# ABE — AGRICULTURAL & BIORESOURCE ENGINEERING

Department of Agricultural & Bioresource Engineering, College of Engineering

**ABE 51.6 — 2(3L-2P)**
**Introduction to Agricultural Equipment**

Introduction to production agricultural field equipment with emphasis on optimizing machine performance. Topics discussed include farm tractors, tillage, fertilizer and chemical application, and seeding and harvesting grain and forages. Laboratories will allow students to gain practical understanding of concepts introduced during lectures.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ABE 52.6 — 2(3L-2P)**
**Agricultural Power**

A systems study of internal combustion engines and power-transfer machinery components as used in modern agricultural enterprises. Students will become familiar with the function and interaction of components in mobile agricultural power sources and power-transfer mechanisms. They will gain an understanding of power flow through machines from the source to the work component. Discussions will include topics related to internal combustion engine systems, clutches, transmissions, differentials, final drives, PTO's, hydraulics, hydrostatic drives, and chain and belt drives. Machinery management, including scheduled maintenance programs, machine replacement strategies and machine cost analyses will be discussed.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ABE 61.6 — 1(3L-2P)**
**Primary and Secondary Processing of Agricultural Products**

This course will lead students through topics related to both primary and secondary processing of raw materials used in the agri-food industry. Students will gain an appreciation of properties of agricultural materials and foods and feeds of plant and animal origin, and of the interaction between air, water and materials in post-harvest and manufacturing processes. Major topics in post-harvest technology will be considered, with emphasis on drying, cooling, storing, grading, sorting and transport of agricultural products. In addition, utilization and further processing of various commodities (cereals, oilseeds, dairy products, meat and special crops) will be presented, including chemical composition, processing technologies, storage and packaging. Interrelationships of the various components of the value-added chain will be emphasized, because factors influencing the quality of various raw materials have a significant impact on the ultimate utility and value of products to the consumer.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ABE 72.6 — 2(3L-2P)**
**Livestock Facilities**

Planning, operation and maintenance of livestock facilities are discussed. Students will learn to plan the renovation or expansion of building and penning systems for indoor and outdoor facilities. Alternative systems for materials handling, including water, feed, manure and animals will be discussed. The use of utilities, including electricity and natural gas, in animal facilities will be considered. Construction technology and materials will be introduced.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ABE 75.6 — 2(3L-2P)**
**Electronics and Controls in Agriculture**

The applications and function of controllers and monitors in modern agricultural systems, including precision agriculture, will be discussed. Fundamental electrical principles and their application to system components will be introduced. Case studies will allow students to study specific components in a control or monitoring system and understand their interrelationships in the overall system. System diagnostics will be discussed throughout the course.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ABE 77.6 — 2(3L-2P)**
**Workshop Management**

Provides instruction in selecting the site and planning the resources required for maintenance, repair and improvement of mechanized systems. Basic instruction is provided in arc welding, gas welding and cutting, machine cutting, precision measuring, fasteners, drilling, threading and metal forming. The course also includes a study of shop tools and equipment, including use and supply inventory management. Instruction is provided in the planning and design of metal-based, shop-built projects. Each student will complete and present a class project detailing the planning and equipment selection for a workshop facility.
**Prerequisite(s):** Completion of Year 1 courses of the Diploma in Agriculture program.
**Note:** There will be costs in addition to tuition fees for this course.

**ABE 79.6 — 2(3L-3P)**
**Water Management**

Introduction to issues, operational aspects, and regulations of water management as they pertain to prairie agricultural systems. Topics covered include occurrence and control of run-off (erosion and flood control); irrigation systems (requirements and scheduling); drainage of agricultural lands (wetland and salinity control); dryland soil water conservation; water quality maintenance with regard to dugouts, wells, and riparian areas; and government regulations governing water use, pollution and quality maintenance.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.
**Note:** Students with credit for MEAG 309 may not take ABE 79.

