and integrated resource management. Topics include timber supply modeling, wildlife habitat supply modeling, and trade-off analysis, in both simulation and optimization frameworks. The underlying assumptions and practical application of models will be emphasized. Prerequisite: REN R 430 or consent of instructor.

### REN R 545 Small Watershed Hydrology

★3 (fi 6) (first term, 0-3s-0). An examination of land use and management practices affecting water quantity and quality in rural watersheds. Considerations of snowmelt hydrology. Current hydrologic models and their treatment of infiltration, runoff, and evapotranspiration. Model calibration and validation with field data. Prerequisite: A course in hydrology or water resources. Facility with computers an asset. Offered in alternate years.

### REN R 561 Agroecosystem Simulation

★3 (fi 6) (first term, 3-0-3). The student will learn the rationale for integrating scientific findings at lower levels of physical and biological organization into mathematical models. The students will learn to simulate basic processes in the physics, chemistry, and biology of soils and plants, and to integrate these processes

into higher-level agroecosystem models. Offered in alternate years. Prerequisites: A course in earth sciences and a course in plant sciences plus completion of ★90 of university-level course work. Credit cannot be obtained for both SOILS 561 and REN R 561.

### **REN R 575 Advanced Revegetation**

★3 (fi 6) (first term, 0-3s-0). An examination of current topics in revegetation, vegetative reclamation, and restoration of disturbed lands. Topics include plant response to disturbed ecosystems, plant succession and community change in disturbed ecosystems, reclamation properties of plants. Prerequisite: consent of Instructor. Offered in alternate years beginning in 2000-2001.

### **REN R 580 Biometrical Techniques in Agri-food, Environmental and Forest Sciences**

★3 (fi 6) (second term, 3-0-3). Application of biometrical techniques in agri-food, environmental, and forest sciences with emphasis on experimental design, analysis of variance and covariance, and categorical data analysis. Prerequisite: ★90 of university-level coursework or higher. ★3 in introductory statistics recommended.

### **REN R 600 Graduate Research Seminar**

★2 (fi 4) (two term, 0.5-1s-0). Prepares graduate students to function in a research environment. Formal lectures during the first two months of Fall. Student presentations and student evaluations of them take place during the remainder of Fall and all of Winter. All graduate students in the Department of Renewable Resources who are on campus are expected to attend and provide evaluations of student presentations on alternate weeks; attendance at the formal lectures is required only once, and should be during the first year of graduate study. Registration is normally in the last year of the program; the grade is credit/no credit.

### **REN R 601 Forest Biology**

★3 (fi 6) (first term, 0-3s-0). Seminar presentations and discussions by students on the biology and environment of forest ecosystems. The objective of this course is to develop a broader and greater holistic understanding of the biota and physical environments of forest ecosystems. Course team taught by Department of Renewable Resources staff. Prerequisite: consent of Department.

### **REN R 602 Forest Resources Management**

★3 (fi 6) (second term, 0-3s-0). Seminar presentations and discussions by students on the management of forest ecosystems for traditional and non-traditional values. The objective is to examine human, resource, economic, and policy problems of integrated forest management. Course team taught by Department of Renewable Resources staff. Prerequisite: consent of Department.

### **REN R 900 Research Project**

★6 (fi 12) (variable, unassigned). Required of all Soils MAg candidates in their final year. It does not usually involve collection of original data but makes use of published or unpublished data from other sources. The report is to be defended before a committee of three staff members, one member being from outside the Department of Renewable Resources.

## 201.192 Rural Sociology, R SOC

Department of Rural Economy  
Faculty of Agriculture, Forestry, and Home Economics

### Undergraduate Courses

#### **R SOC 310 Women in Development**

★3 (fi 6) (either term, 3-0-0). This course deals with development issues, such as work, health, environment, and human rights among women in developing countries. Prerequisite: consent of Department. Not available to students with credit in W ST 310.

#### **R SOC 355 Principles of Rural Sociology**

★3 (fi 6) (either term, 3-0-0). The historic and contemporary role of rural regions as extractive economies in the global marketplace is discussed from a macro-sociological perspective. Sociological concepts are applied to the study of the structural constraints and opportunities facing social and economic systems in rural regions. Prerequisites: ★30 or more; SOC 100, or 300.

#### **R SOC 365 Sociology of Environment and Development**

★3 (fi 6) (either term, 3-0-0). Examines the relationship between development and environment at the local, regional, national and international levels. Critically discusses development strategies, the environmental and social forces promoting them, and the distribution of environmental and social impacts. Also examines alternative development strategies, sustainable development experiences and relevant international policy.

#### **R SOC 400 Special Topics**

★3 (fi 6) (either term, 0-3s-0). Individual study. Study of selected topic or problem requiring both written and oral reports. Prerequisite: consent of the Department Chair.

#### **R SOC 450 Environmental Sociology**

★3 (fi 6) (either term, 3-0-0). Introduction to a field in sociological inquiry that addresses how individuals and groups influence, and are influenced by, natural resources and environmental conditions. Examination of individual-level influences, such as beliefs, attitudes, and behaviors, as well as broader social-level influences at the institutional and organizational level. Focus is on providing an understanding and appreciation for the interaction between human attitudes, behaviors, and organizations with other components of the ecosystem. Prerequisite: ★60 or more. An introductory Sociology course is strongly recommended.

### Graduate Courses

**Note:** The following undergraduate courses may be taken for credit by graduate students: R SOC 415, 491.

#### **R SOC 500 Research Projects in Rural Sociology**

★3 (fi 6) (either term, 0-3s-0). Individual study. Investigations of a special problem involving field or library study and preparation of written reports. Prerequisite: consent of the Department Chair.

#### **R SOC 555 Natural Resource Sociology**

★3 (fi 6) (second term, 3-0-0). Examines social problems and challenges in natural resource dependent regions. Covers social theories of development, public participation, social impacts, institutional arrangements, and social capacity for natural resource management and community development. Prerequisite: R SOC 450 or equivalent.

#### **R SOC 558 The Sociology of Environmental Risk: Theory and Applications**

★3 (fi 6) (either term, 0-3s-0). Theoretical and empirical research on the study of environmental risk in the social sciences, and their application in various institutional areas. Divergent theoretical perspectives on risk within the social sciences, directions taken by empirical researchers in the analysis of the construction and perception of environmental risk, as well as current institutional mechanisms for risk management and social impact assessment. Prerequisite: consent of Instructor.

#### **R SOC 559 States, Social Movements and the Environment**

★3 (fi 6) (either term, 3-0-0). Covers classic and contemporary theories of states and social movements and their application to environmental and ecological issues. Topics include the Environmental State; relationships among state and societal forces; sub-national, national, and international environmental politics; political distinctions among environmental and ecological issues; and the potential for sustainability governance. Prerequisite: consent of Instructor.

#### **R SOC 600 Directed Studies**

★3 (fi 6) (either term, 0-3s-0). Analysis of selected research problems and design of research projects in rural, resource, environmental and development sociology. Prerequisite: Consent of Department Chair.

#### **R SOC 900 Directed Research Project**

★3 (fi 6) (variable, unassigned).

## 201.193 Russian, RUSS

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with a Russian language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) Students requiring information about program planning and course selections for the Dalhousie University-University of Alberta Russian Studies Program in the USSR (see Arts section) should consult an undergraduate advisor in the Department of Modern Languages and Cultural Studies.
- (5) RUSS 100 and 160 are not open to students with credit in matriculation-level Russian.
- (6) See also INT D courses offered by the Faculty of Arts.

## Undergraduate Courses

### **RUSS 111 Beginners' Russian I**

★3 (fi 6) (either term, 5-0-0). Essentials of grammar, reading, and pronunciation. Designed to give a working knowledge of the Russian language. Note: not to be taken by students with credit in RUSS 100, or with native or near native proficiency, or with Russian 30 or its equivalents in Canada and other countries.

### **RUSS 112 Beginners' Russian II**

★3 (fi 6) (either term, 5-0-0). Prerequisite: RUSS 111 or consent of Department. Note: not to be taken by students with credit in RUSS 100, or with native or near native proficiency, or with Russian 30 or its equivalents in Canada and other countries.

### **RUSS 211 Second-Year Russian I**

★3 (fi 6) (first term, 4-0-0). Russian grammar, composition, oral practice. Prerequisite: RUSS 112 or consent of Department. Note: not to be taken by students with credit in RUSS 201 or 202.

### **RUSS 212 Second-Year Russian II**

★3 (fi 6) (second term, 4-0-0). This course is a continuation of RUSS 211. Prerequisite: RUSS 211 or consent of Department. Note: not to be taken by students with credit in RUSS 202.

### **RUSS 303 Russian in Context I**

★3 (fi 6) (either term, 3-0-0). The continued development of grammatical and conversational skills, with reading contemporary Russian and viewing and discussing films and television programmes. Prerequisites: RUSS 202 or consent of Department. Note: not to be taken by students with credit in RUSS 401 or 402.

### **RUSS 304 Russian in Context II**

★3 (fi 6) (either term, 3-0-0). Debates on topics selected by students. Prerequisite: RUSS 303 or consent of Department. Note: not to be taken by students with credit in RUSS 401 or 402.

### **RUSS 325 Readings in Russian I**

★3 (fi 6) (either term, 3-0-0). Study of pre-20th century Russian literature in the original. Prerequisite: RUSS 202 or consent of Department. Note: not to be taken by students with credit in RUSS 215 or 216.

### **RUSS 326 Readings in Russian II**

★3 (fi 6) (either term, 3-0-0). Reading and analysis of texts from 20th century Russian literature in the original. Prerequisite: RUSS 202 or consent of Department. Note: not to be taken by students with credit in RUSS 215 or 216.

### **RUSS 333 Saints and Sinners**

★3 (fi 6) (either term, 3-0-0). Religious and anti-religious themes in Russian literature of the 19th and 20th centuries, highlighting the reflection of Russian Orthodox and popular culture in the texts. This course is taught in English and will not fulfill the Language other than English requirement.

### **RUSS 403 Advanced Russian I: Pop Media and Internet**

★3 (fi 6) (either term, 3-0-0). Emphasis on the enhancement of language skills in the context of life in today's Russia. Contemporary textual genres of the popular media, including those of the Internet. Intensive reading, critical discussions, and creative writing. Prerequisite: RUSS 304 or consent of Department.

### **RUSS 404 Advanced Russian II: Language and Films**

★3 (fi 6) (either term, 3-0-0). Use of contemporary Russian films and television to improve the practical language and literacy skills both orally and in writing. Prerequisite: RUSS 403 or consent of Department.

### **RUSS 408 Russian Style, Expression and Composition**

★3 (fi 6) (either term, 3-0-0). For native speakers of Russian who want to improve their writing skills. Introduction to different styles of writing and composition. Prerequisite: consent of Department.

### **RUSS 422 Russian Literature and the Arts**

★3 (fi 6) (either term, 3-0-0). A study of the interrelationship between literature and other media: theatre, cinema, and the visual arts. The emphasis will vary from year to year. Russian majors will do a significant part of readings and assignments in Russian; others may do readings and assignments in English. Prerequisite for Russian majors: RUSS 304 or consent of Department.

### **RUSS 427 Themes and Variations in Russian Literature to 1917**

★3 (fi 6) (either term, 3-0-0). The superfluous man, the alien, witches and devils, the fantastic and other themes in pre-revolutionary Russian literature. Russian majors will do a significant part of readings and assignments in Russian; others may do readings and assignments in English. Prerequisite for Russian majors: RUSS 304 or consent of Department.

### **RUSS 443 Russian-English Translation**

★3 (fi 6) (either term, 3-0-0). Exercises in translation with emphasis on both literary and non-literary texts. Prerequisite: RUSS 202, or consent of Department. Not open to students with credit in RUSS 441 or 442.

### **RUSS 445 Business Russian**

★3 (fi 6) (either term, 3-0-0). Advanced modern Russian with emphasis on the

vocabulary and communication style of the Russian business world. Prerequisite: RUSS 304 or consent of Department.

### **RUSS 464 Style and Structure of Russian I**

★3 (fi 6) (either term, 3-0-0). Contemporary Russian linguistics: sound system, lexis, morphology, and morphosyntax. Prerequisite: RUSS 202 or consent of Department.

### **RUSS 466 Style and Structure of Russian II**

★3 (fi 6) (either term, 3-0-0). Contemporary Russian linguistics: the syntactic, semantic, pragmatic and discourse levels. Prerequisite: RUSS 464 or consent of Department.

### **RUSS 483 Brave New Word: Soviet and Post-Soviet Russian Literature and Culture**

★3 (fi 6) (either term, 3-0-0). Thematic focus varies from year to year. Russian majors will do a significant part of readings and assignments in Russian; others may do readings and assignments in English. Prerequisite for Russian majors: RUSS 304 or consent of Department.

### **RUSS 495 Honors Thesis**

★3 (fi 6) (either term, 0-3s-0).

### **RUSS 499 Special Topics**

★3 (fi 6) (either term, 3-0-0).

## Graduate Courses

### **RUSS 503 Advanced Russian I: Pop Media and Internet**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 504 Advanced Russian II: Language and Films**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 522 Russian Literature and the Arts**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 524 Russian Contemporary Theatre**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 525 Nineteenth-Century Russian Literature**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 526 Twentieth-Century Russian Literature**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 545 Business Russian**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 551 18th-Century Russian Literature and Culture**

★3 (fi 6) (either term, 3-0-0). Russian literature during the century of Russia's Europeanization.

### **RUSS 564 Style and Structure of Russian I**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 566 Style and Structure of Russian II**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 571 History of Russian Criticism**

★3 (fi 6) (either term, 3-0-0). A detailed study with emphasis on the 19th and 20th centuries. Prerequisite: consent of Department.

### **RUSS 582 Contemporary Russian Literature**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

### **RUSS 599 Directed Reading**

★3 (fi 6) (either term, 3-0-0).

### **RUSS 641 Studies in Russian Poetry**

★3 (fi 6) (either term, 3-0-0).

### **RUSS 698 Topics in Russian Linguistics**

★3 (fi 6) (either term, 3-0-0).

### **RUSS 699 Topics in Russian Literature**

★3 (fi 6) (either term, 3-0-0).

### **RUSS 900 Directed Research Project**

★6 (fi 12) (variable, unassigned).

## 201.194 Scandinavian, SCAND

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

**Note:** See also Danish (DANSK), Norwegian (NORW) and Swedish (SWED) listings.

## Undergraduate Courses

### SCAND 341 Old Norse Mythology and Legends

★3 (fi 6) (either term, 3-0-0). Survey of Old Scandinavian mythology from the earliest times to the end of the Viking Period. Readings in English from the Poetic and Prose Eddas, including the heroic legends and lays. Also included is a brief look at runic inscriptions and skaldic poetry. This course does not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 342 Vikings and Sagas

★3 (fi 6) (either term, 3-0-0). Survey of the cultural history of the Viking and Medieval periods in Scandinavia with selections in English from the Old Norse sagas. The course will also include a brief overview of Scandinavian folklore. This course does not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 345 Literature, Culture, and Civilization from the Reformation to the 20th Century

★3 (fi 6) (either term, 3-0-0). Selections in English of representative authors from each of the major literary periods, with special attention to the cultural and historical background. This course will not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 353 Henrik Ibsen

★3 (fi 6) (either term, 3-0-0). A selection of the dramas of Henrik Ibsen in English translation with background material on the life of the author and his times. Special emphasis on his social and symbolist plays, including their staging and presentation. This course will not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 354 August Strindberg

★3 (fi 6) (either term, 3-0-0). A selection of the works of August Strindberg in English translation with background material on the life of the author and his times. Special emphasis on his dramas, including their staging and presentation. This course will not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 355 The Tales of Hans Christian Andersen

★3 (fi 6) (either term, 3-0-0). This course takes a life-and-letters approach to the author and his times, with special emphasis on his tales (in English translation) and their relationship to the theory and practice of the genre. This course will not fulfill the language-other-than-English requirement of the BA degree.

### SCAND 356 Women in Scandinavian Literature and Popular Culture

★3 (fi 6) (either term, 3-0-0). Various media which reflect women's lives and voices in Denmark, Norway, Sweden, Finland, Iceland, and Samiland. Note: This course will be taught in English and will not fulfill the Language other than English requirement.

### SCAND 410 Comparative Scandinavian Grammar and Stylistics

★6 (fi 12) (two term, 3-0-0). A comparative analysis of modern Norwegian, Swedish and Danish, with special concentration on advanced composition and stylistics in the student's target language. Prerequisite: DANSK 212, or NORW 212, or SWED 212, or consent of Department.

### SCAND 420 The Scandinavian Immigrant Experience in Canada

★3 (fi 6) (either term, 3-0-0). A survey of the history of Scandinavian immigration to Canada and its causes. The immigrant experience will be discussed as it is portrayed in works by authors such as Aksel Sandemose, Sven Delblanc, and Stephan G Stephansson. Prerequisite: DANSK 212, or NORW 212, or SWED 212, or consent of Department.

## Graduate Courses

### SCAND 551 Old Norse Grammar

★3 (fi 6) (either term, 3-0-0). A survey of the grammar of Old Icelandic with readings of illustrative texts. This course does not fulfill the language other than English requirement for the BA.

### SCAND 552 Readings in Old Norse, Runology and Paleography

★3 (fi 6) (either term, 3-0-0). Readings of illustrative texts in Old Icelandic including a survey of runic writing and Old Norse manuscripts. Texts in modern Icelandic will also be examined. Prerequisite: SCAND 551 or consent of Department. This course does not fulfill the language other than English requirement for the BA.

## 201.195 Science politique, SC PO

Faculté Saint-Jean

### Cours de 1er cycle

#### SC PO 101 Introduction au gouvernement

★3 (fi 6) (premier semestre, 3-0-0). Une introduction aux institutions gouvernementales du Canada et d'ailleurs. Sujets étudiés: constitutions,

assemblées législatives, organes exécutifs, fonction publique, cours de justice, gouvernement fédéral et d'autres sujets choisis. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour POL S 100.

#### SC PO 102 Introduction à la politique

★3 (fi 6) (deuxième semestre, 3-0-0). Une introduction aux concepts et enjeux des phénomènes politiques. Sujets étudiés: pouvoir ou influence, démocratie, droits et libertés, idéologie politique, opinion publique, élections, partis politiques, groupes de pression et autres sujets choisis. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour POL S 100.

#### SC PO 220 Gouvernement et politique du Canada en tant que nation

★6 (fi 12) (aux deux semestres, 3-0-0). Structures et fonctions du Gouvernement du Canada et en particulier les Communes, le Sénat, le Cabinet, la Fonction publique, les partis politiques. Note: ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour POL S 221.

#### SC PO 261 Relations internationales I

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction au rôle de l'Etat au sein du système international ayant pour but de développer une connaissance des événements contemporains internationaux. Ce cours couvre la nature de la politique étrangère et la dynamique d'interaction entre les Etats.

#### SC PO 262 Relations internationales II

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction aux problèmes contemporains de relations internationales ayant pour but de développer une connaissance du système international. Ce cours porte sur le rôle des institutions internationales, des acteurs supra étatiques et non-étatiques, ainsi que certains enjeux liés à la mondialisation.

#### SC PO 270 Politique comparée

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à des thèmes de politique comparée.

#### SC PO 350 Femmes et politiques

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse de l'action politique des femmes à travers les revendications et la participation aux institutions étatiques. Les politiques et les représentations sociales. Théories féministes. Le cours est principalement axé sur le Canada et comporte un aspect comparatif. Préalable(s): SC PO 101 ou SC PO 102, ou l'approbation du Vice-doyen aux affaires académiques.

#### SC PO 378 Langue et politique

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude des rapports entre langue et politique et surtout des différentes stratégies en matière de langue adoptées par l'État moderne. Introduction aux domaines d'aménagement linguistique, de droit linguistique et de politolinguistique. Un accent particulier est mis sur l'État plurilingue.

#### SC PO 391 Partis politiques au Canada

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Sujets étudiés: systèmes de partis, idéologies et programmes, adhérents et sympathisants, organisation et ressources, activités électorales et gouvernementales. Préalable(s): SC PO 220 ou l'approbation du Vice-doyen aux affaires académiques.

#### SC PO 423 Fédéralisme canadien

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse du développement et des théories du fédéralisme canadien. On étudiera en particulier les problèmes actuels du système fédéral. Préalable(s): SC PO 220 ou l'approbation du Vice-doyen aux affaires académiques.