**ABE 211.3 — 2(3L-1.5T)**
**Introduction to Biological Systems**

An introduction to the biology of cells and tissues, including comparison among organisms. Emphasis is on the physical structures of plants and the physiological processes involved in plant growth. Growth models, the effects of the environment on plant growth and mechanisms of energy exchange with plants and between plants and their environment are studied. An introduction is given to microbiology. The implications of physiological processes for agriculture are examined.

**ABE 212.3 — 2(3L-3P)**
**Physical Principles of Plant Biosystems**

An introduction to physical concepts governing movement and storage of nutrients, energy and water within the plant biosystem (soil-plant-atmosphere). Topics include: physical and mineralogical properties of soil, biogeochemical cycles of macronutrients, plant incorporation of water, nutrients and energy; psychrometrics as applied to evapotranspiration; and water transport within the soil-plant system. Subject material will provide the foundation for future engineering courses for optimizing production, harvesting and processing of plant materials, and natural resource management.
**Corequisite(s):** ABE 211 or BIOL 110.

**ABE 295.3 — 1(3L-3T)**
**Introduction to Biosystems Engineering**

Introduction to the discipline of Agricultural and Bioresource (Biosystems) Engineering and to design principles and practices. Students will develop logical problem-solving skills through solution of problems involving energy and mass balances, bioprocessing, instrumentation and machinery systems, water and soil resources and waste management. Extensive use is made of computer software for calculation and graphical presentation of results.
**Prerequisite(s):** GE 120 (taken) or permission of the Department Head.

**ABE 303.3 — 2(3L-3P)**
**Principles of Food and Feed Processing Equipment**

Studies basic systems used in food processing including facilities, power requirements, equipment for primary and secondary processes. The specific unit operations and equipment studies include pumps and blowers, heat exchangers, drying, freezing, absorption, distillation, size reduction, and mixing. Discusses materials of construction for food process equipment and the layout of plant equipment.
**Note:** May not be taken by Engineering students for credit towards a B.E. degree without permission from student's department.

**ABE 305.3 — 2(3L-3P)**
**Agricultural Machinery Management**

An introduction to agricultural field equipment used for grain and forage production in Western Canada. Emphasis is placed on optimal selection, operation and performance, and management of farm machinery. Equipment studied includes: tractors, tillage, seeding, chemical application, forage harvesting, and grain harvesting equipment. Laboratories will allow students to gain a practical understanding of equipment design and function.
**Note:** May not be taken by Engineering students for credit towards a B.E. degree without permission from student's department.

**ABE 307.3 — 1(3L-3P)**
**Agricultural Building Systems**

Examines the layout of farm buildings on the farmstead and the functional design of buildings used in crop and animal production, including systems analysis and materials handling. Functional requirements of construction, space and environment are emphasized.
**Note:** May not be taken by Engineering students for credit towards a B.E. degree without permission from student's department.

**ABE 309.3 — 2(3L-3P)**
**Water Management**

Sustainable irrigation projects require management of irrigation water for profitable crop production without negatively altering the soil or depleting the source water resource. Water management topics discussed pertain to irrigation in the western Canadian prairie setting. Techniques of applying irrigation water to the soil-plant-atmosphere continuum to increase productivity and profitability are evaluated. Examples range from totally enclosed environments of greenhouses to the extra water in addition to natural precipitation of field crops. An appreciation is developed that irrigation projects increase regional growth and prosperity while operating within the bounds of societal control and regulation. Upon completion of this course, the student will be able to organize sustainable irrigation projects, choose the irrigation equipment required and recommend how to operate it.
**Note:** May not be taken by Engineering students for credit towards a B.E. degree without permission from student's department.

**ABE 311.3 — 1(3L-1.5T)**
**Mathematical Methods**

A study of the application of mathematics to engineering problems involving biological systems. Students will develop proficiency in using the control volume technique to develop models describing mechanical, fluid and thermal systems. Analytical solutions are derived for commonly encountered ordinary and partial differential equations. System response and modelling aspects will be studied. An introduction is given to numerical procedures for solution of initial value and boundary value problems.
**Prerequisite(s):** MATH 223 (taken) and 224 (taken).