#### SC PO 428 Gouvernement et politique des provinces

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Etude des structures, des fonctions et des processus de certains gouvernements provinciaux au Canada. Préalable(s): SC PO 220 ou POL S 221, ou l'approbation du Vice-doyen aux affaires académiques.

## Cours de 2e cycle

#### SC PO 499 Choix de sujets en science politique

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Cours dont le contenu varie d'une année à l'autre. Les sujets sont annoncés avant la période d'inscription. Préalable(s): l'approbation du Vice-doyen aux affaires académiques.

## 201.196 Sciences de la Terre et de l'atmosphère, SCTA

Faculté Saint-Jean

### Cours de 1er cycle

#### SCTA 101 Introduction à la géologie et à la géographie physique

★3 (fi 6) (premier semestre, 3-0-3). Introduction à l'origine de la Terre et du système solaire. Minéraux et roches; évolution géologique; plaques tectoniques

et géologie structurale. Environnements géomorphologiques et processus de surfaces: eaux, minéraux et ressources énergétiques. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour GEOLE 102 ou GEOGE 130.

**SCTA 102 Introduction aux sciences de l'environnement**

★3 (fi 6) (deuxième semestre, 3-0-3). Bilan énergétique de la Terre, étude du système de la circulation atmosphérique et de son influence sur la température, la précipitation, l'humidité et le vent. Circulation des courants marins et de l'atmosphère. Étude des océans, de l'hydrosphère, de la cryosphère et de la biosphère. Changements climatiques et étude de l'évolution des climats. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour GEOGE 131.

**SCTA 103 Histoire de la Terre et de la vie**

★3 (fi 6) (deuxième semestre, 3-0-3). Processus biologiques et géologiques fondamentaux. Géologie structurale et plaques tectoniques; datation numérique et relative; reliefs; fossiles; origine et évolution de la vie. Histoire de la géologie terrestre: système solaire, formation des continents et océans. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour GEOLE 103.

**SCTA 190 Organisation spatiale de l'activité humaine**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à la mobilité, à l'interaction spatiale et à l'organisation spatiale de l'activité humaine en milieu rural ou urbain; théories et techniques géographiques.

**SCTA 191 Cultures, paysages et sociétés**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Importance de la distribution de la population sur la terre. Lien entre la population et l'environnement physique et le développement de paysages culturels. Populations, peuplement, patrons et procédés culturels. Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour GEOGE 151.

## 201.197 Sciences sociales, SCSOC

Faculté Saint-Jean

### Cours de 1er cycle

**SCSOC 225 Méthodes de recherche en sciences sociales**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-2). Initiation à quelques notions d'épistémologie concernant les sciences sociales et à quelques méthodes de recherche; principaux critères de la méthode scientifique et distinction avec les sciences exactes; construction des hypothèses et analyse conceptuelle; planification de la recherche et utilisation des documents; techniques de l'entrevue participante, de l'échantillonnage et de l'analyse de contenu. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour SCSOC 321 ou SOC 315.

**SCSOC 311 Histoire de la pensée politique et sociale I**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Survol historique et critique du développement de la pensée politique et sociale, de l'Antiquité à la Renaissance, en utilisant des textes choisis de quelques philosophes présocratiques (Héraclite, Parménide), Platon, Aristote, Boèce, Abélard, Thomas d'Aquin, Machiavel, Erasme.

**SCSOC 312 Histoire de la pensée politique et sociale II**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Étude des principaux aspects de la pensée politique et sociale du XVII<sup>e</sup> siècle à nos jours, centrée sur l'évolution du libéralisme, de ses différentes tendances et des réactions d'opposition qu'il a suscitées. Seront abordées les œuvres de Hobbes, Locke, Montesquieu, Rousseau, Voltaire, Payne, Adam Smith, Tocqueville, Marx, Weber, Durkheim et Louis Hartz.

**SCSOC 322 Statistiques pour les sciences sociales**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-2). Application des méthodes statistiques à certains problèmes en sciences sociales. Interprétation des données en termes de moyennes, de mesures de variabilité et de mesures de relation: études de la théorie de l'échantillonnage et des tests d'hypothèses statistiques. Note: Ce cours faisait partie de SCSOC 320. Préalable(s): Mathématiques pures 30 et SCSOC 225 ou l'approbation du Vice-doyen aux affaires académiques.

**SCSOC 401 Concepts en sciences sociales**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse interdisciplinaire de concepts fondamentaux utilisés pour étudier la personne et des sociétés humaines, comme la culture, le langage, l'ethnie, l'autorité, l'idéologie, la classe, l'organisation, l'espace, la cognition, la production et la pénurie.

**SCSOC 450 Choix de sujets en sciences sociales**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Le contenu varie d'une année à l'autre. Les sujets sont annoncés avant la période d'inscription. Préalable(s): ★3 de niveau 300 ou 400 en ETCAN, HISTE, SC PO, SCSOC, ou SOCIE.

**SCSOC 460 Recherche appliquée: les média**

★6 (fi 12) (aux deux semestres, 208 heures). Stage de recherche appliquée dans

les média. Formation en écriture, recherche, technologie de la communication, et autres. Préalable(s): une moyenne de 3.0. Les stagiaires sont sélectionnés en fonction de la qualité de leur dossier et du nombre de places disponibles.

## 201.198 Sciences socio-politiques, SCSP

Faculté Saint-Jean

### Cours de 1er cycle

**SCSP 520 Mémoire de Sciences socio-politiques**

★6 (fi 12) (aux deux semestres, 0-3s-0). Préparation du mémoire requis en quatrième année du programme de spécialisation en Sciences socio-politiques.

## 201.199 Slavic and East European Studies, SLAV

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

#### Notes

- (1) None of these courses will fulfil the language-other-than-English requirement of the BA degree.
- (2) For related courses see listings under Polish (POLSH), Russian (RUSS) and Ukrainian (UKR).
- (3) For additional courses relating to the Soviet Union and its successor states, and Eastern Europe, see also entries under Comparative Literature (C LIT), Earth and Atmospheric Sciences (EAS), Economics (ECON), History (HIST), Political Science (POL S), and Sociology (SOC).
- (4) See also INT D 201, 202, 343, 344, 347, 439, 443, 444, 445, 447, 479, 487, and 499 for courses which are offered by more than one department or Faculty and which may be taken as options or as a course in this discipline.

### Undergraduate Courses

**SLAV 401 The Slavic Language Family**

★3 (fi 6) (either term, 3-0-0). Historical and contrastive study of the Slavic language family with emphasis on Polish, Russian and Ukrainian. Prerequisite: At least one year of a Slavic language.

**SLAV 420 Old Church Slavic**

★3 (fi 6) (either term, 3-0-0). An introduction to the grammar of the oldest Slavic texts, with selected readings. Prerequisite: RUSS 202 or UKR 204 or POLSH 202 or consent of Department.

**SLAV 467 Slavic Romanticism**

★3 (fi 6) (either term, 3-0-0). Romantic movement in Slavic literatures concentrating primarily on the works of Mickiewicz, Pushkin and Shevchenko. English translations of texts available for those not majoring in Slavics.

**SLAV 468 Nikolai Gogol/Mykola Hohol'**

★3 (fi 6) (either term, 3-0-0). Gogol as a cultural icon in the history of Russian and Ukrainian literatures. His life and works against the background of Russian Imperial cultural developments and the processes of nation building in the first half of the 19th century. English translations of texts available for those not majoring in Slavics.

**SLAV 469 Futurism: East and West**

★3 (fi 6) (either term, 3-0-0). A comparative examination of the Futurist movement in Poland, Russia and Ukraine against the background of Italian Futurism. English translations of texts available for those not majoring in Slavics.

**SLAV 470 Women's Writing After the Fall of Communism**

★3 (fi 6) (either term, 3-0-0). The impact of political and economic changes on women's writing in the Slavic countries since 1989. Readings are available in English for non-majors.

**SLAV 499 Special Topics**

★3 (fi 6) (either term, 3-0-0).

### Graduate Courses

**Note:** See also INT D 543 and 544 for courses offered by more than one Department or Faculty and which may be taken as an option or as a course in this discipline.

**SLAV 512 Old East Slavic Literature and Culture**

★3 (fi 6) (either term, 3-0-0). Reading and analysis of major literary monuments from the 10th to 14th centuries. Prerequisite: consent of Department.

**SLAV 519 Comparative and Typological Slavic Linguistics**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.



**SLAV 520 Old Church Slavic**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**SLAV 564 History and Structure of the East Slavic Languages**

★3 (fi 6) (either term, 3-0-0). Specific problems in Russian, Ukrainian, and Belarusian. Prerequisite: consent of Department.

**SLAV 565 History and Structure of the West Slavic Languages**

★3 (fi 6) (either term, 3-0-0). Specific problems in Polish, Czech, Slovak, and Sorbian. Prerequisite: consent of Department.

**SLAV 566 History and Structure of the South Slavic Languages**

★3 (fi 6) (either term, 3-0-0). Specific problems in Bulgarian, Macedonian, Slovene, and the successor languages to Serbo-Croatian. Prerequisite: consent of Department.

**SLAV 567 Slavic Romanticism**

★3 (fi 6) (either term, 3-0-0). Romantic movement in Slavic literatures concentrating primarily on the works of Mickiewicz, Pushkin and Shevchenko. Prerequisite: consent of Department.

**SLAV 568 Nikolai Gogol/Mykola Hohol'**

★3 (fi 6) (either term, 3-0-0). Gogol as a cultural icon in the history of Russian and Ukrainian literatures. His life and works against the background of Russian Imperial cultural developments and the processes of nation building in the first half of the 19th century. Prerequisite: consent of Department.

**SLAV 569 Futurism: East and West**

★3 (fi 6) (either term, 3-0-0). A comparative examination of the Futurist movement in Poland, Russia and Ukraine against the background of Italian Futurism. Prerequisite: consent of Department.

**SLAV 570 Women's Writing After the Fall of Communism**

★3 (fi 6) (either term, 3-0-0). The impact of political and economic changes on women's writing in the Slavic countries since 1989. Prerequisite: consent of Department.

**SLAV 599 Directed Reading**

★3 (fi 6) (either term, 3-0-0).

**SLAV 626 Language, Culture and Nation**

★3 (fi 6) (either term, 3-0-0). Competing discourses used by Russians and Ukrainians for constructing their respective cultures in an imperial setting.

**SLAV 697 Topics in Slavic Folklore**

★3 (fi 6) (either term, 3-0-0).

**SLAV 698 Topics in Slavic Linguistics**

★3 (fi 6) (either term, 3-0-0).

**SLAV 699 Topics in Slavic Literature**

★3 (fi 6) (either term, 3-0-0).

**SLAV 900 Directed Research Project**

★6 (fi 12) (variable, unassigned).

**201.200 Sociologie, SOCIE**

Faculté Saint-Jean

**Cours de 1er cycle****01 SOCIE 100 Introduction à la sociologie**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Examen de la théorie, des méthodes et de la substance de la sociologie. Étude de la façon dont les sociétés comprennent la culture, la socialisation, la déviance, la stratification et les groupes. Le procès de transformation sociale par les mouvements sociaux, l'industrialisation, etc. Note: Les étudiants en 3e année ou plus avancés devraient prendre SOC 300 plutôt que SOCIE 100.

**01 SOCIE 101 La société canadienne**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Le développement de la société canadienne: comprenant des sujets comme les rapports franco-anglais, le régionalisme, les rapports avec les États-Unis, les droits des autochtones, la mosaïque canadienne, les inégalités et les conflits. Préalable(s): SOCIE 100 ou SOC 300.

**01 SOCIE 225 Criminologie**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse critique de la notion de crime et examen des diverses tentatives d'explication du crime à travers l'histoire de la criminologie. Analyse des processus de construction sociale sous-jacents à l'identité dite criminelle. Cours à distance. Voir \$200.

**01 SOCIE 260 Inégalité et stratification sociales**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Introduction à l'étude des inégalités sociales structurées et de la pauvreté; approches théoriques majeures; conclusions des études empiriques clés, en mettant l'accent sur le Canada. Préalable(s): SOCIE 100 ou SOC 300.

**01 SOCIE 301 Sociologie des rapports de sexes**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Etude comparée des rapports entre les femmes et les hommes dans certaines sociétés, en mettant l'accent sur le Canada contemporain; étude des rôles spécifiques à chaque sexe, et des théories relatives à leurs origines; recherche sociologique récente sur l'importance de la division sexuelle de la société.

**01 SOCIE 348 Sociologie des média et de l'information**

★3 (variable) (l'un ou l'autre semestre, 3-0-0). La place des média et des nouvelles technologies de l'information dans la société contemporaine. Etude des théories qui s'y rattachent, avec l'accent sur les débats entourant la question de la postmodernité. Préalable(s): SOCIE 100. Cours à distance. Voir \$200.

**01 SOCIE 368 Etude des minorités et des groupes ethniques**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Analyse de processus sociaux qui permettent le développement et la compréhension du statut des minorités. Etude de cas des relations entre les groupes ethniques et minoritaires fondée sur les travaux réalisés à l'échelle nationale. Préalable(s): SOCIE 100 ou SOC 300.

**11 SOCIE 402 Choix de sujets en sociologie**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Le contenu varie d'une année à l'autre. Les sujets sont annoncés avant la période d'inscription. Préalable(s): SOCIE 101 ou SOC 300.

**11 SOCIE 472 Choix de sujets: la société canadienne**

★3 (fi 6) (l'un ou l'autre semestre, 3-0-0). Préalable(s): SOCIE 260 ou ★3 de sociologie au niveau senior.

**201.201 Sociology, SOC**Department of Sociology  
Faculty of Arts**Note:** See also INT D 356, 393, 394, 456, and 475 for courses which are offered by more than one Department or Faculty and which may be taken as options or as a course in this discipline.**Undergraduate Courses****01 SOC 100 Introductory Sociology**

★3 (fi 6) (either term, 3-0-0). An examination of the theory, methods, and substance of Sociology. The study of how societies are shaped including economy, culture, socialization, deviance, stratification, and groups. The process of social change through social movements, industrialization, etc. Prerequisite: First or second year standing. Note: Not to be taken by students with credit in SOC 300. Third-year or more advanced students must take SOC 300.

**01 SOC 101 Canadian Society**

★3 (fi 6) (either term, 3-0-0). Development of Canadian society: including such topics as French-English relations, regionalism, relations with the USA, native rights, Canadian mosaic, inequalities, and conflicts. Prerequisite: One of SOC 100 or 300.

**01 SOC 102 Social Problems**

★3 (fi 6) (either term, 3-0-0). The definition/development of social problems and an examination of selected structural issues in various societies, including inequality, population growth, environment, and human rights. Prerequisite: One of SOC 100 or 300.

**01 SOC 210 Introduction to Social Statistics**

★3 (fi 6) (either term, 3-0-2). Statistical reasoning and techniques used by sociologists to summarize data and test hypotheses. Topics include describing distributions, cross-tabulations, scaling, probability, correlation/regression and non-parametric tests. Prerequisite: One of SOC 100 or 300. Note: This course is intended primarily for students concentrating in Sociology.

**01 SOC 212 The Sociological Imagination**

★3 (fi 6) (either term, 3-0-0). What is society? What is sociology? An introduction to sociological theorizing. Prerequisite: One of SOC 100 or 300.

**01 SOC 224 Sociology of Deviance and Conformity**

★3 (fi 6) (either term, 3-0-0). Processes involved in defining behavior patterns as deviant; factors which influence conformity and change; examination of such behavior patterns as sexuality, alcoholism, drug use, and selected mental and physical disabilities; public reaction to such behavior. Prerequisite: One of SOC 100 or 300.

**01 SOC 225 Criminology**

★3 (fi 6) (either term, 3-0-0). Examination and attempted explanation of crime and juvenile delinquency, with an analysis of the social processes leading to criminal behavior. Prerequisite: One of SOC 100 or 300.

**01 SOC 231 Introduction to Theories of Society**

★3 (fi 6) (either term, 3-0-0). Classical and contemporary perspectives on society and human nature. Problems of comparing and assessing social theories, e.g. issues such as the individual versus society, idealism versus materialism, conflict

versus consensus. Prerequisite: One of SOC 100 or 300. Note: Not to be taken by students with credit in SOC 332 or 333. SOC 231 is not to be taken by Sociology majors, as they are required to take SOC 332 and 333.

**SOC 241 Social Psychology**

★3 (fi 6) (either term, 3-0-0). An introduction to the study of individual and group behavior observed in social processes. Prerequisites: One of SOC 100 or 300, or PSYCO 104 or 105, EDPYSY 163 or 371. Note: SOC 241 and PSYCO 241 may not both be taken for credit. Formerly SOC 341.

**SOC 242 Biologically Coordinated Social Psychology**

★3 (fi 6) (either term, 3-0-0). A biologically consistent introduction to the study of individual and group behavior observed in social processes. Prerequisite: One of SOC 100, SOC 300, PSYCO 104, PSYCO 105, EDPY 200.

**SOC 251 Population and Society**

★3 (fi 6) (either term, 3-0-0). Population trends and problems in Canada and the rest of the world; social and cultural factors underlying fertility, mortality, and migration patterns; urbanization; population explosion, population theory, and policy concerns. Formerly SOC 351.

**SOC 260 Inequality and Social Stratification**

★3 (fi 6) (either term, 3-0-0). Introduction to the study of structured social inequalities and poverty; major theoretical approaches; findings from key empirical studies, with emphasis on Canada. Prerequisite: One of SOC 100 or 300.

**SOC 261 Social Organization**

★3 (fi 6) (either term, 3-0-0). Social systems, their components, interrelations, and the bases of social differentiation and integration. Prerequisite: One of SOC 100 or 300.

**SOC 269 Introductory Sociology of Globalization**

★3 (fi 6) (either term, 0-3s-0). Introduces various aspects of globalization and its impact on our lives at local, national, and international levels. Prerequisite: One of SOC 100 or 300.

**SOC 271 Introduction to the Family**

★3 (fi 6) (either term, 3-0-0). An introduction to the study of family relationships and their variant forms with focus on mate selection, couple, kin, age, and gender dynamics, family dissolution or reconstitution and change. A comparative approach with emphasis on families in Canada. Prerequisite: One of SOC 100 or 300. Note: Not available for credit for students with credit in HECOL 200.

**SOC 300 Principles of Sociology**

★3 (fi 6) (either term, 3-0-0). Basic concepts and principles of Sociology for students with advanced standing. Prerequisite: Third-year or more advanced standing. Notes: May not be taken for credit by students with credit in SOC 100. First or second-year students must take SOC 100.

**SOC 301 Sociology of Gender**

★3 (fi 6) (either term, 3-0-0). Comparative study of sex roles in selected societies with an emphasis upon contemporary Canada; sex-specific role behaviors and theories regarding their origin; recent sociological research on the social effects of sex roles. Prerequisite: One of SOC 100 or 300.

**SOC 302 Selected Topics in Sociology**

★3 (fi 6) (either term, 3-0-0). Content varies from year to year: Topics announced prior to registration period. Prerequisite: One of SOC 100 or SOC 300.

**SOC 308 Honors Seminar**

★3 (fi 6) (either term, 0-3s-0). Introduction to specialization areas in Sociology and Department members involved in teaching and research in these areas. Prerequisite: consent of the Honors Advisor. Note: Restricted to Sociology Honors students. Required first term after entering Sociology Honors Program.

**SOC 315 Introduction to Social Methodology**

★3 (fi 6) (either term, 3-0-2). Research design, data collection, and data processing strategies used by sociologists. Topics include research values and ethics, reliability and validity, experimentation, survey research techniques, historical methods, field research, and content analysis. Prerequisite: SOC 210.

**SOC 321 Juvenile Delinquency**

★3 (fi 6) (either term, 3-0-0). Juvenile delinquency and its relation to adult crime; the social processes involved in the genesis and perceptions of styles of delinquency and their relationship to the community, and to various current theories of prevention and control, including the role of institutions and law. Prerequisite: SOC 225.

**SOC 327 Criminal Justice Administration in Canada**

★3 (fi 6) (either term, 3-0-0). The evolution and evaluation of the theories of punishment; the law, the police and the courts; penal and reformatory institutions; probation and parole; experiments in reform and rehabilitation. Prerequisite: SOC 225.

**SOC 332 Sociological Theorizing: Modernity**

★3 (fi 6) (either term, 3-0-0). Using a range of classical and contemporary theories, examines what, if anything, is 'new' in 'modern' society. Prerequisite: SOC 212 or consent of Department.