**ABE 312.3 — 1(3L-3P)**
**Electrical Power**

Familiarization with electrical distribution systems and utility design within processing plants, and with electrical machines. Topics include DC power, and three-phase and single-phase AC power; electric motors and generators.
**Prerequisite(s):** PHYS 155 (or EP 155) (taken).

**ABE 313.3 — 2(3L-3P)**
**Instrumentation**

Static and dynamic characteristics of transducers and circuits used in the measurement of variables such as force, pressure, strain, temperature, humidity and electromagnetic radiation. Introduction to data loggers and digital data acquisition. The course emphasizes the importance of understanding the fundamental principles of transducers and associated circuitry from the standpoint of both design and selection of measurement systems.
**Prerequisite(s):** ABE 311 or ME 321, and PHYS 155 (or EP 155), or permission of the Department Head.

**ABE 323.3 — 1(3L-3P alt weeks)**
**Properties of Materials in Biosystems**

Familiarization with the terminology and definitions of physical properties of biological materials, including size, shape and density; water content, equilibrium moisture content, water activity, capillary tension, chemical potential and turgidity; chemical and molecular composition; viscosity, viscoelastic, thermal, frictional, hydro- and aerodynamic, optical, electrical and magnetic properties. Description of typical measurement methods and equipment for determination of material properties. Students develop an ability to identify and determine the physical properties of biological materials for analysis and design of agricultural, food, and biological systems and to indicate the uncertainty in property measurements and responsibly apply uncertainty in property values to engineering calculations. Emphasis is on describing the importance of biological material properties to engineering systems, and to understanding interactions between living and non-living components of biological systems.
**Prerequisite(s):** ABE 211 or 3 credit units in biology.
**Corequisite(s):** 3 credit units in statistics.

**ABE 324.3 — 2(3L-1.5P-1.5T)**
**Machine Design in Biosystems**

Analysis of the mechanical properties of manufacturing and biological materials. Topics include load analysis, stress-strain responses, deformation, contact stresses, static failure theories and fatigue analysis, turgor and micro-mechanical cell models, visco-elastic relations and impact loading. Applications relate to design and analyses of bolted joints, power transmission components including shafts, gears, belts & chains and journal and rolling bearings. Introduction to solid modeling.
**Prerequisite(s):** GE 213 and ABE 323.

**ABE 327.3 — 2(3L-3P alt weeks)**
**Transport Processes in Biosystems**

A unified approach to transport of energy and mass in biological and environmental processes. Emphasis is placed on the formulation and solution of mathematical models to represent heat and mass transfer in indoor and outdoor environments, in plant and mammalian systems, and for industrial processing of food and biomaterials. Students will apply analytical and numerical techniques to solve heat transfer problems involving steady state and transient heat conduction, convection and radiation, heat transfer with phase change, and mass transfer problems involving steady state and transient diffusion/dispersion and convection.
**Prerequisite(s):** ABE 311; ME 227; CHE 210 or CE 225 or ME 215.

**ABE 395.3 — 2(3L-3T alt weeks)**
**Design Capstone I**

Design is presented as both art and science, where solutions are developed using creative design processes that include analysis, synthesis and iterative decision making. Students explicitly define design problems, goals, objectives and constraints, complete an information search, and propose a plan for the analysis and specification of the design solution. A presentation of the design problem and the proposed approach to the design solution will be presented in a seminar to the department.
**Prerequisite(s):** ABE 295.

**ABE 398.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ABE 422.3 — 1(3L-3T)**
**Modeling of Biosystems**

The student will be introduced to the concept of computer simulation as an analytical tool for understanding, designing and testing biology-related systems. Content includes introduction to systems modeling, classification of models, elements of dynamic simulation models, analytical models based on equilibrium, modeling growth and population dynamics, compartment models, feedback in biological systems and feedback mechanisms and stability of biological systems. Mathematical optimization and reliability analysis techniques are introduced.
**Prerequisite(s):** ABE 311, 324 and 327.

**ABE 431.3 — 1(3L-3P alt weeks)**
**Irrigation System Design**

Engineering and hydrologic principles are applied to design of modern irrigation and drainage systems. Soil-plant-water relationships important to understanding water needs are emphasized.
**Prerequisite(s):** ABE 212 and CE 319.

**ABE 432.3 — 1(3L-1.5T)**
**Soil and Water Conservation**

A study of the effects of management practices upon degradation and sustainability of agricultural, forest, wetland, and other managed land and water resource systems common to the Prairies. Topics include environmental factors governing soil development; degradation including erosion, salinization, soil organic matter depletion, soil compaction, and water contamination; preservation, mitigation and construction of wetlands; dryland water conservation techniques; good agricultural, forestry and land management practices; and economic and social-political implications of land management practices.
**Prerequisite(s):** ABE 212 or SLSC 220.

**ABE 441.3 — 2(3L-3P alt weeks)**
**Design of Enclosed Environments**

Emphasizes the physical aspects of environment control systems for agricultural buildings. The student will experience engineering designs involving greenhouses, animal shelters and vegetable storages. Emphasis is on solution of real-world problems, which depend upon making reasonable assumptions, integrating knowledge from more than one source, and interpreting mathematical results in terms of physical systems. Some use is made of computer programs. Laboratory periods are used for tours to buildings to observe environment control systems and for work on group design projects.
**Prerequisite(s):** ABE 327 or ME 327.

**ABE 451.3 — 2(3L-1.5P)**
**Design of Agricultural Machinery Systems**

Study of agricultural and other off-road machinery with special attention to the functional design requirements of various machine operations, cost analysis, machinery selection and testing. Topics include tillage force analysis, tillage tools, mechanisms for metering and applying seed, fertilizer and pest control chemicals, harvesting methods and machinery, hydraulic and other methods of transmitting power and controlling machines, application of computer aided design and finite element method in design analysis.
**Prerequisite(s):** ABE 324.

**ABE 452.3 — 2(3L-3P)**
**Current Topics in Machines in Biosystems**

Introduction to specialized components and analyses relevant to mechanized systems for production and processing of biological materials. Emphasis is on understanding the function of components within systems.

Students will be able to recommend application of these components in a variety of situations and will develop conceptual designs for some of the components.
**Prerequisite(s):** ABE 313.

**ABE 462.3 — 2(3L-3P alt weeks)**
**Agricultural Materials Handling**

A study of processes involved in conveying, storing, drying, cleaning and sorting agricultural products. Analysis and design of machines used for conveying bulk solids and liquids. Theory and practice of drying for grain and forage crops. Moisture and quality control in storage and transport.
**Prerequisite(s):** ABE 323 and 327.

**ABE 481.3 — 2(3L-3P alt weeks)**
**Sustainability and Environmental Assessment**

A study of the principles of sustainable development and the process of environmental impact assessment with emphasis on Prairie agricultural and industrial settings. Case studies are used to illustrate the EIA process in engineering design of environmental control measures. Concepts of integrated resource management are analyzed as the basis for making linkages between protecting the environment, economic development and public participation.
**Prerequisite(s):** Completion of 90 credit units of university study.

**ABE 482.3 — 1(3L-3P alt weeks)**
**Environmental Engineering in Food and Fibre Production**

The design of systems for processing and utilization of by-products generated by the bioresource industries, including primary agriculture, food processing, and forestry. Pollution problems caused by these industries are examined and opportunities for recycling and utilization of by-products are identified. Emphasis is on land as opposed to surface water as a receptor of organic by-products. A comprehensive strategy is developed for approaching pollution control and by-product utilization problems. Students are expected to integrate sociological, regulatory, economic, biochemical and technological considerations in exploring waste treatment and utilization options. Students work in teams to conduct an industrial waste survey and a feasibility study of waste reduction and enhanced waste utilization for a specific local industry, farm, or processing plant. Natural treatment/processing systems are emphasized and topics may include site assessment, composting, cogeneration, and wetlands treatment.
**Prerequisite(s):** Completion of 66 credit units of university study towards the B.E. degree.

**ABE 495.3 — 1(6P)**
**Design Capstone II**

A continuation of ABE 395 in a self-directed course. Students perform the analysis associated with the design problem and are able to specify a design solution at the end of the course. Students must submit a comprehensive report, describing the design solution. The final design solution is also presented to the faculty and staff in the Department of Agricultural and Bioresource Engineering in the format of poster and oral presentations.
**Prerequisite(s):** ABE 395.