**SOC 333 Sociological Theorizing: The Subject**

★3 (fi 6) (either term, 3-0-0). Using a range of classical and contemporary theories, examines the nature of social subjectivities (e.g., male/female, black/white, straight/gay etc.). Prerequisite: SOC 212 or consent of Department.

**SOC 334 Sociological Theorizing: Power**

★3 (fi 6) (either term, 3-0-0). Using a range of classical and contemporary theories, examines power in society. Prerequisite: SOC 212 or consent of Department.

**SOC 342 Socialization**

★3 (fi 6) (either term, 3-0-0). The processes of social development and how socio-cultural influences affect the individual from infancy to old age. Prerequisite: SOC 241 or PSYCO 241.

**SOC 343 Collective Behavior**

★3 (fi 6) (either term, 3-0-0). Analysis of various forms of collective behavior, including crowds, mobs, social movements, and fugitive behavior patterns. Prerequisite: One of SOC 100 or 300 or 241, or PSYCO 241.

**SOC 344 Media Culture and Society**

★3 (fi 6) (either term, 3-0-0). Critical examination of the central issues and debates about the media-society relationship. Emphasis on the cultural, political, and economic aspects of various media forms/genres, media theories, and audience considerations.

**SOC 345 Cultural Studies**

★3 (fi 6) (either term, 3-0-0). Introduction to theoretical paradigms, methodologies and fundamental concepts of postmodern sociology and cultural studies. Prerequisite: One of SOC 100 or 300.

**SOC 352 Population, Social, and Economic Development**

★3 (fi 6) (either term, 3-0-0). Principles of growth and development in their historical context with regard to developed countries, such as Canada, and in their contemporary context with regard to underdeveloped countries. The interrelationships of economic, social and demographic variables in the process of development. Problems of urbanization and industrialization; factors influencing social change in the modern West or Asia or Latin America or Africa. Prerequisite: One of SOC 100 or 300.

**SOC 363 Sociology of Work and Industry**

★3 (fi 6) (either term, 3-0-0). Sociological analysis of the changing nature and content of work, its diversity of industrial contexts and organizational forms, and its consequences for individuals and society, from Canadian and comparative perspectives. Prerequisite: One of SOC 100 or 300.

**SOC 365 Media and Cultural Globalization: Theory and Practice**

★3 (fi 6) (either term, 0-3s-0). Explores the ways in which the global flows of people, information, popular entertainment and consumer culture contribute to the construction and interpretation of collective social identities at the local level. Prerequisites: SOC 100 and 269.

**SOC 366 People in Industry**

★3 (fi 6) (either term, 3-0-0). Introduction to the sociological analysis of the attitudes and behavior of employees in work organizations, with emphasis on the contemporary Canadian situation. Note: Restricted to Engineering students only.

**SOC 368 Canadian Ethnic and Minority Relations**

★3 (fi 6) (either term, 3-0-0). Analysis of social processes leading to the development and understanding of minority status: case studies of ethnic and minority-group relations, with reference to cross-national studies. Prerequisite: One of SOC 100 or 300.

**SOC 369 Sociology of Globalization**

★3 (fi 6) (either term, 0-3s-0). Critically examines various aspects of globalization from the perspective of world-system studies. Prerequisite: SOC 269.

**SOC 370 Racism and Decolonization**

★3 (fi 6) (either term, 0-3s-0). National and global legacies of colonialism. Emphasis on racialization of modernity and postmodernity, racism and global social inequality, postcolonial identifications and transnational, minority resistances. Prerequisite: SOC 100 or 300.

**SOC 372 Sociology of Canadian Development**

★3 (fi 6) (either term, 3-0-0). Approaches to understanding the dynamics of Canadian society such as staples, elites, social movements and political economy, and critical theory. Prerequisite: SOC 101.

**SOC 375 Sociology of Aging**

★3 (fi 6) (either term, 3-0-0). Aging as a socio-cultural phenomenon. Includes aging in relation to the self-concept, family, religion, politics, health, retirement and leisure, housing, attitudes toward death, with particular emphasis on Canadian society. Prerequisite: One of SOC 100 or 300.

**SOC 376 Sociology of Religion**

★3 (fi 6) (either term, 3-0-0). Religion as a social phenomenon; theories of religious behavior; religious authority and leadership; the individual's religion and the interplay with other spheres of social life; the role of religion in relation to social change and social integration. Prerequisite: One of SOC 100 or 300.

**0 SOC 377 Sociology of Youth**

★3 (fi 6) (either term, 3-0-0). The comparative analysis of youth in various types of societies, with special emphasis on Canada including investigation of social structures and processes influencing behavior of young people. Note: Not available for credit for students with credit in FAM 321.

**0 SOC 382 Sociology of Health and Illness**

★3 (fi 6) (either term, 3-0-0). The distribution of health and illness in human populations, the social psychology of health and illness, and the social organization of health care. Prerequisite: One of SOC 100 or 300.

**SOC 399 Field Placement in Criminology**

★6 (fi 12) (either term, 0-16s-0). Supervised work experience and seminar sessions. Note: Restricted to BA (Criminology) students.

**SOC 401 Honors Individual Study**

★3 (fi 6) (either term, 3-0-0). Individual study opportunity on topics for which no specific course is currently offered by the Department. Course may be taken once only. Prerequisites: consent of instructor and Honors Advisor. Note: Restricted to Sociology Honors students. Closed to web registration.

**0 SOC 402 Selected Topics in Sociology**

★3 (fi 6) (either term, 3-0-0). Content varies from year to year. Topics announced prior to registration period. Prerequisite: One of SOC 100 or 300. Note: Not an acceptable 400-level course when Sociology is taken as a second subject.

**0 SOC 403 Individual Study**

★3 (fi 6) (either term, 3-0-0). Individual study opportunity on topics for which no specific course is currently offered by the Department. Prerequisite: Consent of Instructor and the Undergraduate Advisor.

**SOC 407 Honors Essay I**

★3 (fi 6) (either term, 3-0-0). Literature review and proposal stage of Honors Essay completed in SOC 408. Prerequisites: consent of instructor and Honors Advisor. Note: Restricted to Sociology Honors students. Closed to web registration.

**SOC 408 Honors Essay II**

★3 (fi 6) (either term, 3-0-0). Prerequisites: SOC 407 and consent of instructor and Honors Advisor. Note: Restricted to Sociology Honors students. Closed to web registration.

**0 SOC 410 Multi-Variable Sociological Analysis**

★3 (fi 6) (either term, 3-0-2). Further study of the use of multi-variable tabular analysis and multiple correlation/regression in social research. Special emphasis on different types of regression analysis and the causal analysis of social data. Prerequisites: SOC 210 and 315.

**0 SOC 418 Qualitative Methods in Social Research**

★3 (fi 6) (either term, 3-0-2). Further study of the design and evaluation of qualitative research strategies. Topics include participant observation, ethnomethodology, unobtrusive measures, and document analysis. Prerequisites: SOC 210 and 315.

**0 SOC 420 Selected Topics in Criminal Justice**

★3 (fi 6) (either term, 3-0-0). Topics may vary annually. Consult Department or instructor prior to registration. Prerequisites: SOC 225 and a 400-level Sociology course in Criminology.

**0 SOC 421 Sociology of Punishment**

★3 (fi 6) (either term, 3-0-0). Historical and contemporary social underpinnings of punishment in the criminal justice apparatus. Prerequisites: SOC 225 and 327.

**0 SOC 422 Native People and the Canadian Criminal Justice System**

★3 (fi 6) (either term, 3-0-0). Involvement of Native people as offenders and service-providers in the Canadian criminal justice system. Topics include antecedent conditions, policing, courts, corrections, victimization, crime prevention, and special offender groups. Prerequisite: SOC 327. Note: Not to be taken by students with credit in SOC 402 when dealing with native people and the Canadian criminal justice system.

**0 SOC 423 Crime and Public Policy**

★3 (fi 6) (either term, 3-0-0). Social responses to criminal behavior, including general public attitudes and government legislation. Topics include police strategies; sentencing options; prediction research, and social prevention. Prerequisites: SOC 225 and 327.

**0 SOC 424 Social Structure and Crime**

★3 (fi 6) (either term, 3-0-0). Theoretical and empirical analysis of the effects of such variables as urbanization, age, gender and class stratification, the community, and the economy on crime rates; consideration of cross-national differences. Prerequisite: SOC 225 and SOC 315.

**0 SOC 425 Research Problems in Criminology**

★3 (fi 6) (either term, 3-0-0). Examination of selected research issues in criminology, such as measurement of crime, research design, causal analysis and data interpretation. Prerequisite: SOC 225.

**0 SOC 426 Agencies of Social Control**

★3 (fi 6) (either term, 3-0-0). The study of the way agencies of social control carry out their tasks, including the dynamics within and the interaction among the agencies themselves. Prerequisite: SOC 225.

**0 SOC 428 Social Theory, Crime and Justice**

★3 (fi 6) (either term, 3-0-0). Key social theories that describe, explain, challenge or deconstruct 'crime', and theoretical critiques of contemporary crime-control arrangements. Prerequisite: One of SOC 332, 333 or 334.

**0 SOC 429 Sociology of Law**

★3 (fi 6) (either term, 3-0-0). Conceptual and practical points of convergence between legal and social theory; processes by which legal rules are created, maintained and changed; law as an instrument of social control and change. Prerequisite: SOC 225.

**0 SOC 430 Women and Crime**

★3 (fi 6) (either term, 0-3s-0). Key concepts, issues and debates with respect to women in the criminal justice system as offenders, defendants, prisoners, and victims. Prerequisite: SOC 225.

**0 SOC 437 The Sociology of Knowledge**

★3 (fi 6) (either term, 3-0-0). Study of the hypothesis that the forms of social life condition knowledge. Analysis of the versions of this thesis offered by such scholars as: Vico, Marx-Engels, Nietzsche, Scheler, Pareto, Durkheim, Mannheim, and more recent writers. Assessment of their proposed solutions to the social limitations imposed on knowing. Prerequisite: One of SOC 231, 332, 333, 367 or equivalent.

**0 SOC 440 Theories in Social Psychology**

★3 (fi 6) (either term, 3-0-0). Current theories and related research in social psychology. Prerequisite: SOC 241 or PSYCO 241.

**0 SOC 441 Sociology of Religious Sects**

★3 (fi 6) (either term, 3-0-0). Examination of conversion, membership maintenance, member disaffiliation, and resource acquisition strategies among religious sects. Emphasis on Canadian examples. Prerequisites: SOC 224 and SOC 376.

**0 SOC 442 Reinforcement and Social Behavior**

★3 (fi 6) (either term, 3-0-1). Operant principles applied to the fundamental processes of social behavior. An examination of critical studies utilizing a reinforcement perspective. Prerequisite: SOC 241 or PSYCO 241.

**0 SOC 443 Ethnomethodology**

★3 (fi 6) (either term, 3-0-0). Study of everyday life emphasizing the methods people use to construct a sense of order and meaning. Prerequisite: SOC 241.

**0 SOC 444 Critical Media Studies**

★3 (fi 6) (either term, 3-0-0). Analysis of media texts as social forms with emphasis on television, advertising, and emerging media technologies. Prerequisite: SOC 344. Note: Not to be taken by students with credit in SOC 402 when dealing with advanced mass communications.

**0 SOC 445 Built Environments**

★3 (fi 6) (either term, 0-3s-0). The significance of social spaces as constituted by architecture, design and artifacts of material culture. Prerequisite: SOC 345 or permission of the Instructor.

**0 SOC 446 Social Psychology and Human Factors Research**

★3 (fi 6) (either term, 3-0-0). Application of social psychological theories and methods to the investigation of sociological issues in human factors research. Topics include environmental, health care, legal, and organizational analysis. Prerequisites: SOC 241 and 315.

**0 SOC 450 Techniques of Demographic Analysis**

★3 (fi 6) (either term, 3-0-0). Conventional techniques of population analysis as applied to census and vital statistics. Prerequisite: SOC 251 or consent of Instructor.

**0 SOC 451 Sociology of Human Fertility**

★3 (fi 6) (either term, 3-0-0). Emphasis on the social, social-psychological, and cultural correlates of human fertility in historical and contemporary contexts; reproductive health programs; prediction and control. Prerequisite: SOC 251 or consent of Instructor.

**0 SOC 452 Mortality and Population Health**

★3 (fi 6) (either term, 3-0-0). Analysis of variations, trends and patterns of human mortality and morbidity in historical and contemporary contexts; comparisons of the experiences of Canada, other industrialized nations and developing countries with respect to causes of death and illness; demographic aspects of aging and its relationship to morbidity and mortality health surveys and policies. Prerequisite: SOC 251.

**0 SOC 453 The Urban Community**

★3 (fi 6) (either term, 3-0-0). An examination of the urban community in Canada and other countries from the ecological, social psychological, and social organizational perspectives. Appraisal of community studies. Introduction to community research priorities and methodologies. Prerequisite: SOC 353.

**0 SOC 455 Sociology of Human Migration**

★3 (fi 6) (either term, 3-0-0). Internal and international migration and its relationship to resources, economic opportunities, societal organization, and urbanization in Canada and other countries; determinants and consequences of migration; adjustment of migrants and policy issues. Prerequisite: SOC 251 or consent of Instructor.

**SOC 459 The Demography of Marriage and Family**

★3 (fi 6) (either term, 3-0-0). Review and analysis of the demographic interrelationships of fertility, mortality, and migration with marriage and the family; a cross-cultural review of historical trends, contemporary patterns and future implications; emphasis on statistical measurement, family planning and policy in the Canadian setting. Prerequisite: SOC 271.

**SOC 461 Sociology of Art**

★3 (fi 6) (either term, 3-0-0). A sociological study of art forms including painting, literature, music, and architecture; cross-cultural analysis of the roles of the artist; the relationship of art forms and movements to different social conditions and social change. Prerequisite: One of SOC 100, or 300.

**SOC 462 Science and Society**

★3 (fi 6) (either term, 3-0-0). Factors in the development of the cognitive and organizational domain of science; interrelations between science and major societal institutions and culture; the future of science and the future of society. Prerequisite: One of SOC 231, 332, 333 or 367.

**SOC 465 Sociology of Complex Organizations**

★3 (fi 6) (either term, 3-0-0). Approaches to formal organization and management; division of labor and its organizational implications, deviance and conflict within organization, problem solving, and organizational authority. Prerequisite: SOC 261.

**SOC 466 Selected Topics in Comparative Societies**

★3 (fi 6) (either term, 3-0-0). Comparative studies of various regions, cultures and societies. Topics may vary annually. Prerequisite: One of SOC 100 or 300.

**SOC 471 Comparative Family Systems**

★3 (fi 6) (either term, 3-0-0). An examination of concepts, theories, methodologies and evidence regarding similarities and differences across a range of subcultural and cross-cultural family systems, focusing on contemporary, complex societies. Prerequisite: SOC 271 (or HECOL 200 for Human Ecology students only).

**SOC 473 Sociology of Death and Dying**

★3 (fi 6) (either term, 3-0-0). Comparative examination of death and dying in socio-cultural contexts, including theoretical and methodological issues. Prerequisite: SOC 241, or 261, or 375.

**SOC 475 Advanced Sociology of Aging**

★3 (fi 6) (either term, 3-0-0). In-depth examination of selected theoretical approaches, methodological issues, and topics of substantive concern in the study of aging and the aged. Prerequisite: SOC 375.

**SOC 476 Religion and Societies**

★3 (fi 6) (either term, 3-0-0). A comparative survey of the major world religions in interaction with the socioeconomic and political structures of various societies. Prerequisite: SOC 376.

**SOC 478 Social Psychology of Family Relationships**

★3 (fi 6) (either term, 3-0-0). Current research on parent-child interaction in families of differing structures and processes. Focus is on creative, ambivalent and destructive family relationships. Resource project required on a current family issue. Prerequisites: SOC 241 and 271 (or HECOL 200 for Human Ecology students only).

**SOC 479 Selected Topics in the Family**

★3 (fi 6) (either term, 3-0-0). Topics may vary annually. Consult Department or instructor prior to registration. Prerequisite: SOC 271 (or HECOL 200 for Human Ecology students only).

**SOC 486 Sociology of Mental Illness**

★3 (fi 6) (either term, 3-0-0). Sociological aspects of mental health and illness. Includes historical perspectives, diagnostic issues, and perspectives on causation and treatment. Prerequisite: SOC 224 or 382. Note: Not to be taken by students with credit in SOC 474.

**SOC 490 Sociology and Public Policy**

★3 (fi 6) (either term, 3-0-0). Past and present relationship among sociology, social research and social needs, including the impact of sociological research on public policy formation, program development and implementation and program assessment. Prerequisite: ★12 in Sociology.

**SOC 491 Gender Studies**

★3 (fi 6) (either term, 3-0-0). Advanced study of theoretical and methodological issues in the social stratification of gender roles and statuses. Prerequisite: SOC 301.

**SOC 499 Advanced Field Placement in Criminology**

★6 (fi 12) (either term, 0-16s-0). Supervised work experience and seminar sessions. Prerequisite: SOC 399. Note: Restricted to BA (Criminology) students.

**SOC 503 Conference Course in Sociology for Graduate Students**

★3 (fi 6) (first term, 3-0-0).

**SOC 504 Conference Course in Sociology for Graduate Students**

★3 (fi 6) (second term, 3-0-0).

**SOC 509 Multi-Variable Sociological Analysis**

★3 (fi 6) (either term, 3-0-2). Prerequisites: SOC 210 and 315. Note: Not to be taken by students with credit in SOC 411 or 410.

**SOC 515 Quantitative Methods in Social Research**

★3 (fi 6) (either term, 3-0-2). Prerequisites: SOC 210 and 315 or equivalent. Note: Not to be taken by students with credit in SOC 412 or 417. Not available for credit for students with credit in R SOC 415.

**SOC 518 Qualitative Methods in Social Research**

★3 (fi 6) (either term, 3-0-2). Prerequisite: SOC 418 or equivalent or permission of Instructor.

**SOC 519 Comparative and Historical Methods in Sociological Research**

★3 (fi 6) (either term, 3-0-2). Prerequisites: SOC 210 and 315 or equivalent. Note: Not to be taken by students with credit in SOC 419.

**SOC 524 Advanced Field Placement in Criminal Justice**

★6 (fi 12) (either term, 0-40c-0). Prerequisite: consent of Department. Note: Restricted to MA (Criminal Justice) students.

**SOC 525 Seminar in Criminal Justice**

★3 (fi 6) (either term, 0-3s-0).

**SOC 526 Seminar in Criminological Theory**

★3 (fi 6) (either term, 0-3s-0).

**SOC 531 Seminar in the History of Sociological Thought**

★3 (fi 6) (either term, 0-3s-0).

**SOC 533 Research Design**

★3 (fi 6) (second term, 0-3s-0).

**SOC 535 Seminar in Contemporary Sociological Theory**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: SOC 333.

**SOC 540 Seminar in Social Psychology**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: SOC 241.

**SOC 543 Culture and Communication**

★3 (fi 6) (either term, 0-3s-0).

**SOC 552 Mortality and Population Health**

★3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 251. Note: Not to be taken by students with credit in SOC 452.

**SOC 554 Sociology of Human Migration**

★3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 251. Note: Not to be taken by students with credit in SOC 455.

**SOC 557 Sociology of Human Fertility**

★3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 251. Note: Not to be taken by students with credit in SOC 451.

**SOC 558 Techniques of Demographic Analysis**

★3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 251. Note: Not to be taken by students with credit in SOC 450.

**SOC 559 Seminar in Demography of Marriage and the Family**

★3 (fi 6) (either term, 0-3s-0).

**SOC 565 Seminar in Work**

★3 (fi 6) (either term, 0-3s-0).

**SOC 568 Seminar in Ethnic and Minority Relations**

★3 (fi 6) (either term, 0-3s-0).

**SOC 576 Seminar in Sociology of Religion**

★3 (fi 6) (either term, 0-3s-0).

**SOC 577 Seminar in Gender**

★3 (fi 6) (either term, 0-3s-0).

**SOC 580 Colonialism, Post-colonialism and Globalization**

★3 (fi 6) (either term, 0-3s-0).

**SOC 603 Conference Course**

★3 (fi 6) (first term, 3-0-0).

**SOC 604 Conference Course**

★3 (fi 6) (second term, 3-0-0).

**SOC 605 Seminar in Teaching and Professional Skills**

★0 (fi 1) (either term, unassigned).

**SOC 606 Special Topics I**

★1.5 (fi 3) (either term, 0-1.5s-0).

**Graduate Courses**

**Note:** See also INT D 593 for a course which is offered by more than one Department or Faculty and which may be taken as an option or as a course in this discipline.

**SOC 607 Special Topics II**

★1.5 (fi 3) (either term, 0-1.5s-0).

**SOC 608 Advanced Research Seminar**

★1.5 (fi 3) (either term, 0-1.5s-0).

**SOC 609 Multivariate Analysis**

★3 (fi 6) (first term, 3-0-0). Prerequisites: SOC 509 and 515 or 410 and 417 or equivalent. Note: Formerly SOC 510. Not to be taken by students with credit in SOC 511 or 510.

**SOC 616 Structural Equation Modeling with LISREL**

★3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 609.

**SOC 619 Advanced Methodological Issues**

★1.5 (fi 3) (either term, 0-1.5s-0).

**SOC 622 Topics in Criminology and Deviance**

★3 (fi 6) (second term, 0-3s-0).

**SOC 631 Seminar in Advanced Sociological Theory**

★3 (fi 6) (either term, 0-3s-0).

**SOC 632 Seminar in Theory Construction**

★3 (fi 6) (either term, 0-3s-0).

**SOC 633 Advanced Theoretical Issues**

★1.5 (fi 3) (either term, 0-1.5s-0).

**SOC 640 Social Policy**

★3 (fi 6) (either term, 0-3s-0).

**SOC 656 Topics in Environmental Sociology**

★3 (fi 6) (either term, 0-3s-0).

**SOC 658 Advanced Techniques of Demographic Analysis**

★3 (fi 6) (either term, 3-0-0).

**SOC 660 Topics in Canadian Society**

★3 (fi 6) (either term, 0-3s-0).

**SOC 670 Sociology of Gender and Family**

★3 (fi 6) (either term, 0-3s-0).

**SOC 672 Social Structure and Public Policy**

★3 (fi 6) (either term, 0-3s-0).

**SOC 675 Seminar in the Sociology of Aging**

★3 (fi 6) (either term, 0-3s-0).

**SOC 683 Seminar in the Sociology of Health and Illness**

★3 (fi 6) (either term, 0-3s-0).

**SOC 900 Directed Research Project**

★3 (fi 6) (variable, unassigned).

## 201.202 Soil Science, SOILS

Department of Renewable Resources  
Faculty of Agriculture, Forestry, and Home Economics

**Note:** See also Environmental and Conservation Sciences (ENCS), Forest Science (FOR), Plant Science (PL SC), Renewable Resources (REN R), and Interdisciplinary (INT D) Undergraduate Courses listings for related courses.

The following courses were renumbered effective 1996/97:

Old	New	Old	New
SOILS 425	REN R 425	SOILS 545	REN R 545

### Undergraduate Courses

**SOILS 210 Introduction to Soil Science and Soil Resources**

★3 (fi 6) (first term, 3-0-3/2). Elementary aspects of soil formation, soil occurrence in natural landscapes, soil classification, soil resource inventory; basic morphological, biological, chemical, and physical characteristics employed in the identification of soils and predictions of their performance in both managed and natural landscapes. Prerequisite: Must have completed a university-level course in life or natural sciences. A university-level chemistry course is strongly recommended.

**SOILS 414 Advanced Forest Soils**

★3 (fi 6) (second term, 3-0-0). Readings and discussions on topics important to sustained productivity of forest soils; soil compaction; soil organic matter; nutrient availability; landslides and water erosion. Alterations to soil properties through forest removal and forest renewal practices. Prerequisite: FOR 314 or consent of Instructor.

**SOILS 420 Soil Formation and Landscape Processes**

★3 (fi 6) (first term, 3-0-3). Soil formation, with emphasis on landscape processes as factors in soil development; pedogenic processes and their relation to environmental issues; soils; vegetation, and geological associations; kinds and

distribution of soils in Canada; soil classification; field examination and computer-assisted learning of soils and their landscape. Field trips. Course requires payment of additional miscellaneous fees (see §22.2.3). Prerequisite: SOILS 210 or any 200-level earth science course.

**SOILS 430 Soil Environmental Microbiology and Biochemistry**

★3 (fi 6) (second term, 3-0-3). Students discover distinguishing characteristics and environmental, industrial or biotechnological implications of specific soil microorganisms; principles governing methods to study soil organisms and biochemical processes; mechanisms controlling organic matter cycling and stabilization with reference to C, N, S and P; microbial interactions with metals and xenobiotics; and criteria for assessing influence of soil microbiology and biochemistry at the landscape level. The laboratory prepares students to study soil microorganisms and biochemical processes using the scientific method and modern techniques. Prerequisite: SOILS 210 and ★3 CHEM.

**SOILS 440 Soil Physics**

★3 (fi 6) (first term, 3-0-3). Quantitative characterization of soil physical properties. Description and measurement of soil physical properties that determine retention and movement of water in soils, soil temperature, soil aeration, soil strength, soil compaction and consolidation. Particular emphasis will be placed on current in situ techniques and their applications. Examples from areas of land resource management, soil remediation, agriculture, and forestry will be used to illustrate the principles. Prerequisites: SOILS 210 and completion of ★60 university credit in the sciences.

**SOILS 450 Soil Environmental Chemistry**

★3 (fi 6) (second term, 3-0-3). Chemical processes in soil and related terrestrial environments and the consequences of these processes as they relate to environmental quality and pollution of soil and water, nutrient levels, and mechanical stability or dispersion of clays and soils. The course describes fundamental chemical concepts such as soil solution speciation, precipitation/dissolution, and adsorption exchange and then uses the concepts in the examination and computer modelling of some current environmental, agricultural and engineering problems. The leachate chemistry of certain large volume industrial wastes is also examined in the course. Prerequisite: A chemistry course plus completion of two full years of university.

**SOILS 460 Soil Fertility**

★3 (fi 6) (second term, 3-0-3). Essential plant nutrients; factors influencing nutrient availability; methods of evaluating soil fertility; correction of soil fertility problems; manufacture, composition, and use of fertilizers. Prerequisite: SOILS 210.

### Graduate Courses

**Note:** 400-level courses listed under ENCS, FOR, REN R or SOILS and offered by the Department of Renewable Resources may be taken for graduate credit under certain circumstances. FOREC 445, 473, and INT D 421, 465 may also be taken for graduate credit under certain circumstances. (See §174.1.1(1)).

**SOILS 515 Clay Mineralogy**

★3 (fi 6) (second term, 3-0-3). Structure and composition of clay minerals. Properties of clay minerals and methods of identification with emphasis on x-ray diffraction techniques. Nature and properties of other secondary soil minerals. Prerequisites: Three undergraduate level courses in the geological, engineering, or soil sciences.

**SOILS 520 Advanced Soil Classification**

★3 (fi 6) (second term, 3-0-3). Systematics of soil classification throughout the world with special emphasis on pedogenesis, classification, distribution and use of soils outside of Canada. Laboratory consists of a minimum 10-day field trip normally scheduled immediately following the final examination period and conducted regionally in North America. Costs of lodging, meals, and transportation to be borne by students. Offered in alternate years. Prerequisite: SOILS 420. Course requires payment of additional miscellaneous fees (see §22.2.3).

**SOILS 530 Advanced Soil Ecology**

★3 (fi 6) (second term, 3-0-3). Ecological approach to studying plant, microbial and faunal interactions in soil. Assessment and integration of the qualitative and quantitative impact of soil microorganisms, fauna and plants on decomposition, element cycling and soil structure dynamics in terrestrial ecosystems. The acquired information will be linked to current global environmental issues. Students develop simulation models and practise writing grant applications. Offered in alternate years. Prerequisite: SOILS 330, 430 or a 300-level course in biological sciences.

**SOILS 535 Advanced Soil Biogeochemistry**

★3 (fi 6) (first term, 0-3s-0). Soil biogeochemical processes as related to pedogenesis, ecosystem sustainability, and global biogeochemistry. Emphasis on soil organic matter processes: structure, formation and properties of humic substances; organic matter in a mineral matrix; and analytical methods and techniques. Offered in alternate years. Prerequisite: SOILS 430.

**SOILS 540 Advanced Soil Physics**

★3 (fi 6) (second term, 3-0-3). Physical principles of water, solutes, and heat transport in the soil-plant-atmosphere continuum; formulation and solution of

mathematical equations describing the dynamic interactions among water, solutes, heat, soil matrix and plants; application of physical theories at the field scale, including effects of the soil spatial variability and preferential flow. Offered in alternate years. Prerequisites: A course in calculus and a course in one of the following: soil physics, soil mechanics, hydrogeology, physics or thermodynamics.

## 201.203 Spanish, SPAN

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with a Spanish language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in an advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) All courses at the 300-level, except SPAN 330 and 360 which are taught in English, include language acquisition among other course requirements.

## Undergraduate Courses

### ★3 SPAN 111 Beginners' Spanish I

★3 (fi 6) (either term, 5-0-0). A basic course, intended for students with no previous knowledge of the language, emphasizing spoken and written Spanish. Note: not to be taken by students with credit in SPAN 100, or with native or near native proficiency, or with Spanish 30 or its equivalents in Canada and other countries.

### ★3 SPAN 112 Beginners' Spanish II

★3 (fi 6) (either term, 5-0-0). Prerequisite: SPAN 111 or consent of Department. Note: not to be taken by students with credit in SPAN 100, or with native or near native proficiency, or with Spanish 30 or its equivalents in Canada and other countries.

### ★3 SPAN 211 Intermediate Spanish I

★3 (fi 6) (either term, 3-0-0). A course intended to consolidate a basic understanding of Spanish through a systematic grammar review and practice in the various language skills. Prerequisite: SPAN 112 or consent of Department. Note: not to be taken by students with credit in SPAN 200 or 201 or by students with advanced standing equivalent or near native ability.

### ★3 SPAN 212 Intermediate Spanish II

★3 (fi 6) (either term, 3-0-0). A continuation of Spanish 211. Prerequisite: SPAN 211 or consent of Department. Note: Not to be taken by students with credit in SPAN 201 or by students with advanced standing equivalent or near native ability.

### ★3 SPAN 300 Conversation and Composition in Spanish

★3 (fi 6) (either term, 3-0-0). Prerequisite: SPAN 212 or consent of Department. Note: SPAN 300 is not open to students with advanced standing equivalent or near native ability.

### ★3 SPAN 303 Popular Culture and its Traditions

★3 (fi 6) (either term, 3-0-0). For students who are learning Spanish and wish to broaden their understanding of cultural life in the Spanish-speaking world (media, film, dance, literature, art, performance, and advertising from Spain and the Americas). Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 305 Spanish and English, a Linguistic Comparison

★3 (fi 6) (either term, 3-0-0). A comparison of Spanish and English from a linguistic perspective. Topics relating to the construction and construal of meaning at a variety of levels, including word meaning, sentence structure, narrative and discourse structure, and use of metaphor. Attention to issues relating to translation. Taught in English. Prerequisite: SPAN 201 or consent of Department. Note: This course can also be applied to the MLCS Certificate in Translation Studies.

### ★3 SPAN 306 Spanish for Heritage Speakers

★3 (fi 6) (either term, 3-0-0). Intended for speakers with an advanced level of oral proficiency, but no previous formal study of Spanish. Focus is on topics such as grammar and sentence structure, spelling and punctuation, interference between English and Spanish, and colloquial versus formal usages with the

objective of improving skills in oral and written communication. Prerequisite: consent of Department.

### ★3 SPAN 307 Civilization and Culture in Spain Before 1900

★3 (fi 6) (either term, 3-0-0). Aspects of Spanish civilization and culture in the Iberian Peninsula from the Middle Ages to the end of the 19th century. Designed to complement the study of Spanish and to provide an introduction to the major trends in thought and cultural forms in Spain. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 309 Civilization and Culture in Spain Since 1900

★3 (fi 6) (either term, 3-0-0). Civilization and culture in Spain since the beginning of the 20th century. Designed to complement the study of Spanish and to provide an introduction to the major trends in thought and cultural forms, with particular emphasis on the contemporary period. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 321 Foundational Fictions of Spanish America

★3 (fi 6) (either term, 3-0-0). Readings from selected texts to continue language acquisition and to introduce students to aspects of Spanish American literature and culture. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 322 Foundational Fictions of Spain

★3 (fi 6) (either term, 3-0-0). Readings from selected texts to continue language acquisition and to introduce students to aspects of Spanish literature and culture. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 325 Introduction to Cinema

★3 (fi 6) (either term, 3-0-3). Some of the major works of film of Spain and/or Spanish America. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 330 The Latino Experience Abroad

★3 (fi 6) (either term, 3-0-0). Exile, immigration, identity, language, and other questions concerning relocation and cultural and social integration represented in the work of authors from Latin American and Caribbean communities in North America. Note: not to be taken by students with credit in LA ST 330. Does not fulfill any Faculty of Arts Language Other than English requirement. Taught in English.

### ★3 SPAN 331 Spanish for International Relations

★3 (fi 6) (either term, 3-0-0). Cross-cultural differences between North America and the Hispanic World. Prerequisite: SPAN 201 or consent of Department.

### ★3 SPAN 335 The Spanish Caribbean

★3 (fi 6) (either term, 3-0-0). Literature and culture in Cuba, Puerto Rico and the Dominican Republic. Prerequisite: SPAN 300 or consent of Department.

### ★3 SPAN 360 Latin America in its Literature (in English Translation)

★3 (fi 6) (either term, 3-0-0). Relations among the literature, culture, history and politics of Latin America, primarily in Spanish-speaking areas. Themes vary from year to year. Note: not to be taken by students with credit in LA ST 360 or C LIT 363. Does not fulfill any Faculty of Arts Language Other than English requirement.

### ★3 SPAN 370 The Sounds of Spanish

★3 (fi 6) (either term, 3-0-0). Sound system of Spanish: phonetics, phonology, evolution of the language. Special attention to the pronunciation differences from English. Prerequisite: SPAN 212 or consent of Department.

### ★3 SPAN 371 Meaning and Form in Spanish

★3 (fi 6) (either term, 3-0-0). Spanish syntax, semantics, lexical semantics, bilingualism, etc. Special emphasis on their relevance to applied linguistics. Prerequisite: SPAN 212 or consent of Department.

### ★3 SPAN 405 Exercises in Translation: Spanish into English

★3 (fi 6) (either term, 3-0-0). Prerequisite: SPAN 300 or consent of Department. Note: This course can also be applied to the MLCS Certificate in Translation Studies.

### ★3 SPAN 406 Exercises in Translation: English into Spanish

★3 (fi 6) (either term, 3-0-0). Prerequisite: SPAN 300 or consent of Department. Note: This course can also be applied to the MLCS Certificate in Translation Studies.

### ★3 SPAN 431 Business Spanish

★3 (fi 6) (either term, 3-0-0). Emphasis on the development of the relevant vocabulary, and the ability to participate in the appropriate discourses, both spoken and written. Prerequisite: ★3 in Spanish at the 300-level or consent of Department.

### ★3 SPAN 440 Topics in Spanish Peninsular Literature and Culture

★3 (fi 6) (either term, 3-0-0). Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

### ★3 SPAN 445 The Culture of Democracy

★3 (fi 6) (either term, 3-0-0). Cultural production and its interpretation in Spain since 1976. Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

### ★3 SPAN 450 Topics in Spanish-American Literature and Culture

★3 (fi 6) (either term, 3-0-0). Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

**SPAN 452 Indigenous America**

★3 (fi 6) (either term, 3-0-0). Representations of indigenous life and culture in Latin America from pre-colonial times to the present. Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

**SPAN 455 Literature, War and Revolution in Latin America**

★3 (fi 6) (either term, 3-0-0). From European conquest to the twentieth-century revolutions and liberation movements. Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

**SPAN 457 Post-dictatorship Culture in the Southern Cone**

★3 (fi 6) (either term, 3-0-0). Cultural production and consumption in Argentina, Chile and Uruguay since the mid-1980s. Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

**SPAN 460 Self Portraits in Writing**

★3 (fi 6) (either term, 3-0-0). Testimonial writing, biography and autobiography, memoirs, correspondence, diaries, interviews, and confessions. Prerequisites: SPAN 321 or 322 and an additional ★3 in SPAN at the 300-level, or consent of Department.

**SPAN 474 North American Spanish**

★3 (fi 6) (either term, 3-0-0). Language patterns among Hispanic-Americans with a focus on inter-ethnic communication. Prerequisite: ★3 in Spanish at the 300-level or consent of Department.

**SPAN 475 Spanish in Society**

★3 (fi 6) (either term, 3-0-0). Language as a social phenomenon. Description of dialects in Spain and Latin America. Language shift, bilingualism, language attrition, code-switching and language attitudes. Prerequisite: ★3 in Spanish at the 300-level or consent of Department.

**SPAN 476 The Acquisition of Spanish**

★3 (fi 6) (either term, 3-0-0). Issues relating to the acquisition of Spanish as a second language, education and language policies, and language pedagogy in the literature and in practice. Prerequisite: ★3 in Spanish at the 300-level or consent of Department.

**SPAN 495 Honors Thesis**

★3 (fi 6) (either term, 0-3s-0).

**SPAN 499 Special Topics**

★3 (fi 6) (either term, 3-0-0).

**Graduate Courses****SPAN 524 Hispanic Theories of Cultural Studies**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**SPAN 530 Visual Arts and Literature**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**SPAN 534 Popular Culture and Kitsch in Latin America**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**SPAN 535 Topics in Hispanic Culture**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**SPAN 540 Imagining Latin America in History, Fiction and Film**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**SPAN 544 Theory and Practice of Fantastic Literature in the Hispanic World**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

**SPAN 565 Topics in the Forms and Genres of Hispanic Literature**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**SPAN 575 Spanish in Society**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**SPAN 576 The Acquisition of Spanish**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**SPAN 599 Directed Reading**

★3 (fi 6) (either term, 3-0-0).

**SPAN 610 Reading and Writing Sexualities**

★3 (fi 6) (either term, 0-3s-0).

**SPAN 615 Theory and Practice of Latin American Film**

★3 (fi 6) (either term, 0-3s-0).

**SPAN 620 The Poetics of Place**

★3 (fi 6) (either term, 0-3s-0).

**SPAN 625 Theory and Practice of Magical Realism in the Hispanic World**

★3 (fi 6) (either term, 0-3s-0).

**SPAN 698 Topics in Spanish Linguistics**

★3 (fi 6) (either term, 3-0-0).

**SPAN 699 Topics in Spanish Literature**

★3 (fi 6) (either term, 3-0-0).

**SPAN 900 Directed Research Project**

★6 (fi 12) (variable, variable).

**201.204 Speech Pathology and Audiology, SPA**

Department of Speech Pathology and Audiology  
Faculty of Rehabilitation Medicine

**Note:** All SPA courses are open to SPA students only.

**Graduate Courses****SPA 501 Clinical Research Methods**

★3 (fi 6) (either term, 3-0-0). Investigation of strategies for demonstrating scientifically the impact of clinical intervention programs, both for accountability and for contributing to the knowledge base regarding effective treatment. Students will be advised to approach staff members as resources for development of specific projects in anticipation of SPA 900. (Restricted to MSLP-B students only.)

**SPA 502 Anatomy and Physiology of the Speech Mechanism**

★3 (fi 6) (first term, 4-0-2). Lectures and demonstrations provide a systematic study of the gross anatomy and neuroanatomy of the respiratory, phonatory, resonatory, and articulatory subsystems and the physiology of respiration, phonation, and upper airway in speech production and swallowing. The embryological and post-natal development of these systems is considered. Review of the neural substrates underlying speech and language processing is included. Laboratories provide observational and simulated dissection experiences using computer software video, anatomical models, and prosected materials. (Restricted to MSLP-B students only.)

**SPA 505 Speech Science**

★3 (fi 6) (first term, 3-0-1). Study of theoretical and applied aspects of acoustic phonetics, speech perception and speech production, including theory and application of methods (physiological, acoustic and perceptual) to record and analyze speech behaviors. Provides students with basic knowledge for entry into the field of speech-language pathology. Pre- or corequisites: SPA 502 or equivalent, SPA 507 and 515. (Restricted to MSLP-B students only.)

**SPA 507 Phonological Disorders**

★3 (fi 6) (either term, 3-0-2). In-depth study of the nature, assessment and remediation of articulatory/phonological disorders according to various theoretical models. Emphasis will be placed on phonologically based clinical approaches including phonological process analysis and generative phonology. Practical experience in assessment and remediation will be provided through clinical observation and laboratory experiences. (Restricted to MSLP-B students only.)