**ABE 498.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ACB — ANATOMY & CELL BIOLOGY

Department of Anatomy & Cell Biology, College of Medicine

**ACB 200.3 — 1(3L-3T)**
**Introduction to Cell Biology**

Deals with important structural and functional characteristics of cells as applied to diverse cell types in eukaryotic organisms.
**Prerequisite(s):** BIOL 110 and BIOC 200 to be taken concurrently.

**ACB 210.3 — 2(3L-3P)**
**Basic Human Anatomy**

The anatomical organization of the human body will be examined from systemic and functional bases. The histological organization of tissues and organs as well as the evolution and embryonic development of the human body will be considered wherever these shed light upon the organization of the human body.
**Prerequisite(s):** BIOL 110.
**Note:** Students with credit for ACB 202 cannot take ACB 210 for credit

**ACB 215.6 — 1&2(3L-3P)**
**Basic and Applied Human Anatomy**

Especially designed for students of Physical Therapy. Includes basic gross anatomy of the human body supplemented with essential elements of cell biology, histology and organ development. Emphasis is given to the musculo-skeletal system with all aspects of function and application to the need of physical therapists.
**Prerequisite(s):** BIOL 110.
**Note:** Restricted to students enrolled in the School of Physical Therapy.

**ACB 221.3 — 1(3L-3P)**
**Gross Anatomy**

Especially designed for students in Kinesiology with applications to activities involving motion, locomotion and related injuries. The emphasis is on the structural, biomechanical and positional relationships of the skeleton, joints, muscles, blood vessels and peripheral nerves in the trunk and limbs.
**Prerequisite(s):** BIOL 110.
**Note:** Restricted to students enrolled in the College of Kinesiology.

**ACB 232.6**
**Cell Biology and Histology**

An introduction to cell biology from a medical perspective followed by a survey of tissue organization and systematic study of the normal arrangement of cells and tissues into organs and organ systems.
**Note:** Restricted to students enrolled in the College of Medicine and the College of Dentistry.

**ACB 233.3 — 1(5L-P)**
**Embryology and Gross Anatomy**

Embryology and an introduction to systemic anatomy will be covered, and a detailed study of the gross anatomy of the head, neck and thorax will be undertaken by regional dissection.
**Note:** Restricted to students enrolled in the College of Dentistry.

**ACB 234.3**
**Introductory Neuroanatomy**

An introduction to the anatomy of the human brain and spinal cord through lectures, laboratory dissections, and clinical correlation tutorials.
**Note:** Restricted to students enrolled in the College of Dentistry, College of Medicine or School of Physical Therapy.

**ACB 235.9**
**Gross Anatomy and Embryology**

Introduction to the basic human body plan, including a detailed study by regional dissections and related studies of human embryology, radiological and clinical anatomy.
**Note:** Restricted to students enrolled in the College of Medicine.

**ACB 325.3 — 2(3L)**
**Advanced Cell Biology**

Recent concepts in the regulation of cell growth, development and function are considered. Topics covered include regulation of gene expression, synthesis and processing of RNA and protein, cell cycle regulation, and cellular signaling mechanisms. Emphasis is placed on how these processes are regulated and how they in turn combine to regulate overall cellular activities.
**Prerequisite(s):** ACB 200.
**Note:** Students with credit for ACB 300 cannot take ACB 325 for credit.

**ACB 330.3 — 1(3L)**
**Principles of Development**

An introduction to the cellular and molecular mechanisms regulating embryonic development in animals, including vertebrate and invertebrate species. In addition, topics of metamorphosis and regeneration will be briefly discussed.
**Prerequisite(s):** ACB 200 and either ACB 210 or BIOL 203.
**Note:** Students with credit for ACB 201 cannot take ACB 330 for credit.

**ACB 331.3 — 2(3P)**
**Methods in Cell and Developmental Biology**

This course will provide laboratory experience in cell and developmental biology. Instruction on, and use of, techniques such as cell culture, expression of proteins in cells, basic cytology, and immunofluorescence will be some of the areas covered.
**Prerequisite(s):** ACB 200, BIOC 212, and permission of the department.

**ACB 334.3 — 2(6L/P)**
**Introductory Neuroanatomy**

An introduction to the anatomy of the human brain and spinal cord through lectures, laboratory dissections, and clinical correlation tutorials.
**Prerequisite(s):** ACB 210 and permission of the department.
**Note:** Students with credit for ACB 234 cannot take ACB 334 for credit. Restricted to students enrolled in the College of Arts & Science.

**ACB 401.6 — 1&2(6P)**
**Undergraduate Research Project**

A course to provide experience in experimental techniques and approaches to cell biology problems. The student will be supervised by a faculty member who must be identified before registration. Preference is given to 4th year students in Anatomy. Evaluation is based on oral presentations, written papers, and industry. This course is not open to students in the Honours program.
**Prerequisite(s):** Permission of the department.

**ACB 402.6 — 1&2(6P)**
**Honours Research Project**

A course providing experience in experimental design and methodology, and familiarity with the scientific literature in the area of research. The student will work on a laboratory project supervised by a faculty member. Evaluation will be based on oral presentations, written thesis, and defense of the thesis findings.
**Prerequisite(s):** Permission of the department.

**ACB 404.3 — 1(2L-2S)**
**Cellular Neurobiology**

The cell biology of neurons and glial cells will be studied, with detailed discussion of synaptic signaling and sensory transduction, as well as the function of glial cells in maintaining the neural signaling machinery.
**Prerequisite(s):** Either ACB 325 or PHSI 337.
**Note:** Students with credit for ACB 403 cannot take ACB 404 for credit.

**ACB 405.3 — 2(1L-2S)**
**Current Topics in Cell Biology**

Recent developments and the state of the art of cell biology research will be examined in a seminar-discussion format. Students will present and evaluate selected publications from the current literature on a variety of topics related to cell biology.
**Prerequisite(s):** ACB 325, 330, 331, or permission of the department.

**ACB 490.0 — 1&2(1S)**
**Seminar**

Honours students in Anatomy are required to attend departmental seminars throughout the program.

# ACC — ACCOUNTING

Department of Accounting, College of Commerce

**ACC 400.6 — 1&2(3S)**
**Honours Seminar in Accounting**

Directed readings and individual research in the areas of accounting. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Subject:** ACC
**Prerequisite(s):** Permission of the department.

# AGEC — AGRICULTURAL ECONOMICS

Department of Agricultural Economics, College of Agriculture

**AGEC 42.6 — 1(3L)**
**Financial Accounting**

Provides an introduction to the concepts and principles of accounting and an understanding of the process by which financial information is accumulated and reported in a financial statement format. Accounting for operating activities, investing and financial activities is emphasized for sole proprietorships, partnerships and corporations.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGEC 52.6 — 2(3L)**
**Economics**

Introduces students to economics as a way to understand production and consumption as interrelated parts of the agriculture sector. Basic demand and supply will be used to explain how prices are determined and how incomes are influenced by increasing world population and increasing productivity in agriculture. Decisions faced by individual producers and consumers will be examined. The structure and characteristics of the national economy and the monetary system will be presented, to show how the agriculture sector fits into the Canadian and world economic systems. For every topic, applications and relevance to agriculture will be emphasized.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGEC 54.6 — 2(3L)**
**Introduction to Law and Taxation of Individuals**

Introduces students to the taxation of individuals and the general principles of law. The area of tax will concentrate on personal income tax and tax planning considerations, while the legal area will cover civil actions, private and civil wrongs, contracts, commercial and consumer protection, debt/creditor relationships, and real property and family law.
**Prerequisite(s):** AGEC 42 and enrolled in the Diploma in Agriculture program.

**AGEC 62.6 — 1(3L)**
**Financial Management**

Designed to introduce students to the fundamentals of finance. The course will cover the basic financial concepts such as financial analysis, the time value of money, security valuation, capital structures, capital budgeting and short term and long term financial planning.
**Prerequisite(s):** AGEC 42, 52, and enrolled in the Diploma in Agriculture program.