**SPA 509 Motor Speech Disorders**

★3 (fi 6) (either term, 0-4L-1). Study of dysarthria and dyspraxia (congenital and acquired) including the nature of their underlying neuropathologies, methods of instrumental and perceptual assessment, and systematic instrumental and behavioral management strategies. Students will develop their understanding of the course material via a series of clinical problem solving and treatment planning exercises. Prerequisites: SPA 502 or equivalent and SPA 505, 507, 511. Pre- or corequisite: SPA 520. (Restricted to MSLP-B students only.)

**SPA 511 Child Language Development and Assessment**

★3 (fi 6) (either term, 0-4L-1). A review of normal language development provides the basis for a comprehensive study of the assessment and identification of children with language disorders. Assessment procedures involve language test administration and interpretation. Discussion of research findings highlights disordered language behaviors associated with such problems as mental retardation, emotional problems, and learning disabilities. The laboratory provides experience in administering a variety of language tests. (Restricted to MSLP-B students only.)

**SPA 515 Hearing Science/Audiology**

★3 (fi 6) (first term, 3-0-1). Study of basic audiology for speech-language pathologists. Includes anatomy and physiology of the auditory and vestibular systems, theories of hearing, the physics and measurement of sound (including psychophysical methods and psychoacoustics), symptoms, etiology and prognosis of hearing disorders, overview of assessment procedures and instrumentation used in diagnostic audiology, and application of audiometric results to speech-language pathology. Proficiency in hearing and tympanometry screening, including care and maintenance of equipment, is acquired in laboratory sessions. Prerequisites or corequisites: SPA 502. (Restricted to MSLP-B students only.)

**SPA 516 Diagnosis and Appraisal of Communication Disorders**

★3 (fi 6) (either term, 3-0-1). A study of the principles underlying the evaluative and management procedures in communication disorders. History taking, report

writing, recording observations, analysis of tests relevant to the clinical process and test procedure administration will be covered. Corequisite: SPA 524. (Restricted to MSLP-B students only.)

#### SPA 518 Remediation of Child Language Disorders

★3 (fi 6) (either term, 0-4L-1). A study of the theoretical models of intervention and clinical application in remediating children's disordered language patterns. Specific attention focused toward commercial and clinician-generated programs that serve these various theoretical frameworks. Discussion of language goals, intervention strategies and accountability measures that serve to guide the therapeutic process and determine treatment effectiveness. The laboratory provides opportunity to observe therapy and design sample language therapy units. Prerequisite: SPA 511. (Restricted to MSLP-B students only.)

#### SPA 520 Adult Language Disorders I

★3 (fi 6) (either term, 0-4L-0). Study of acquired aphasia including the nature of the underlying neuropathologies, methods of differential diagnosis and comprehensive assessment, and clinically-pertinent behavioral management strategies. Students will develop their understanding of the course material via a series of clinical problem solving and treatment planning exercises. Prerequisite: SPA 502 or equivalent. (Restricted to MSLP-B students only.)

#### SPA 521 Dysphagia

★1.5 (fi 3) (Spring/Summer, 0-2L-0). This course will provide an overview of the anatomical and neurophysiological bases of normal and abnormal feeding and swallowing in adults and children. Structural and neurological conditions commonly associated with dysphagia will be reviewed. A framework of interdisciplinary assessment and management of dysphagia will be provided. Prerequisite: SPA 502 or equivalent. (Restricted to MSLP-B students.)

#### SPA 523 Augmentative/Alternative Communication Systems

★1.5 (fi 3) (either term, 0-2L-0). This course will provide a description of various augmentative/alternative communication systems, including microcomputers. It will address assessment questions and the intervention process for individual users with communication disorders. Prerequisite: SPA 518. (Restricted to MSLP-B students only.)

#### SPA 524 Introduction to Clinical Practicum I

★7.5 (fi 15) (two term, 0-8c-2). Credit. Practical application of clinical procedures under direct supervision. Normally, students will possess an academic background enabling them to assume direct treatment responsibilities with children and adults having disorders of articulation and/or language. A minimum of 48 direct contact hours as well as simulated and indirect contact hours will be accrued. Seminar content will include topics of clinical and/or professional significance such as ethics, health law, private practice, goal setting and data collection. Flexibility in seminar topics will accommodate new topics as they arise. Prerequisites: At least six MSLP (B) courses including SPA 507, 511, 518. Corequisite: SPA 516. (Restricted to MSLP-B students only.)

#### SPA 525 Introduction to Clinical Practicum II

★2 (fi 4) (first term, 0-2c-0). Credit. Continued practical application of clinical procedures under direct supervision. Normally students will acquire experience with alternative service delivery models such as group treatment. A minimum of 25 direct contact hours as well as simulated and indirect contact hours will be accrued. Prerequisite: SPA 524. (Restricted to MSLP-B students only.)

#### SPA 526 Voice and Resonance Disorders

★4 (fi 8) (either term, 4-0-2). A study of the causes, nature, clinical assessment, and management of voice and resonance disorders. Prerequisites: SPA 502 and SPA 505. (Restricted to MSLP-B students only.)

#### SPA 527 Language and Literacy

★3 (fi 6) (either term, 0-4L-0). Study of language development in school-age children and adolescents, with focus on the relationships among oral language, reading, and writing; linguistic tasks faced by these age groups in school and elsewhere; and implications for language assessment and intervention. Prerequisites: SPA 511 and 518. (Restricted to MSLP-B students only.)

#### SPA 528 Fluency

★3 (fi 6) (either term, 3-0-1). A study of the development, nature and treatment of stuttering with particular emphasis on management strategies. Pre- or corequisite: SPA 501. (Restricted to MSLP-B students only.)

#### SPA 529 Adult Language Disorders II

★3 (fi 6) (either term, 0-4L-0). Study of conditions (other than aphasia) affecting language, social, and cognitive functioning in adults, including traumatic brain injury, dementia, and right hemisphere dysfunction, and issues related to the aging process. Nature of underlying neuropathologies and their implications for differential diagnosis, assessment, and management will be addressed. Prerequisite: SPA 520. (Restricted to MSLP-B students only.)

#### SPA 532 Advanced Clinical Practicum

★4.5 (fi 9) (either term, 0-12c-0). Credit. Full-time supervised clinical practice normally for a period of six weeks in an approved clinical service facility. Students will have completed all academic course work and will be prepared to work with a broad range of communication disorders under reduced supervision. A minimum of 75 direct contact hours as well as simulated and indirect contact hours will

be accrued. Prerequisites: SPA 525 and all MSLP(B) academic courses. (Restricted to MSLP-B students only.)

#### SPA 533 Advanced Clinical Practicum

★4.5 (fi 9) (either term, 0-12c-0). Credit. Full-time supervised clinical practice normally for a period of six weeks in an approved clinical service facility. Students will have completed all academic course work and will be prepared to work with a broad range of communication disorders under reduced supervision. A minimum of 75 direct contact hours as well as simulated and indirect contact hours will be accrued. Prerequisites: SPA 525 and all MSLP(B) academic courses. (Restricted to MSLP-B students only.)

#### SPA 534 Aural (Re)habilitation

★3 (fi 6) (either term, 0-4L-0). Study of the diagnostic and treatment strategies for communication problems associated with childhood and adult onset hearing loss. Prerequisites: SPA 505, 507, 511 and 515. (Restricted to MSLP-B students only.)

#### SPA 540 Advanced Clinical Practicum

★4.5 (fi 9) (either term, 0-12c-0). Credit. Full-time supervised clinical practice normally for a period of six weeks in an approved clinical service facility. Students will have completed all academic course work and will be prepared to work with a broad range of communication disorders under reduced supervision. A minimum of 75 direct contact hours as well as simulated and indirect contact hours will be accrued. Prerequisites: SPA 532 and 533. (Restricted to MSLP-B students only.)

#### SPA 541 Advanced Clinical Practicum

★4.5 (fi 9) (either term, 0-12c-0). Credit. Full-time supervised clinical practice normally for a period of six weeks in an approved clinical service facility. Students will have completed all academic course work and will be prepared to work with a broad range of communication disorders under reduced supervision. A minimum of 75 direct contact hours as well as simulated and indirect contact hours will be accrued. Prerequisites: SPA 532 and 533. (Restricted to MSLP-B students only.)

#### SPA 597 Advanced Clinical Practicum

★4.5 (fi 9) (either term, 0-12c-0). May be repeated. Credit. Full-time supervised clinical practice normally for a period of six weeks in an approved clinical service facility. Students will have completed all academic course work and will be prepared to work with a broad range of communication disorders under reduced supervision. A minimum of 75 direct contact hours as well as simulated and indirect contact hours will be accrued. Prerequisite: SPA 525 and all MSLP(B) academic courses. (Restricted to MSLP-B students only.)

#### SPA 598 Directed Individual Reading and Research

★1-12 (variable) (either term, variable). May be repeated. Prerequisite: consent of Department. (MSc/MSLP)

#### SPA 900 Directed Research Project

★3 (fi 6) (either term or Spring/Summer, 0-3s-0). Required capping exercise for the MSLP program. Intended to develop students' inquiry, reflection, critical thinking, and writing skills and to provide a supervised experience in the disciplined investigation of a problem. Prerequisites: SPA 501. (Restricted to MSLP-B students only.)

## 201.205 Statistics, STAT

Department of Mathematical and Statistical Sciences  
Faculty of Science

**Note:** Statistical software packages will normally be used in courses that contain data analysis.

### Undergraduate Courses

#### STAT 141 Introduction to Statistics

★3 (fi 6) (either term, 3-0-0). Random variables and frequency distributions. Averages and variance. The binomial and normal distribution. Sampling distributions and elementary inference. X<sup>2</sup>-test for contingency tables. Regression and correlation. Analysis of variance. Prerequisite: Pure Mathematics 30 or consent of Department. This course may not be taken for credit if credit has been obtained in any STAT course, or in PSYCO 211 or SOC 210.

#### STAT 151 Introduction to Applied Statistics I

★3 (fi 6) (either term, 3-0-2). Data collection and presentation, descriptive statistics. Probability distributions, sampling distributions and the central limit theorem. Point estimation and hypothesis testing. Correlation and regression analysis. Goodness of fit and contingency table. Prerequisite: Pure MATH 30. This course may not be taken for credit if credit has been obtained in any STAT course, or in PSYCO 211 or SOC 210.

#### STAT 221 Applied Probability

★3 (fi 6) (either term, 3-0-2). Probability models; distribution of one and two random variables; moment generating functions; specific distributions; uniform,



binomial, geometric, Poisson, exponential, normal, etc. Markov chains and simple queues. Various applications are considered with emphasis on the analysis of computer systems; simulation techniques are used and the algorithmic approach is used throughout the course. Restricted to Honors and Specialization students in Computing Science and Specialization students in Computational Science (Mathematics). Prerequisites: MATH 115 or equivalent; pre- or corequisite: MATH 120 or 125 or equivalent. Credit may not be obtained for both STAT 221 and STAT 265.

#### STAT 222 Applied Statistics

★3 (fi 6) (either term, 3-0-2). Sampling distributions; estimation; hypothesis testing; linear regression. Poisson process; simple queues; models and applications which are primarily of interest to computing scientists. Prerequisite: STAT 221. Note: Credit may be obtained for at most one of STAT 222, 266 and 366.

#### STAT 235 Introductory Statistics for Engineering

★4 (fi 6) (either term or Spring/Summer, 3-0-2). Descriptive data analysis. Calculus of Probability, Binomial, multinomial, Poisson, normal, beta, exponential, gamma, hypergeometric, and Weibull distributions. Sampling distributions. Estimation, testing hypotheses, goodness-of-fit tests, and one-way analysis of variance. Linear correlation and regression. Sampling. Quality control. Use of a microcomputer software package for statistical analyses in engineering applications. Prerequisite: MATH 100. Corequisite: MATH 101. Credit may not be obtained in STAT 235 if credit has already been obtained in STAT 141, 151, 222, 265, 266; PSYCO 211 or SOC 210. Intended for Engineering students. Other students who take this course will receive ★3.0.

#### STAT 252 Introduction to Applied Statistics II

★3 (fi 6) (either term, 3-0-2). Methods in applied statistics including regression techniques, analysis of variance and covariance, and methods of data analysis. Applications are taken from Biological, Physical and Social Sciences, and Business. Credit may be received in at most one of STAT 252, 319, or 341. Prerequisite: STAT 141 or 151 or equivalent.

#### STAT 265 Elements of Probability and Statistical Theory I

★3 (fi 6) (either term, 3-0-1). Probability, probability distributions for discrete and continuous random variables. Expectations and moments. Linear combinations of independent random variables. Statistical models, parameters and Statistics, methods of estimation, bias and efficiency. Prerequisites: STAT 151 or equivalent; MATH 115. Credit may not be obtained for both STAT 265 and STAT 221.

#### STAT 312 Mathematical Methods in Statistics

★3 (fi 6) (either term, 3-0-1). Theory and applications of basic mathematical results required in Statistics. Applications of diagonalization results for real symmetric matrices, of continuity, differentiation. Riemann-Stieltjes integration and multivariable calculus to the theory of Statistics including least square estimation, generating functions, distribution theory. Prerequisites: MATH 215, MATH 225 or equivalent.

#### STAT 335 Statistical Quality Control and Industrial Statistics

★3 (fi 6) (either term, 3-0-0). Control charts for variables and attributes. Process capability analysis. Acceptance sampling: single and multiple attribute and variable acceptance plans. Prerequisite: STAT 235 or 265.

#### STAT 337 Biostatistics

★3 (fi 6) (first term, 3-0-2). Methods of data analysis useful in Biostatistics including analysis of variance and covariance and nested designs, multiple regression, logistic regression and log-linear models. The concepts will be motivated by problems in the life sciences. Applications to real data will be emphasized through the use of a computer package. Prerequisite: STAT 151 and a 200-level Biological Science course. Note: This course may not be taken for credit if credit has already been obtained in STAT 252, 368 or 378.

#### STAT 361 Sampling Techniques

★3 (fi 6) (either term, 3-0-0). Simple random sampling from finite populations, stratified sampling, regression estimators, cluster sampling. Note: This course may only be offered in alternate years. Prerequisite: STAT 265.

#### STAT 366 Elements of Probability and Statistical Theory II

★3 (fi 6) (either term, 3-0-1). Bivariate and multivariate probability distributions. Functions of random variables. Sampling distributions and the Central Limit Theorem. Point estimation; consistency; sufficiency; UMVU. Confidence intervals and large sample tests. Prerequisites: STAT 265, MATH 215 and MATH 225. Credit may not be obtained for both STAT 366 and either of STAT 222 or 266.

#### STAT 368 Introduction to Design and Analysis of Experiments

★3 (fi 6) (either term, 3-0-0). Basic principles of experimental design, completely randomized design—one way ANOVA and ANCOVA, randomized block design, Latin square design, Multiple comparisons. Nested designs. Factorial experiments. Prerequisites: STAT 265 and a course in Linear Algebra; MATH 225 recommended.

#### STAT 377 Non-Parametric Inference

★3 (fi 6) (either term, 3-0-0). Tests for randomness, goodness of fit, tests for location and scale, non-parametric estimators. Robust statistics. Introduction to computer packages for non-parametric statistics. Note: This course may be offered only in alternate years. Prerequisites: STAT 265 and MATH 215. STAT 366 recommended as co- or prerequisite.

#### STAT 378 Applied Regression Analysis

★3 (fi 6) (either term, 3-0-0). Simple linear regression analysis, inference on regression parameters, residual analysis, prediction intervals, weighted least squares. Multiple regression analysis, inference about regression parameters, multicollinearity and its effects, indicator variables, selection of independent variables. Non-linear regression. Prerequisites: STAT 265 and a course in Linear Algebra; MATH 225 recommended.

#### STAT 400 Industrial Internship Practicum

★3 (fi 6) (first term, 0-3s-0). Required by all students who have just completed a Mathematical Sciences Industrial Internship Program and who are in an Honors or Specialization degree in Statistics. Must be completed during the first academic term following return to full-time studies. Note: A grade of F to A+ will be determined by the student's job performance as evaluated by the employer, by the student's performance in the completion of an internship practicum report, and by the student's ability to learn from the experiences of the Internship as demonstrated in an oral presentation. Prerequisite: WKEXP 953.

#### STAT 432 Survival Analysis

★3 (fi 6) (either term, 3-0-0). Survival models, model estimation from complete and incomplete data samples, parametric survival models with concomitant variables, estimation of life tables from general population data. Prerequisite: STAT 366. This course may be offered in alternate years.

#### STAT 441 Applied Statistical Methods

★3 (fi 6) (either term, 2-1s-1). Principle of statistical design and analysis illustrated through techniques such as time series regression, repeated measures and other experimental designs; principal components, classification and grouping techniques and other multivariate methods; logistic regression and log-linear models. Prerequisites: MATH 120 or 125 or equivalent, STAT 252 or 337 or MGTC 312 or equivalent, and a 300-level course in an area of application.

#### STAT 453 Risk Theory

★3 (fi 6) (either term, 3-0-0). Utility theory, convolutions and random sums, compound Poisson processes and ruin models. Prerequisite: Any 300-level STAT course.

#### STAT 466 Statistical Inference

★3 (fi 6) (second term, 3-0-0). Foundations of statistical inference. Point estimation, properties of estimates. Multivariate normal distribution. Testing statistical hypotheses, likelihood ratio test, Chi-square  $t$ - and  $F$ -test. Confidence intervals. Prerequisite: STAT 366.

#### STAT 471 Probability I

★3 (fi 6) (first term, 3-0-0). Probability spaces, algebra of events. Elements of combinatorial analysis. Conditional probability, stochastic independence. Special discrete and continuous distributions. Random variables, moments, transformations. Basic limit theorems. Prerequisite: STAT 366.

#### STAT 472 Probability II

★3 (fi 6) (second term, 3-0-0). Sequences of Bernoulli trials, laws of large numbers, normal approximations. Generating functions, recurrent events, random walks. Introduction to Markov chains. Special topics. Prerequisite: STAT 471.

#### STAT 479 Time Series Analysis

★3 (fi 6) (either term, 3-0-0). Stationary series, spectral analysis, models in time series: autoregressive, moving average, ARMA and ARIMA. Smoothing series, computational techniques and computer packages for time series. Note: This course may be offered only in alternate years. Prerequisite: STAT 366 or consent of Instructor.

## Graduate Courses

#### STAT 501 Directed Study I

★3 (fi 6) (either term, 3-0-2). Basic principles of experimental design, completely randomized design—one way ANOVA and ANCOVA. Randomized block design. Latin square design, Multiple comparisons. Nested designs. Factorial experiments. Each student will give a written report and seminar presentation highlighting statistical methods used in a research project. Prerequisites: STAT 252 or 337 or equivalent and a course in linear algebra. NOTE: Not open to graduate students in the Department of Mathematical and Statistical Sciences.

#### STAT 502 Directed Study II

★3 (fi 6) (either term, 3-0-2). Simple linear regression analysis, inference on regression parameters, residual analysis, prediction intervals, weighted least squares. Multiple regression analysis, inference about regression parameters, multicollinearity and its effects, indicator variables, selection of independent variables. Non-linear regression. Each student will give a written report and seminar presentation highlighting statistical methods used in a research project. Prerequisite: STAT 337 or equivalent and a course in linear algebra. NOTE: Not open to graduate students in the Department of Mathematical and Statistical Sciences.

#### STAT 503 Directed Study III

★3 (fi 6) (either term, 3-0-2). Theory and applications of time series modeling, stationarity, autocorrelation. Spectral properties, filtering. Box-Jenkins models,

seasonality. Each student will give a written report and seminar presentation highlighting statistical methods used in a research project. Prerequisite: STAT 366 or consent of Instructor.

#### STAT 512 Techniques of Mathematics for Statistics

★3 (fi 6) (either term, 3-0-0). Introduction to mathematical techniques commonly used in theoretical Statistics, with applications. Applications of diagonalization results for real symmetric matrices, and of continuity, differentiation, Riemann-Stieltjes integration and multivariable calculus to the theory of Statistics including least squares estimation, generating functions, distribution theory. Prerequisite: consent of Department.

#### STAT 532 Survival Analysis

★3 (fi 6) (either term, 3-0-0). Survival distribution and hazard rate, Kaplan-Meier estimator, Greenwood's formula. Log-rank and weighted log-rank tests, asymptotic methods. Regression models including Cox proportional hazards Model and accelerated failure time models. Likelihood and partial likelihood for survival models; diagnostics. Prerequisite: STAT 466 or consent of Department.

#### STAT 558 Techniques of Statistical Analysis I

★3 (fi 6) (either term, 3-0-0). The contents will be selected each year from applied topics. Prerequisite: consent of Department.

#### STAT 559 Techniques of Statistical Analysis II

★3 (fi 6) (either term, 3-0-0). The contents will be selected each year from applied topics. Prerequisite: consent of Department.

#### STAT 561 Sample Survey Methodology

★3 (fi 6) (either term, 3-0-0). Review of basic sampling schemes: simple random sampling, and stratified random sampling, and systematic sampling. Multistage sampling schemes. Estimation of nonlinear parameters: ratios, regression coefficients, and correlation coefficients. Variance estimation techniques: linearization, BRR, jackknife, and bootstrap. Selected topics: model-based estimation, regression analysis from complex survey data. Relevant computer packages. Prerequisites: STAT 361, 466, 471.

#### STAT 562 Discrete Data Analysis

★3 (fi 6) (either term, 3-0-0). Sampling models and methods of inference for discrete data. Maximum likelihood estimation for complete contingency tables, measures of association and agreement. Goodness-of-fit. Incomplete tables. Analysis of square tables; symmetry and marginal homogeneity. Model selection and closeness of fit; practical aspects. Chi-square tests for categorical data from complex surveys. Prerequisite: STAT 466.

#### STAT 566 Methods of Statistical Inference

★3 (fi 6) (either term, 3-0-0). An introduction to the theory of statistical inference. Topics to include exponential families and general linear models, likelihood, sufficiency, ancillarity, interval and point estimation, asymptotic approximations. Optional topics as time allows, may include Bayesian methods, Robustness, resampling techniques. This course is intended primarily for MSc students. Prerequisite: STAT 466 or consent of Department.

#### STAT 567 Theory of Statistical Inference

★3 (fi 6) (either term, 3-0-0). A treatment of the material of STAT 566 with a more theoretical emphasis, as well as additional topics in mathematical statistics. Intended primarily for PhD students. Prerequisites: STAT 571 and consent of Department.

#### STAT 568 Design and Analysis of Experiments

★3 (fi 6) (either term, 3-0-0). The general linear model. Fully randomized designs, one-way layout, multiple comparisons. Block designs, Latin squares. Factorial designs confounding, fractions. Nested designs, randomization restrictions. Response surface methodology. Analysis of covariance. Prerequisite: STAT 378. Corequisites: STAT 466, 471.

#### STAT 569 Asymptotic Methods in Statistical Inference

★3 (fi 6) (either term, 3-0-0). Approximation techniques and asymptotic methods in statistics. Topics may include second and higher order expansions, asymptotic of likelihood based estimation and testing, Edgeworth expansions, exponential tilting, asymptotic relative efficiency, U-, M-, L- and R-estimation. Prerequisites: STAT 566 or 567, and consent of Department.

#### STAT 571 Applied Measure Theory for Probability

★3 (fi 6) (either term, 3-0-0). Measure and integration, Laws of Large Numbers, convergence of probability measures. Conditional expectation as time permits. Prerequisites: STAT 471 and STAT 512 or their equivalents.

#### STAT 575 Multivariate Analysis

★3 (fi 6) (either term, 3-0-0). The multivariate normal distribution, multivariate regression and analysis of variance, classification, canonical correlation, principal components, factor analysis. Prerequisite: consent of Department. STAT 575 may not be taken for credit if credit has already been obtained in STAT 475.

#### STAT 578 Regression Analysis

★3 (fi 6) (either term, 3-0-0). Multiple linear regression, ordinary and generalized least squares, partial and multiple correlation. Regression diagnostics, collinearity, model building. Nonlinear regression. Selected topics: robust and nonparametric regression, measurement error models. Prerequisites: STAT 378 and a 400-level statistics course.

#### STAT 580 Stochastic Processes

★3 (fi 6) (either term, 3-0-0). Elements of stochastic processes. Discrete and continuous time Markov Chains; Birth and Death processes. Branching processes. Brownian Motion. General Stationary and Markov processes. Examples. Prerequisite: STAT 471 or consent of Instructor.

#### STAT 590 Statistical Consulting

★3 (fi 6) (first term, 3-0-0). Data analysis, problem solving, oral communication with clients, issues in planning experiments and collecting data; practical aspects of consulting and report writing. Prerequisite: STAT 568, 578 or their equivalents.

#### STAT 600 Reading in Statistics

★3 (fi 6) (either term, 3-0-0). Students will be supervised by an individual staff member to participate in areas of research interest of that staff member. Students can register only with the permission of the Chair of the Department in special circumstances. Will not be counted toward the minimum course requirement for graduate credits.

#### STAT 671 Probability Theory I

★3 (fi 6) (either term, 3-0-0). Zero-one laws, sums of independent random variables, three-series criterion, laws of iterated logarithm, laws of large numbers, convergence in distribution, characteristic functions. Bochner's theorem, central limit theorems, discrete time martingales. Prerequisite: STAT 571 or MATH 563 or equivalent.

#### STAT 672 Probability Theory II

★3 (fi 6) (either term, 3-0-0). Martingales and martingale inequalities, stopping theorems, local martingales, quadratic variation. Wiener and Poisson processes, stochastic integration. Ito's formula, semimartingales, Girsanov's theorem, introduction to stochastic differential equations, Markov processes, diffusion. Prerequisite: STAT 671 or equivalent.

#### STAT 679 Time Series Analysis

★3 (fi 6) (either term, 3-0-0). The autocorrelation function and spectrum and their estimates. Linear stationary models; autoregressive, moving average, and mixed models. Linear nonstationary models; autoregressive integrated moving average models. Forecasting. Model identification and estimation. Spectral analysis. Prerequisite: STAT 466 or equivalent.

#### STAT 766 Topics in Statistics I

★3 (fi 6) (either term, 3-0-0).

#### STAT 772 Topics in Probability II

★3 (fi 6) (either term, 3-0-0).

#### STAT 900 Directed Research Project

★6 (fi 12) (variable, unassigned). Open only to students taking the MSc non-thesis option in statistics.

## 201.206 Statistique, STATQ

Faculté Saint-Jean

### Cours de 1er cycle

#### STATQ 151 Introduction à la statistique appliquée I

★3 (fi 6) (l'un ou l'autre semestre, 3-0-2). Collecte de données et leur présentation, statistiques descriptives. Loi de probabilité, distribution d'échantillonnage et théorème limite central, estimation ponctuelle et tests d'hypothèses. Corrélation et régression linéaire simple. Mesure d'ajustement et tableaux de contingences. Préalable(s): Mathématiques 30. Note: Ce cours n'est pas accessible aux étudiants ayant ou postulant des crédits pour un cours de STAT, PSYCO 211, SC SOC 322, ou SOC 210.

## 201.207 Surgery, SURG

Department of Surgery  
Faculty of Medicine and Dentistry

### Undergraduate Courses

#### SURG 546 Surgery Student Internship

★6 (fi 12) (either term, 6 weeks). Student internship for students registered in the MD program.

#### SURG 556 Surgery Student Internship

★6 (fi 12) (either term, 6 weeks). Student internship for students registered in the MD Program.

### Graduate Courses

#### SURG 510 Gene Transfection and Expression

★3 (fi 6) (first term, 1-0-3 in 4 weeks). This course will prepare graduate students

for carrying out projects requiring molecular biology techniques. Topics to be covered include preparation of competent bacteria; bacterial transformation with gene of interest; growing transformed bacteria in a large scale; isolation of plasmid DNA containing gene of interest; isolation of DNA insert by electrocloture method to be used as a probe; gene transfection of human mammalian cells such as dermal fibroblasts; preparation of total RNA from transfected and untransfected cells; separation of RNA by gel electrophoresis; RNA blotting and hybridization with probe of interest; DNA labelling; analysis of corresponding protein as a gene product in transfected cells using a variety of techniques including ELISA, Western blot analysis, immunohistochemistry or receptor assay. It will provide students with an understanding of the basic science on which these techniques will be based. This course is intended for Surgical Residents and Fellows working in experimental surgery. Prerequisite: consent of Department.

#### **SURG 520 Directed Reading in Biomedical Research**

★3 (fi 6) (two term, 2-0-0). Lecture series on research techniques in the biomedical sciences intended for students with an advanced medical background. Prerequisite: consent of Department

#### **SURG 530 Directed Reading in Biology and Medicine**

★3 (fi 6) (either term, 3-0-0). Reading and study of topics in biomedical research of relevance to the student's interest under direction of one or more faculty members.

#### **SURG 555 Microvascular Surgery**

★3 (fi 6) (either term, 40 hours). The course reviews the fundamentals of microvascular surgery, and then allows supervised instruction in techniques including dissection, vascular anastomosis, mobilization of free flaps of vascularized tissue, transplantation and vein grafts. This course is intended for individuals with an extensive background in the theory and practice of surgery such as Surgery Residents and experienced researchers in the field. Prerequisite: consent of Department.

#### **SURG 600 Research Seminar**

★2 (fi 4) (two term, 0-1s-0). A weekly series of seminars on current research is held during Fall and Winter Terms. Graduate students must attend and make two presentations in this series.

## 201.208 Swedish, SWED

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

#### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with a Swedish language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in a more advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.
- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) See also Scandinavian (SCAND) listings.

### Undergraduate Courses

#### **SWED 111 Beginners' Swedish I**

★3 (fi 6) (either term, 5-0-0). Designed to give basic practical skill in everyday spoken and written Swedish. The oral approach, using the laboratory, is followed. Note: not to be taken by students with credit in SWED 100, or with native or near native proficiency, or with Swedish 30 or its equivalents in Canada and other countries.

#### **SWED 112 Beginners' Swedish II**

★3 (fi 6) (either term, 5-0-0). Prerequisite: SWED 111 or consent of Department. Note: not to be taken by students with credit in SWED 100, or with native or near native proficiency, or with Swedish 30 or its equivalents in Canada and other countries.

#### **SWED 211 Second-Year Swedish I**

★3 (fi 6) (either term, 4-0-0). Reading and study of selected texts in Swedish literature and culture. Conversation and composition. Prerequisite: Swedish 30 (or equivalent) or SWED 112 or consent of Department. Note: not to be taken by students with credit in SWED 200.

#### **SWED 212 Second-Year Swedish II**

★3 (fi 6) (either term, 4-0-0). Prerequisite: SWED 211 or consent of Department. Note: not to be taken by students with credit in SWED 200.

## 201.209 Thesis, THES

Faculty of Graduate Studies and Research

### Graduate Courses

#### **THES 901 Thesis Research**

★0 (fi 2) (either term, unassigned). Represents research activity equivalent to ★1 for registration status and fee assessment purposes. Approval of the Faculty of Graduate Studies and Research required.

#### **THES 902 Thesis Research**

★0 (fi 4) (either term, unassigned). Represents research activity equivalent to ★2 for registration status and fee assessment purposes. Approval of Faculty of Graduate Studies and Research required.

#### **THES 903 Thesis Research**

★0 (fi 6) (either term, unassigned). Represents research activity equivalent to ★3 for registration status and fee assessment purposes.

#### **THES 904 Thesis Research**

★0 (fi 8) (either term, unassigned). Represents research activity equivalent to ★4 for registration status and fee assessment purposes.

#### **THES 905 Thesis Research**

★0 (fi 10) (either term, unassigned). Represents research activity equivalent to ★5 for registration status and fee assessment purposes.

#### **THES 906 Thesis Research**

★0 (fi 12) (either term, unassigned). Represents research activity equivalent to ★6 for registration status and fee assessment purposes.

#### **THES 907 Thesis Research**

★0 (fi 14) (either term, unassigned). Represents research activity equivalent to ★7 for registration status and fee assessment purposes.

#### **THES 908 Thesis Research**

★0 (fi 16) (either term, unassigned). Represents research activity equivalent to ★8 for registration status and fee assessment purposes.

#### **THES 909 Thesis Research**

★0 (fi 18) (either term, unassigned). Represents research activity equivalent to ★9 for registration status and fee assessment purposes.

#### **THES 910 Thesis Research**

★0 (fi 0) (either term, unassigned). For special purposes. Approval of Faculty of Graduate Studies and Research required.

## 201.210 Tibetan, TIBET

Department of East Asian Studies  
Faculty of Arts

### Undergraduate Courses

#### **TIBET 201 Introduction to Literary Tibetan**

★3 (fi 6) (either term, 3-0-0). An introduction to Tibetan literary language up to reading simple texts. Not open to students with credit in TIBET 100.

#### **TIBET 301 Readings in Literary Tibetan**

★3 (fi 6) (either term, 3-0-0). A selection of historical and religious texts in the original. Prerequisite: TIBET 201. May be repeated for credit when course content differs.

## 201.211 Ukrainian, UKR

Department of Modern Languages and Cultural Studies:  
Germanic, Romance, Slavic  
Faculty of Arts

#### Notes

- (1) The Department reserves the right to place students in the language course appropriate to their level of language skill.
- (2) Placement tests may be administered in order to assess prior background. Students with a Ukrainian language background should consult a Department advisor. Such students may be granted advanced placement and directed to register in an advanced course more suitable to their level of ability. Students seeking to fulfill their Language Other than English requirement may begin at any one appropriate level, but must take the full ★6 in one language.

- (3) The Department will withhold credit from students completing courses for which prior background is deemed to make them ineligible. For example, 100-level courses are normally restricted to students with little or no prior knowledge in that language. Should a student with matriculation standing, or those possessing prior background (such as native speakers or those for whom it is their first language) register in the 100-level course, credit may be withheld.
- (4) See also INT D 439 for a course which is offered by more than one department or Faculty and which may be taken as an option or as a course in the Folklore specialization.
- (5) See also HIST 315, 316, 317, INT D 444 and C LIT 362 to select one of the required courses in the Language and Literature specialization.

## Undergraduate Courses

### UKR 111 Beginners' Ukrainian I

★3 (fi 6) (either term, 5-0-0). For students with little or no background in Ukrainian, the course emphasizes oral communication while developing basic listening, reading and writing skills. Cultural practices are taught as an integral part of the language. Note: not to be taken by students with credit in UKR 100, or with native or near native proficiency, or with Ukrainian 30 or its equivalents in Canada and other countries.

### UKR 112 Beginners' Ukrainian II

★3 (fi 6) (either term, 5-0-0). Prerequisite: UKR 111 or consent of Department. Note: not to be taken by students with credit in UKR 100, or with native or near native proficiency, or with Ukrainian 30 or its equivalents in Canada and other countries.

### UKR 211 The Ukrainian-speaking World I

★3 (fi 6) (either term, 4-0-0). Contemporary language and culture through newspapers, magazines, TV and the Internet. Prerequisite: Ukrainian 30 (or equivalent matriculation standing), or UKR 112, or consent of Department. Note: not to be taken by students with credit in UKR 150, 201, 202, 203, 204.

### UKR 212 The Ukrainian-speaking World II

★3 (fi 6) (either term, 4-0-0). Focus on elementary conversation and composition. Prerequisite: UKR 211 or consent of Department. Note: not to be taken by students with credit in UKR 150, 202, 204.

### UKR 300 Ukrainian through its Living Culture

★6 (fi 12) (either term, 3-0-0). Practical language skills with a direct experience of Ukrainian life and culture in the Lviv environment. The language of instruction is Ukrainian. Prerequisite: UKR 204 or consent of Department.

### UKR 301 Reading and Speaking Ukrainian

★3 (fi 6) (either term, 3-0-0). A variety of written and audio-visual texts explore social and cultural issues, and serve as a basis for developing active vocabulary and oral proficiency. Readings include selection made by students. A companion course to UKR 204 or 304. Pre- or corequisite: UKR 204 (or former 150, 202) or consent of Department. Note: not to be taken by students enrolled in 400-level Ukrainian language courses.

### UKR 303 Ukrainian in Context I

★3 (fi 6) (either term, 3-0-0). Conversation and writing through films, news items, short stories and plays. Prerequisite: UKR 204 (formerly 150, 202), or consent of Department. Note: not to be taken by students with credit in UKR 401 or 402.

### UKR 304 Ukrainian in Context II

★3 (fi 6) (either term, 3-0-0). Prerequisite: UKR 303 (formerly 401) or consent of Department. Note: not to be taken by students with credit in UKR 402.

### UKR 324 Ukrainian Culture I

★3 (fi 6) (either term, 3-0-0). Comparison among contemporary life in Ukraine today, Ukrainian Canadian culture, and traditional village life in the past. Focus is on everyday life and spiritual culture. Language of instruction is English. This course does not fulfil the language other than English requirement of the BA.

### UKR 325 Ukrainian Culture II

★3 (fi 6) (either term, 3-0-0). Comparison among contemporary life in Ukraine today, Ukrainian Canadian culture, and traditional village life in the past. Focus is on community relationships, arts, recreation, cultural representation and change. This course does not fulfil the language other than English requirement of the BA.

### UKR 327 Early Ukrainian-Canadian Culture

★3 (fi 6) (either term, 3-0-0). Immigration, settlement, traditions and material culture of Ukrainians in Alberta to 1930, with special reference to activities at the Ukrainian Cultural Heritage Village. Note: This course is given in Spring/Summer only. Language of instruction is English. This course will not fulfil the Language other than English requirement of the BA degree.

### UKR 403 Ukrainian in the Media and Internet

★3 (fi 6) (either term, 3-0-0). Practical language skills in the context of life in Ukraine through traditional and contemporary media. Debates, interviews and opinion polls. Basic discourse analysis. Prerequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 404 Ukrainian on TV and in Film

★3 (fi 6) (either term, 3-0-0). Advanced language course with creative writing, critiques and discussions. Prerequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 405 Children's Literature in Ukrainian

★3 (fi 6) (either term, 3-0-0). Advanced language skills for the future teacher through a survey of poetry, tales, legends and riddles adapted for the young reader. Prerequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 406 Business Ukrainian

★3 (fi 6) (either term, 3-0-0). Advanced modern Ukrainian with emphasis on the vocabulary and communication style of the Ukrainian business world. Prerequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 407 Translating Literature: Ukrainian to English

★3 (fi 6) (either term, 3-0-0). Evaluation and comparison of existing translations, and extensive practical exercises. Prerequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 410 Language Issues in Contemporary Ukraine

★3 (fi 6) (either term, 3-0-0). The language situation in Ukraine after independence: language contact, language maintenance, language shift, the language of mass media and the Internet. Prerequisite: consent of Department.

### UKR 411 The Style and Structure of Contemporary Ukrainian

★3 (fi 6) (either term, 3-0-0). Ukrainian and its various styles including dialects, jargon and slang. Prerequisite or corequisite: UKR 304 (formerly 402), or consent of Department.

### UKR 422 Ukrainian Folk Songs

★3 (fi 6) (either term, 3-0-0). A survey of the folk song genres, with analysis of texts in the original. Some field work. Prerequisite: UKR 301 or consent of Department.

### UKR 423 Ukrainian Folk Prose

★3 (fi 6) (either term, 3-0-0). A survey of the prose and minor verbal genres, with analysis of texts in the original. Some field work. Pre- or corequisite: UKR 301 or consent of Department.

### UKR 425 Ukrainian Rites of Passage

★3 (fi 6) (either term, 3-0-0). Examines rites of passage for birth, marriage and death. Some field work. Prerequisites: UKR 301 and ANTHR 207 or consent of Department.

### UKR 426 Ukrainian Calendar Customs

★3 (fi 6) (either term, 3-0-0). Examines seasonal folk customs, including winter, spring, summer and autumn rites. Some field work. Pre- or corequisite: UKR 301; prerequisite: ANTHR 207 or consent of Department.

### UKR 427 Ukrainian Material Culture

★3 (fi 6) (either term, 3-0-0). Investigation of selected aspects of the vernacular material culture of Ukrainians and Ukrainian Canadians, including village dress, architecture, agricultural techniques, and folk crafts. Prerequisite: ANTHR 207 or consent of Department.

### UKR 428 Ukrainian Folk Art and Performance

★3 (fi 6) (either term, 3-0-0). Investigation of selected aspects of Ukrainian folk arts, their performance processes and material manifestations. Topics include embroidery, egg decoration, folk medicine, games, folk movement, and drama. Prerequisite: ANTHR 207 or consent of Department.