**AGEC 66.3 — 1(3L)**
**Introduction to Agricultural Marketing**

Examination of the western Canadian grain and livestock marketing systems - structure, organization, operation, procedures, institutions and agencies. The price discovery methods used in grain and livestock marketing, including open marketing and marketing boards, are also investigated. Other topics include the historical evolution of current marketing systems, marketing functions, fundamental and technical analysis, and use of marketing information. Policy issues and regulation and their relationship to market structure are discussed, together with a description and analysis of Canada's position in international grain markets and the transportation system.
**Prerequisite(s):** AGEC 52 and enrolled in the Diploma in Agriculture program.

**AGEC 72.6 — 2(3L)**
**Principles of Selling**

Introduction to the principles of salesmanship and their application to agricultural business. Emphasis will be placed on the application of principles to real-world situations and on building selling skills through class projects. Students will learn tactical selling skills, develop self-management skills, and study strategic selling techniques. Policies (current and impending) and regulations governing salesmanship are discussed.
**Prerequisite(s):** AGEC 52 and AGRC 61 or 62 and enrolled in the Diploma in Agriculture program.

**AGEC 74.6 — 2(3L)**
**Agribusiness Marketing**

Agribusiness includes all activities involved in bringing food and fibre to the final consumer. Agribusiness marketing involves marketing activities in the input sector, the agricultural production sector, and the processing/manufacturing sector - essentially to the point that a purchase is made by the final consumer of the good or service. Agribusiness marketing also encompasses issues of trade in food and fibre products. This course will focus on the importance of effective marketing management to the success of an agribusiness firm. Students will be introduced to the marketing management practices of successful agribusiness firms. The selection of target markets and the development of the marketing mix will be emphasized.
**Prerequisite(s):** AGEC 52 and enrolled in the Diploma in Agriculture program.

**AGEC 75.6 — 2(3L)**
**Agricultural Business Capstone**

Assists students to develop and integrate the knowledge and skills required to prepare and present a business plan for an agribusiness entity. Students will work in teams and the course will stress the importance of team collaboration.
**Prerequisite(s):** AGEC 42, 52 and 62; AGRC 61 or 62, and enrolled in the Diploma in Agriculture program.

**AGEC 76.6 — 2(3L)**
**Agricultural Policy**

An examination of why government policy is important to the agricultural industry and why governments at all levels become involved. Areas of policy are examined, with emphasis on policies which affect the holding and operation of farm land and those which affect the transportation and handling of grain crops. A detailed examination is made of several provincial government policies as they affect the farm operator in Saskatchewan. Farm organizations, the farm lobby and the role of the media are also discussed.
**Prerequisite(s):** AGEC 52 and enrolled in the Diploma in Agriculture program.

**AGEC 78.6 — 2(3L)**
**Management Accounting**

Introduces students to management accounting concepts and principles. The course will concentrate on cost concepts, the design of cost accounting systems, cost allocation and the role of management accounting in the internal decision-making process of an organization.
**Prerequisite(s):** AGEC 42 and 62 and enrolled in the Diploma in Agriculture program.

**AGEC 79.6 — 2(3L)**
**Crops and Livestock Marketing**

Designed to foster an understanding of crops and livestock marketing. The applied skills which are necessary tools for the modern agricultural producer will be developed, with a focus on marketing management as a principal activity in the farm business applied to grain, oilseed, pulse and specialty crops, including herbs and spices, beef, pork, supply-managed commodities, and non-traditional livestock. A central point is the development of a marketing plan for an agricultural business. Marketing and risk management strategies are incorporated into farm management decisions in order to understand the implications associated with each. Skills and strategies are developed that can be used as marketing tools in various agricultural enterprises. Pricing and delivery alternatives and strategies are examined, including futures, options, charting and contracting.
**Prerequisite(s):** AGEC 66 or permission of the instructor, and enrolled in the Diploma in Agriculture program.