### UKR 469 Civilization and Culture in Ukraine: 988-1794

★3 (fi 6) (either term, 3-0-0). Major trends in thought of pre-secular Ukraine. The literary, iconographic and musical legacy of Kyivan and Galician-Volynian Rus' and its transformation during the Ruthenian renaissance. Lectures in English. Readings available in English for students not taking Ukrainian as a major or minor. Otherwise modern Ukrainian translations will be assigned.

### UKR 472 Ukrainian Realism

★3 (fi 6) (either term, 3-0-0). Realist trends in the short story, novel, and drama from the second-half of the 19th-century to the 1920s. Populism, psychologism, and class conflict are some of the issues addressed. Prerequisite: UKR 301; or corequisite UKR 303 or 304 or consent of Department.

### UKR 473 Ukrainian Modernism and Avant-Garde

★3 (fi 6) (either term, 3-0-0). The dramatic revolt against 19th-century aesthetics from the 1890s to 1930. Selected poetry, short prose, drama, and manifestoes highlight the philosophical and formal innovations introduced by such movements as symbolism, futurism, and constructivism. Analogies are drawn to the visual arts. Prerequisite: UKR 301; or corequisite UKR 303 or 304 or consent of Department.

### UKR 474 Ukrainian Literature: Diaspora and Dissent

★3 (fi 6) (either term, 3-0-0). Works in the diaspora (1940s - 1980s) are compared and contrasted with Soviet Ukraine's official and dissident literature. The focus is on the New York Group and the writers of the Sixties, with emphasis on their innovations in poetic language and themes. Prerequisite: consent of Department. Note: Readings are available in English for students not taking Ukrainian as a major or minor.

**U KR 475 Ukrainian Literature Today**

★3 (fi 6) (either term, 3-0-0). The course begins with developments on the eve of Ukrainian independence (1991). The dramatic transformation of literature is surveyed against the background of the collapse of communism and socialist realism. Emphasis is on the youngest and most radical generation of writers and critics, their styles, themes, and ideologies. Prerequisite: consent of Department. Note: Readings are available in English for students not taking Ukrainian as a major or minor.

**UKR 495 Honors Thesis**

★3 (fi 6) (either term, 0-3s-0).

**UKR 499 Special Topics**

★3 (fi 6) (either term, 3-0-0).

**Graduate Courses****UKR 503 Ukrainian in the Media and Internet**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 504 Ukrainian on TV and in Film**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 510 Language Issues in Contemporary Ukraine**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 515 Early-Modern Ukrainian Poetry and Drama (1550s-1780s)**

★3 (fi 6) (either term, 3-0-0). The impact of humanistic theory on the linguistic and formal features of occasional verse, religious lyric, school drama, and political dialogue. Course also considers the alternative poetics of the love lyric, the puppet theatre, and the oral epic. Authors include H Smotrytsky, K Sakovych, L Baranovych, I Velychkovsky, S Iavorsky, T Prokopovych, M Dohalevsky, and H Skovoroda. Reading knowledge of Middle Ukrainian (i.e., Ruthenian) or Polish or Latin desirable. Prerequisite: consent of Department.

**UKR 522 Ukrainian Folk Songs**

★3 (fi 6) (either term, 3-0-0). A survey of the folk song genres, with analysis of texts in the original. Some field work. Prerequisite: consent of Department.

**UKR 523 Ukrainian Folk Prose**

★3 (fi 6) (either term, 3-0-0). A survey of the prose and minor verbal genres, with analysis of texts in the original. Some field work. Prerequisite: consent of Department.

**UKR 525 Ukrainian Rites of Passage**

★3 (fi 6) (either term, 3-0-0). Examines rites of passage for birth, marriage and death. Some field work. Prerequisite: consent of Department.

**UKR 526 Ukrainian Calendar Customs**

★3 (fi 6) (either term, 3-0-0). Examines seasonal folk customs, including winter, spring, summer and autumn rites. Some field work. Prerequisite: consent of Department.

**UKR 527 Ukrainian Material Culture**

★3 (fi 6) (either term, 3-0-0). Investigation of selected aspects of the vernacular material culture of Ukrainians and Ukrainian Canadians, including village dress, architecture, agricultural techniques, and folk crafts. Prerequisite: consent of Department.

**UKR 528 Ukrainian Folk Art and Performance**

★3 (fi 6) (either term, 3-0-0). Investigation of selected aspects of Ukrainian folk arts, their performance processes and material manifestations. Topics include embroidery, egg decoration, folk medicine, games, folk movement, and drama. Prerequisite: consent of Department.

**UKR 531 History of Ukrainian Folklore Studies**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 532 Ukrainian Folklore in Canada**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 551 Cultural History of the Ukrainian Language**

★3 (fi 6) (either term, 3-0-0). The growth and development of Ukrainian from its origins to the present day. Prerequisite: consent of Department.

**UKR 565 Women in Culture: Fictional Characters/Feminist Writers**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 569 Civilization and Culture in Ukraine: 988-1794**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 571 Ukrainian Romanticism**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 572 Ukrainian Realism**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 573 Ukrainian Modernism and Avant-Garde**

★3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

**UKR 574 Ukrainian Literature: Diaspora and Dissent**

★3 (fi 6) (either term, 3-0-0). Focus on theories of exile and the literature of displacement. Prerequisite: consent of Department.

**UKR 575 Ukrainian Literature Today**

★3 (fi 6) (either term, 3-0-0). Focus on post-colonial theories of art. Prerequisite: consent of Department.

**UKR 631 Ukrainian Folklore Theory Studies**

★3 (fi 6) (either term, 3-0-0).

**UKR 632 Ukrainian Folklore Research Methods**

★3 (fi 6) (either term, 3-0-0).

**UKR 642 Studies in Ukrainian Drama**

★3 (fi 6) (either term, 3-0-0). Detailed study of major dramatic works of the 19th and 20th centuries.

**UKR 645 Studies in Ukrainian Literary Criticism**

★3 (fi 6) (either term, 3-0-0). Detailed study of major critical texts from the 19th and 20th centuries.

**UKR 697 Topics in Ukrainian Folklore**

★3 (fi 6) (either term, 3-0-0).

**UKR 698 Topics in Ukrainian Linguistics**

★3 (fi 6) (either term, 3-0-0).

**UKR 699 Topics in Ukrainian Literature**

★3 (fi 6) (either term, 3-0-0).

**UKR 900 Directed Research Project**

★6 (fi 12) (variable, unassigned).

**201.212 Université, UNTE**

Faculté Saint-Jean

**Cours de 1er cycle****UNTE 101 Initiation aux études universitaires**

★0 (fi 2) (l'un ou l'autre semestre, 12 heures). Une série de séminaires visant à faciliter la réussite académique au niveau universitaire. Méthodes d'étude et de recherche. Introduction au réseau des bibliothèques et à l'utilisation de l'Internet. Note: ce cours est fortement recommandé pour tous les étudiants de première année inscrits à la Faculté Saint-Jean.

**201.213 University, UNIV**

Faculty of Agriculture, Forestry, and Home Economics

**Undergraduate Courses****UNIV 101 First-Year Experience I**

★2 (fi 0) (either term, 0-3s-0). Topics relevant to successful academic performance including study skills, use of campus resources, stress management, and career planning. Intended for students in the Transitional Year Program. (Native Student Services.) Students in other programs will be assessed four units of fee index (fi 4).

**UNIV 102 First -Year Experience II**

★2 (fi 0) (second term, 0-3s-0). Exploration and application of university regulations, faculty expectations, pathways to academic excellence, and practical methods for surviving the challenges of first year on campus. Intended for students in the Transitional Year Program. (Native Student Services.) Students in other programs will be assessed four units of fee index (fi 4).

**201.214 Women's Studies, W ST**

Women's Studies Program  
Faculty of Arts

**Undergraduate Courses****W ST 201 Introduction to Women's Studies**

★3 (fi 6) (either term, 3-0-0). Introduces students to the field of Women's Studies, with emphasis on the theoretical foundations of feminist analysis and the diversity of debates within feminism. Not open to students who have successfully completed W ST 200.

**W ST 202 Current Issues in Women's Studies**

★3 (fi 6) (either term, 3-0-0). Examines current and emerging topics and analytic perspectives in Women's Studies. Topics include women as individuals; women's

families and communities; women's involvement in health, science, work, popular culture, religion, politics and social change. Prerequisite: W ST 201 or consent of the Department. Not open to students who have successfully completed W ST 200.

#### **W ST 301 History of Feminist Thought**

★3 (fi 6) (either term, 3-0-0). The development of feminist thought and theories from the 18th to the 20th century, including the contributions of, and tensions among various feminisms. Prerequisites: W ST 200, or 201, or consent of the Program.

#### **W ST 302 Feminist Research and Methodologies**

★3 (fi 6) (either term, 3-0-0). Whether there can be and is a distinctive feminist perspective on research in various disciplines; the ways in which taking a feminist perspective or taking account of women in research, affects the research process. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 305 Women and Work**

★3 (fi 6) (either term, 0-3s-0). This course surveys women's paid employment, and domestic work, examining the nature of work women do and the interrelation between different forms of female labor. Canada provides the focal point of the course, with comparisons being drawn to other industrialized countries. Prerequisite: W ST 200, or 201, or consent of Program.

#### **W ST 310 Women in Development**

★3 (fi 6) (either term, 3-0-0). This course deals with development issues, such as work, health, environment, and human rights among women in developing countries. Prerequisite: W ST 200, or 201, or consent of Program. Not available to students with credit in R SOC 310.

#### **W ST 320 Popular Culture/Feminist Culture**

★3 (fi 6) (either term, 3-0-0). This course examines selected cultural forms in Canadian and American society from feminist perspectives. The focus is both on developing a feminist critique of cultural representations of women, and on considering the possibilities of feminist intervention in and production of popular culture. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 330 Feminist Perspectives on Women, Counselling and Psychoanalysis**

★3 (fi 6) (either term, 3-0-0). This course studies women's relationship to counselling and psychoanalysis from interdisciplinary and feminist points of view. Gender, mental illness and 'madness' will be examined from within historical, social and theoretical frameworks. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 332 Contemporary Feminist Theory**

★3 (fi 6) (either term, 3-0-0). The origins and evolution of various schools of contemporary western feminist thought. Prerequisite: W ST 200 or 201 or consent of Program. Not available to students with credit in PHIL 332.

#### **W ST 350 Women and Science**

★3 (fi 6) (either term, 3-0-0). This course will explore the roles of women in science, and the ways in which scientific theory and practice might better accommodate women's ideas, lives, and ways of knowing. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 360 Race, Class and Gender in Canada**

★3 (fi 6) (either term, 0-3s-0). Historical, contemporary and comparative perspectives on the interaction of race, class, and gender experiences in multicultural Canada. Prerequisite: W ST 200 or 201 or consent of Program.

#### **W ST 400 Feminist Ethics: An Interdisciplinary Approach**

★3 (fi 6) (either term, 0-3s-0). A critical exploration of moral agency, moral language, moral identity, moral relationships, and moral community in the context of asymmetrical power as these relate to selected ethical issues affecting women's lives. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 401 Directed Readings in Women's Studies**

★3 (fi 6) (either term, 0-3s-0). Open only to Women's Studies honors, majors and minors. May be taken only once. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 402 Honors Seminar and Project**

★6 (fi 12) (two term, 0-3s-0). Prerequisite: W ST 200, or 201, and 302.

#### **W ST 410 Feminism/Postmodernism**

★3 (fi 6) (either term, 0-3s-0). An introductory exploration of tensions, disadvantages, and advantages of postmodernism for feminist theory and practice in relation to cultural and political issues such as representation, agency, identity/difference/ambiguity, nature, bodies, sexualities, and community. Prerequisite: W ST 200, or 201, or consent of the Program. Not open to students with credit in W ST 300.

#### **W ST 420 Law and Feminism in Canada**

★3 (fi 6) (either term, 0-3s-0). A focus on the fundamentally contradictory role of law for women in Canada, building upon role of insights offered by feminist cross-disciplinary legal scholarship. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 430 Sexuality**

★3 (fi 6) (either term, 0-3s-0). Feminist analyses of, and alternatives to, the dominant 20th-century discourses that have defined women's sexualities. Prerequisite: W ST 200 or 201 or consent of Program.

#### **W ST 497 History of Women and Health**

★3 (fi 6) (either term, 0-3s-0). This seminar examines the multicultural history of women as health practitioners, patients, and health activists in North America. Prerequisite: W ST 200, or 201, or consent of the Program.

#### **W ST 498 Topics in Women's Studies**

★3 (fi 6) (either term, 0-3s-0). Prerequisite: W ST 200, or 201, or consent of the Program.

## Graduate Courses

#### **W ST 500 Directed Reading in Women's Studies**

★3 (fi 6) (either term, 0-3s-0).

## 201.215 Work Experience, WKEXP

### Undergraduate Courses

#### 201.215.1 Faculty of Agriculture, Forestry, and Home Economics Courses

##### **WKEXP 981 Agriculture, Forestry, and Home Economics Work Experience I**

★0 (fi 9) (Spring/Summer, unassigned). A four-month work placement for Faculty of Agriculture, Forestry, and Home Economics students admitted into the Internship program. The work experience provides the student with exposure to the practical application of their specialization and the general work environment. Evaluation is based on appraisal of employer and mentor.

##### **WKEXP 982 Agriculture, Forestry, and Home Economics Work Experience II**

★0 (fi 9) (first term, unassigned). A four-month work placement for Faculty of Agriculture, Forestry, and Home Economics students admitted into the Internship program. The work experience provides the student with exposure to the practical application of their specialization and the general work environment. Evaluation is based on appraisal of employer and mentor.

##### **WKEXP 983 Agriculture, Forestry, and Home Economics Work Experience III**

★0 (fi 9) (second term, unassigned). A four-month work placement for Faculty of Agriculture, Forestry, and Home Economics students admitted into the Internship program. The work experience provides the student with exposure to the practical application of their specialization and the general work environment. Evaluation is based on appraisal of employer and mentor.

#### 201.215.2 Faculty of Arts Courses

##### **WKEXP 801 Arts Work Experience I**

★0 (fi 9) (either term, unassigned). A four-month work placement for Faculty of Arts students participating in the Cooperative Education route. The focus of the work experience will be for the student to gain an appreciation of the work environment related to their discipline. Prerequisite: consent of the Department in which the student is majoring.

##### **WKEXP 802 Arts Work Experience II**

★0 (fi 9) (either term, unassigned). A four-month work placement for Faculty of Arts students participating in the Cooperative Education route. The focus of the work experience will be for the student to gain an appreciation of the work environment related to their discipline. Prerequisite: WKEXP 801 and consent of the Department in which the student is majoring.

##### **WKEXP 803 Arts Work Experience III**

★0 (fi 9) (either term, unassigned). A four-month work placement for Faculty of Arts students participating in the Cooperative Education route. The focus of the work experience will be for the student to gain an appreciation of the work environment related to their discipline. Prerequisite: WKEXP 802 and consent of the Department in which the student is majoring.

##### **WKEXP 961 Psychology Work Experience I**

★0 (fi 9) (either term, unassigned). A four-month work placement for Psychology students in the Faculty of Arts in the Psychology Cooperative Program. The focus of the work experience will be for the student to gain an appreciation of the work environment. Prerequisite: consent of Department.

##### **WKEXP 962 Psychology Work Experience II**

★0 (fi 9) (either term, unassigned). A four-month work placement for Psychology students in the Faculty of Arts in the Psychology Cooperative Program. The focus

of the work experience will be for the student to gain further knowledge of the work environment. Prerequisite: WKEXP 961.

#### **WKEXP 963 Psychology Work Experience III**

★0 (fi 9) (either term, unassigned). A four-month work placement for Psychology students in the Faculty of Arts in the Psychology Cooperative Program. The focus of the work experience is to further the student's knowledge of the working world. Prerequisite: WKEXP 962.

#### **WKEXP 970 Honors Work Term**

★0 (fi 9) (either term, unassigned). Prerequisites: Department and Faculty approval.

#### **WKEXP 971 Honors Work Assignment**

★0 (fi 6) (either term, unassigned). Prerequisites: Department and Faculty approval.

### 201.215.3 Faculty of Business Courses

#### **WKEXP 911 Business Work Experience I**

★0 (fi 12) (either term, unassigned). A four-month work placement for Business students admitted into the cooperative education option. The focus of the work experience will be for the student to gain an appreciation of the work environment. Evaluation will be based on the employer's performance appraisal, the cooperative education coordinator's site evaluation report, and the student's performance on the work-term report.

#### **WKEXP 912 Business Work Experience II**

★0 (fi 12) (either term, unassigned). A four-month work placement for Business students admitted into the cooperative education option. The focus of the work experience will be for the student to gain experience in their chosen field of specialization. Evaluation will be based on the employer's performance appraisal, the cooperative education coordinator's site evaluation report, and the student's performance on the work-term report. Prerequisite: WKEXP 911.

#### **WKEXP 913 Business Work Experience III**

★0 (fi 12) (either term, unassigned). A four-month work placement for Business students admitted into the cooperative education option. The focus of the work experience will be for the student to perform work directly related to their specialization. Evaluation will be based on the employer's performance appraisal, the cooperative education coordinator's site evaluation report, and the student's performance on the work-term report. Prerequisite: WKEXP 912.

### 201.215.4 Faculty of Engineering Courses

#### **WKEXP 901 Engineering Work Experience I**

★0.5 (fi 7) (either term or Spring/Summer, unassigned). A four-month work placement for Engineering students registered in the Cooperative Education Program. This work experience will provide the student with exposure to the practical application of engineering and the general work environment. Evaluation will be based on the employer's performance appraisal, the student's work term report, and the student's ability to learn from the experiences of the work term. Prerequisite: ENGG 299.

#### **WKEXP 902 Engineering Work Experience II**

★0.5 (fi 7) (either term or Spring/Summer, unassigned). A four-month work placement for Engineering students registered in the Cooperative Education Program. This work experience will provide the student with exposure to the practical application of engineering and the general work environment. Evaluation will be based on the employer's performance appraisal, the student's work term report, and the student's ability to learn from the experiences of the work term. Prerequisite: WKEXP 901.

#### **WKEXP 903 Engineering Work Experience III**

★0.5 (fi 7) (either term or Spring/Summer, unassigned). A four-month work placement for Engineering students registered in the Cooperative Education Program. This work experience will provide students with personal involvement in the practice of their engineering discipline commensurate with their level of academic preparation. Evaluation will be based on the employer's performance appraisal, the student's work term report, and the student's ability to learn from the experiences of the work term. Prerequisite: WKEXP 902.

#### **WKEXP 904 Engineering Work Experience IV**

★0.5 (fi 7) (either term or Spring/Summer, unassigned). A four-month work placement for Engineering students registered in the Cooperative Education Program. This work experience will provide students with personal involvement in the practice of their engineering discipline commensurate with their level of academic preparation. Evaluation will be based on the employer's performance appraisal, the student's work term report, and the student's ability to learn from the experiences of the work term. Prerequisite: WKEXP 903.

#### **WKEXP 905 Engineering Work Experience V**

★3 (fi 7) (either term or Spring/Summer, unassigned). A four-month work placement for Engineering students registered in the Cooperative Education Program. This work experience will provide students with personal involvement in the practice of their engineering discipline commensurate with their level of academic preparation. Evaluation will be based on the employer's performance appraisal, the student's work term report, and the student's ability to learn from the experiences of the work term. Prerequisite: WKEXP 904.

### 201.215.5 Faculty of Medicine and Dentistry Courses

#### **WKEXP 990 Pharmacology Work Experience I**

★0 (fi 9) (either term or Spring/Summer, unassigned). A required four-month work experience placement for Pharmacology Specialization or Honors students admitted into the Industrial Internship Program. This work experience will expose the student to the practical application of Pharmacology and the general work environment.

#### **WKEXP 991 Pharmacology Work Experience II**

★0 (fi 9) (either term or Spring/Summer, unassigned). A required four-month work experience placement for Pharmacology Specialization or Honors students admitted into the Industrial Internship Program. This work experience will expose the student to the practical application of Pharmacology and the general work environment.

#### **WKEXP 992 Pharmacology Work Experience III**

★0 (fi 9) (either term or Spring/Summer, unassigned). A required four-month work experience placement for Pharmacology Specialization or Honors students admitted into the Industrial Internship Program. This work experience will expose the student to the practical application of Pharmacology and the general work environment.

### 201.215.6 Faculty of Physical Education and Recreation Courses

#### **WKEXP 399 Professional Experience in Athletic Therapy/Training**

★0 (fi 4) (two term, unassigned). Required for all BPE students enrolled in the Collaborative Specialization in Athletic Therapy program as well as those students who wish to work with Varsity Teams in an Athletic Therapy/Training capacity. The Head Athletic Therapist (Professional Experience Coordinator), who is CATA-certified, will supervise all students. All supervised hours will be eligible for CATA certification. Prerequisite: consent of Faculty. Note: a significant commitment of outside-class time is required.

### 201.215.7 Faculty of Science Courses

#### **WKEXP 401 Chemistry Work Experience**

★0 (fi 9) (first term, unassigned). A four-month work placement for Chemistry students admitted to the Industrial Internship program.

#### **WKEXP 402 Chemistry Work Experience**

★0 (fi 9) (second term, unassigned). A four-month work placement for Chemistry students admitted to the Industrial Internship program.

#### **WKEXP 411 EAS Work Experience**

★0 (fi 9) (either term or Spring/Summer, unassigned). A four-month work placement for Earth and Atmospheric Sciences students admitted to the Industrial Internship Program. Work Experience course registrations must be contiguous.

#### **WKEXP 412 EAS Work Experience**

★0 (fi 9) (either term or Spring/Summer, unassigned). A four-month work placement for Earth and Atmospheric Sciences students admitted to the Industrial Internship Program. Work Experience course registrations must be contiguous. Prerequisite: WKEXP 411.

#### **WKEXP 413 EAS Work Experience**

★0 (fi 9) (either term or Spring/Summer, unassigned). A four-month work placement for Earth and Atmospheric Sciences students admitted to the Industrial Internship Program. Work Experience course registrations must be contiguous. Prerequisite: WKEXP 412.

#### **WKEXP 421 Physics and Environmental Physical Sciences Work Experience**

★0 (fi 9) (first term, unassigned). A four-month work placement for Physics and Environmental Physical Sciences students admitted to the Industrial Internship Program.

#### **WKEXP 422 Physics and Environmental Physical Sciences Work Experience**

★0 (fi 9) (second term, unassigned). A four-month work placement for Physics and Environmental Physical Sciences students admitted to the Industrial Internship Program.

#### **WKEXP 423 Physics and Environmental Physical Sciences Work Experience**

★0 (fi 9) (Spring/Summer, unassigned). A four-month work placement for Physics and Environmental Physical Sciences students admitted to the Industrial Internship Program.

#### **WKEXP 921 Computing Science Introductory Work Experience**

★0 (fi 9) (first term, unassigned). A required four-month work experience placement for Computing Science Honors or Specialization students admitted into the Industrial Internship Program. The focus of the work experience will be for the student to gain an in-depth appreciation of the computing profession.

**WKEXP 922 Computing Science Advanced Work Experience**

★0 (*fi 9*) (second term, unassigned). A required four-month work experience for Computing Science Honors or Specialization students admitted into the Industrial Internship Program. The focus of the work experience will be for the student to perform work directly related to their specialization with sufficient technical and professional merit expected of a computing professional. Prerequisite: WKEXP 921.

**WKEXP 923 Computing Science Work Experience**

★0 (*fi 9*) (Spring/Summer, unassigned). A required four-month work experience placement for Computing Science Honors or Specialization students admitted into the Industrial Internship Program. The focus of the work experience will be for the students to perform in-depth work directly related to the advanced technical and professional skill level expected of a computing professional. Prerequisite: WKEXP 922.

**WKEXP 931 Psychology Work Experience I**

★0 (*fi 9*) (first term, unassigned). A four-month work placement for Psychology students in the Faculty of Science in the Psychology Industrial Internship Program. The focus of the work experience will be for the student to gain an appreciation of the work environment. Prerequisite: consent of Department.

**WKEXP 932 Psychology Work Experience II**

★0 (*fi 9*) (second term, unassigned). A four-month work placement for Psychology students in the Faculty of Science in the Psychology Industrial Internship Program. The focus of the work experience will be for the student to gain further knowledge of the work environment. Prerequisite: WKEXP 931.

**WKEXP 933 Psychology Work Experience III**

★0 (*fi 9*) (Spring/Summer, unassigned). A four-month work placement for Psychology students in the Faculty of Science in the Psychology Industrial Internship Program. The focus of the work experience is to further the student's knowledge of the working world. Prerequisite: WKEXP 932.

**WKEXP 941 Science Work Experience I**

★0 (*fi 9*) (first term, unassigned). A four-month work placement for Biological Sciences students admitted into the Industrial Internship Program. The focus of the work experience will be for the student to gain an appreciation of the work environment.

**WKEXP 942 Science Work Experience II**

★0 (*fi 9*) (second term, unassigned). A four-month work placement for Biological Sciences students admitted into the Industrial Internship Program. The focus of the work experience will be for the student to gain experience in his or her chosen field of specialization. Prerequisite: WKEXP 941.

**WKEXP 943 Science Work Experience III**

★0 (*fi 9*) (Spring/Summer, unassigned). A four-month work placement for Biological Sciences students admitted into the Industrial Internship Program. The focus of the work experience will be for the student to perform work directly related to his or her specialization and of sufficient technical merit to show a good understanding of a particular area of study in Biological Sciences. Prerequisite: WKEXP 942.

**WKEXP 951 Mathematical Sciences Work Experience I**

★0 (*fi 9*) (first term, unassigned). A four-month work placement for Honors and Specialization students in the Mathematical Sciences Industrial Internship Program. The focus of the work experience will be for the student to gain an appreciation of the work environment. Prerequisite: consent of Department.

**WKEXP 952 Mathematical Sciences Work Experience II**

★0 (*fi 9*) (second term, unassigned). A four-month work placement for Honors and Specialization students in the Mathematical Sciences Industrial Internship Program. The focus of the work experience will be for the student to gain further knowledge of the work environment. Prerequisite: WKEXP 951.

**WKEXP 953 Mathematical Sciences Work Experience III**

★0 (*fi 9*) (Spring/Summer, unassigned). A four-month work placement for Honors and Specialization students in the Mathematical Sciences Industrial Internship Program. The focus of the work experience is to further the student's knowledge of the working world. Prerequisite: WKEXP 952.

**201.216 Writing, WRITE**

Department of English  
Faculty of Arts

**Undergraduate Courses****WRITE 294 Introduction to Writing Poetry**

★3 (*fi 6*) (either term, 3-0-0). Lectures and workshops in which the student will be required to write poetry. Prerequisites: ENGL 100, 101 (or equivalent), and consent of Instructor(s) based on a portfolio (see Instructor for deadline).

**WRITE 295 Introduction to Writing Fiction**

★3 (*fi 6*) (either term, 3-0-0). Lectures and workshops in which the student will

be required to write prose. Prerequisites: ENGL 100, 101 (or equivalent), and consent of Instructor(s) based on a portfolio (see Instructor for deadline).

**WRITE 298 Introduction to Writing Nonfiction**

★6 (*fi 12*) (two term, 3-0-0). To increase the student's ability to write clear nonfiction prose. Models of prose style will be central, combined with frequent practice in writing on the basis of such models. Prerequisite: ENGL 100, 101 (or equivalent).

**WRITE 394 Intermediate Creative Writing: Poetry**

★6 (*fi 12*) (either term, 3-0-0). Prerequisite: WRITE 294 unless waived by Instructor. Consult Instructor for portfolio deadline.

**WRITE 395 Intermediate Creative Writing: Fiction**

★6 (*fi 12*) (two term, 3-0-0). Prerequisite: WRITE 295 unless waived by Instructor. Consult Instructor for portfolio deadline.

**WRITE 398 Intermediate Creative Writing: Nonfiction**

★6 (*fi 12*) (two term, 3-0-0). Prerequisite: WRITE 298 unless waived by Instructor.

**WRITE 494 Advanced Creative Writing: Poetry**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: WRITE 394 unless waived by Instructor. Consult Instructor for portfolio deadline.

**WRITE 495 Advanced Creative Writing: Fiction**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: WRITE 395 unless waived by Instructor. Consult Instructor for portfolio deadline.

**WRITE 498 Advanced Creative Writing: Nonfiction**

★3 (*fi 6*) (either term, 3-0-0). Prerequisite: WRITE 398 unless waived by Instructor.

**WRITE 532 Tutorial: Fourth-Year Combined Honors Creative Writing**

★3-6 (*variable*) (variable, variable). In the third year of the Combined Honors in Creative Writing program, the Honors student, in consultation with the Department, will arrange for a writing project under the guidance of a member of the Department for the ensuing summer and winter. The project is to be an original creative project judged by the Department to be the equivalent of a half-year creative writing course for ★3 or a full-year creative writing course for ★6.

**201.217 Zoology (Biological Sciences), Z00L**

Department of Biological Sciences  
Faculty of Science

**Notes**

- See the following sections for listings of other Biological Sciences courses: Bioinformatics (BIOIN); Biology (BIOL); Botany (BOT); Entomology (ENT); Genetics (GENET); Microbiology (MICRB).
- See the following sections for listings of other relevant courses: Interdisciplinary Studies (INT D); Immunology and Infection (IMIN); Marine Science (MA SC); Paleontology (PALEO).

**Undergraduate Courses****Z00L 224 Vertebrate Diversity**

★3 (*fi 6*) (first term, 3-0-3). A comparative survey of vertebrates, focusing on their morphology, classification, and phylogeny. Prerequisite: BIOL 108.

**Z00L 225 Comparative Anatomy of the Vertebrates**

★3 (*fi 6*) (second term, 3-0-3). Comparative anatomy of the vertebrates with special emphasis on the mammals. Prerequisite: BIOL 108. Z00L 224 strongly recommended.

**Z00L 241 Animal Physiology I: Homeostasis**

★3 (*fi 6*) (first term, 3-1s-0). Survey of physiological systems that regulate levels of gases, food, energy, temperature, water, and ions. Examples from invertebrates and vertebrates. Students with credit in Z00L 242 prior to 1996/97 or PHYSL 210 may not obtain credit in Z00L 241. Prerequisite: BIOL 107.

**Z00L 242 Animal Physiology II: Intercellular Communication**

★3 (*fi 6*) (second term, 3-1s-0). Endocrinology, immunology and neural, sensory, motor, and reproductive physiology. Examples from invertebrates and vertebrates. Students with credit in PHYSL 210 may not obtain credit in Z00L 242. Prerequisite: BIOL 107.

**Z00L 250 Survey of the Invertebrates**

★3 (*fi 6*) (second term, 3-0-3). The functional anatomy and life cycles of the major invertebrate taxa are emphasized. Prerequisite: BIOL 108.

**Z00L 301 Natural History of the Vertebrates of Alberta**

★3 (*fi 6*) (second term, 3-0-3). The identification, distribution, habitats, and life histories of the fishes, amphibians, reptiles, birds, and mammals of Alberta. Prerequisite: A 200-level Biological Sciences course. Prerequisite: Z00L 224 is recommended.

**Z00L 302 Invertebrate Development**

★3 (*fi 6*) (second term, 3-0-3). Reproduction, embryonic, and postembryonic development in invertebrates with emphasis on insects. Prerequisite: BIOL 201. Z00L 250 is recommended.



**Z ZOOLOGY** **ZOOL 303 Animal Developmental Biology**

★3 (fi 6) (first term, 3-0-3). An introduction to basic principles in animal development both in vertebrates and invertebrates. This course examines how the molecular, cellular and comparative approaches are integrated to explain the development of the egg into the embryo, and the cellular interactions that culminate in the development of organ systems. Prerequisite: BIOL 201. Credit may be obtained in only one of ZOOL 202 and ZOOL 303.

**ZOOL 332 Animal Community Ecology**

★3 (fi 6) (second term, 3-3s-0). Examines the nature of ecological communities, niche theory and the importance of competition, neutral models, disturbance and non-equilibrium communities, predation and food webs, and patterns and processes of biodiversity at local, regional and global scales. Prerequisites: BIOL 208; STAT 151; and any one of MATH 113, 115, or 120. Offered in alternate years.

**ZOOL 340 Comparative Environmental Physiology**

★3 (fi 6) (second term, 3-0-0). A comparative examination of the integrated responses of animals to environmental changes. This course focuses on both the acute physiological and long-term adaptations to dealing with environmental challenges. Focus is on biochemical and physiological responses to extreme environments. Prerequisite: ZOOL 241 or PHYSYL 210 or 211.

**ZOOL 342 Neurobiology**

★3 (fi 6) (second term, 3-0-0). Nerve cells, nervous systems and neuromuscular systems from molecular, physiological, behavioral, and developmental perspectives. Examples from both invertebrates and vertebrates are given. Prerequisite: ZOOL 242 or PHYSYL 210.

**ZOOL 343 Comparative Endocrinology**

★3 (fi 6) (second term, 3-0-0). Endocrine systems and actions of hormones in vertebrates and invertebrates. Prerequisite: ZOOL 242.

**ZOOL 344 Laboratory Exercises in Animal Physiology**

★3 (fi 6) (first term, 1-0-4). Physiological topics are reinforced in experimental lab exercises. Labs include computer simulations, artificial tissue models and animal models. Prerequisite: ZOOL 241 or ZOOL 242 or PHYSYL 210.

**ZOOL 351 Aquatic Invertebrates of Alberta**

★3 (fi 6) (first term, 3-0-3). Emphasis is on an identified collection of invertebrates found in Alberta's lakes and streams. Lecture material pertains mainly to ecological features of the various fresh water groups. Prerequisite: ZOOL 250. This course requires the payment of additional miscellaneous fees. See 22.2.3 for details.

**ZOOL 352 Principles of Parasitism**

★3 (fi 6) (first term, 3-3s-0). An introduction to protozoan, helminth and arthropod parasites of animals; principles of host and parasite adaptations, host defense, pathology, epidemiology, and ecology, and control of parasitic infections. World wide web-based laboratory tutorials emphasize morphology, life cycles, behavior, systematics and life history of parasites. Prerequisite: a 200-level Biological Sciences course (ZOOL 250 and IMIN 200 recommended).

**ZOOL 354 Wildlife Disease**

★3 (fi 6) (second term, 3-0-3). Occurrence, principles, concepts, causes and significance of disease in wildlife. Laboratory exercises emphasize methods for the study of parasites of wild hosts. Prerequisite: one of BIOL 208, ENCS 376, ZOOL 250, ZOOL 301.

**ZOOL 370 Ethological Mechanisms**

★3 (fi 6) (first term, 3-0-3). Animal behavior from an ethological perspective, with emphasis on the mechanisms underlying a variety of behaviors. The material is intended to complement that of ZOOL 371. Prerequisite or corequisite: ZOOL 241 or 242. Offered in alternate years.

**ZOOL 371 Behavioral Ecology**

★3 (fi 6) (first term, 3-0-3). Animal behavior from an ecological and evolutionary perspective, with emphasis on social behavior. The material is intended to complement that of ZOOL 370. Prerequisite: BIOL 208

**ZOOL 402 Current Topics in Developmental Biology**

★3 (fi 6) (second term, 0-3s-0). Discussion of selected topics in animal developmental biology from a molecular and cellular perspective. Evaluation of the primary literature and communication skills are emphasized. Prerequisite: ZOOL 302 or 303. Credit for this course may be obtained more than once. Offered in alternate years.

**ZOOL 405 Biology of Fishes**

★3 (fi 6) (first term, 3-0-3). A survey of fish diversity focussing on the morphology, systematics, behavior, and ecology of the major groups. Laboratories feature extensive use of departmental collections, with an emphasis on Alberta species. Prerequisites: ZOOL 224 or 225, and a 300-level ZOOL. Offered in alternate years.

**ZOOL 407 Biology of Birds**

★3 (fi 6) (first term, 3-0-3). A survey of bird diversity focussing on the morphology, systematics, behaviour, and ecology of the major groups. Laboratories feature extensive use of departmental collections, with an emphasis on Alberta species. Prerequisites: ZOOL 224 or 225, and a 300-level ZOOL. Offered in alternate years.

**ZOOL 408 Biology of Mammals**

★3 (fi 6) (second term, 3-0-3). A survey of mammal diversity focussing on the morphology, systematics, behavior, and ecology of the major groups. Laboratories feature extensive use of departmental collections, with an emphasis on Alberta species. Prerequisites: ZOOL 224 or 225, and a 300-level ZOOL. Offered in alternate years.

**ZOOL 427 Insect Taxonomy**

★3 (fi 6) (first term, 2-0-6). Evolution, distribution, and classification of terrestrial arthropods, with emphasis on hexapods. Students practice identification using museum collections, build keys and databases, and make a substantive collection of regional insects. Prerequisite: Any one of ENT 207, 220, 280, or ZOOL 351; BIOL 335 is a useful corequisite.

**ZOOL 434 Field Course in Animal Ecology**

★3 (fi 6) (first term, 0-0-6). Design, execution, analysis, and presentation of field problems in behavioral, population, and community ecology in both terrestrial and aquatic habitats. Field problems and independent projects will take place during the two weeks preceding the Fall term at a field station off the main campus. Presentation of results take place during four weeks of class time in September. Prerequisites: BIOL 331 or ZOOL 332 or 371; a statistics course or BIOL 430. This course requires payment of additional miscellaneous fees. See §22.2.3 for details.

**ZOOL 441 Current Topics on Homeostasis**

★3 (fi 6) (first term, 0-3s-0). Discussion of selected topics in cardiac, gut, renal, respiratory, temperature, and metabolic physiology. Evaluation of the primary literature and communication skills are emphasized. Prerequisite: ZOOL 340 or 341. Credit for this course may be obtained more than once.

**ZOOL 442 Current Topics in Intercellular Communication**

★3 (fi 6) (second term, 0-3s-0). Discussion of selected topics in endocrinology, immunology, and neurobiology from molecular, cellular, and whole-animal perspectives. Evaluation of the primary literature and communication skills are emphasized. Prerequisite: ZOOL 342 or 343 or 352 or PMCOL 371. Credit for this course may be obtained more than once.

**ZOOL 452 Experimental Parasitology**

★3 (fi 6) (second term, 3-0-3). Experimental approaches to the study of parasitism, including topics on ecology, biochemistry, cell biology, genetics, molecular biology, pathology and immunology of host-parasite relationships. Laboratory exercises cover experimental design, methods of collecting and processing host and parasite samples, and evaluation of parasitic infections in hosts. The emphasis is on parasites of laboratory hosts. Prerequisite: ZOOL 352 or MMI 426 or consent of Department.

**ZOOL 465 Wildlife Population Dynamics**

★3 (fi 6) (first term, 3-0-3). Principles and concepts of wildlife population dynamics, and applications for management, harvesting and conservation. Credit cannot be obtained for ZOOL 465 by students who already have credit for BIOL 467 or ZOOL 467. Prerequisite: ZOOL 332 or BIOL 331.

**ZOOL 472 Current Problems in Behavioral Ecology**

★3 (fi 6) (either term, 3-0-0). Discussion of behavioral problems with ecological implications. Prerequisite: ZOOL 370 or 371 or consent of Department.

**ZOOL 474 Research in Animal Behavior**

★3 (fi 6) (second term, 0-3s-3). Students conduct individual research in animal behavior. Weekly scheduled meetings deal with experimental design, paper critiques, and preparation and presentation of oral and written research reports. Research is conducted outside of scheduled class time. Students intending on taking this course should consult the instructor in the Fall term to discuss their proposed research. Prerequisite: ZOOL 370 or 371.

**Graduate Courses****Notes**

- All 300- and 400-level courses in the Department of Biological Sciences may be taken for credit (except for BIOL 490, 498 and 499) by graduate students with approval of the student's supervisor or supervisory committee.
- The following courses may be taken as an option in graduate programs in the Department of Biological Sciences with approval of the student's supervisor or supervisory committee: BIOCH 510, 520, 530, 541, 550, 555, 560; CHEM 361, 363, 461; CELL 300, 301; IMIN 371, 372, 452; INT D 421; MA SC 400, 401, 402, 410, 412, 420, 425, 430, 437, 440, 445, 470, 480; MMI 405, 415, 520; NEURO 472; NU FS 363; PALEO 318, 319; PHARM 601.

**ZOOL 552 Advanced Parasitology**

★3 (fi 6) (second term, 2-1s-3). Formal lectures, seminars and individual projects emphasize the use of parasites as model systems for the study of fundamental questions in biology. Prerequisites: ZOOL 352 and 452 or consent of Department.