**AGEC 81.3**
**Agribusiness Experience**

Begins the process of building, articulating and documenting required competencies for entry-level positions in agribusiness management. Students will be required to demonstrate excellent job search skills, and use both technical and soft skills in industry to develop a career path. They will be required to apply, be interviewed and work for an employer within the business community. For the work term to qualify as a bona fide experience students must be able to articulate the employability skills that they will develop over the course of the work term and incorporate these into their career plan.
**Prerequisite(s):** Credit for Agric 80 and successful completion of Year 1 in the Diploma in Agriculture program.

**AGEC 88.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGEC 89.6**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGEC 230.3 — 1(3L)**
**Innovation and Entrepreneurship in Agribusiness**

Explores the historical and economic roles of entrepreneurship in the agricultural sector of the Canadian economy. Included in this will be a discussion of the important role that entrepreneurship has played in the growth of the prairie economy. Students will be exposed to theory and practice of entrepreneurship in the context of both independent and corporate organizations. The theory of entrepreneurship is investigated through discussion of classical and current literature. Entrepreneurship practice is explored through interviews and discussions with entrepreneurs.

**AGEC 261.3 — 1(3L-2P)**
**Research Methods in Agricultural Economics**

An introduction to research methods in agricultural economics, and a survey of the various quantitative and qualitative tools commonly used in agricultural economics. Includes an introduction to economic data and the use of computers in data collection, included will be an introduction to sampling, survey design, and basic statistical inference. Data manipulation and methods for describing and displaying data will be covered. Course content will emphasize the computer skills necessary for advanced agricultural economics courses.

**AGEC 272.3 — 2(3L-2P)**
**Introduction to Agricultural Economics**

Demonstrates the practical application of the economic theory and technique developed in previous courses. On-going and published research is used to teach the step by step process of using economic theory to understand and analyze issues with which the discipline concerns itself. In addition, current issues and policies are selected to guide students through the process of translating an economic problem into a researchable question. Students will participate by defining their own research questions, selecting the appropriate theoretical framework, finding data appropriate to conducting an analysis, doing a simple empirical analysis, summarizing results and discussing implications of their research in the form of a paper.
**Prerequisite(s):** AGEC 261 (or 262); ECON 211.

**AGEC 292.3 — 1(3L)**
**Economics of Biotechnology**

Advances in scientific knowledge and technology are transforming the nature of economic growth and giving rise to new industries. This course examines the nature and organization of the biotechnology industry from the perspective of policy and economics. The primary focus will be on the agri-food system.
**Prerequisite(s):** Completion of 30 credit units of university-level courses.

**AGEC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGEC 302.3 — 1(3L)**
**Intermediate Agricultural Economics**

Covers the principles of economics and their application to optimal resource allocation in agriculture. The first part of the course will cover topics in production economics, pricing and market structure. The second part will examine the theory of consumer demand and utility.
**Prerequisite(s):** ECON 111.
**Note:** Agricultural Economics students cannot take this course for credit. Only one of AGEC 302, ECON 211 and ECON 213 can be taken for B.S.A. credit.

**AGEC 315.3 — 1(3L-2P)**
**Application of Microeconomic Theory to Agriculture**

A calculus treatment of microeconomic theory as it applies to optimal resource allocation in agriculture, individual consumer choice, and the behaviour of competitive markets.
**Formerly:** AGEC 310.
**Prerequisite(s):** ECON 211; MATH 110 and MATH 112 or 116 or 213 or 264 or ECON 305 or 306.

**AGEC 320.3 — 1(3L-2P)**
**Introduction to Farm Business Management**

The analysis and interpretation of basic farm accounting records and the use of this information in planning future farm decisions. Skills taught will include an analysis of financial statements, including ratio and trend analysis and projecting future farm business plans using budgeting and computerized tools.
**Prerequisite(s):** AGEC 302 or COMM 101 or ECON 211.
**Note:** Agricultural Economics students cannot take this course for credit.

**AGEC 322.3 — 2(3L-2P)**
**Farm Business Management**

Analysis of farm business financial statements using ratio and trend analysis. Forward planning using capital budgeting and risk analysis techniques. Case studies will be used throughout the course.
**Prerequisite(s):** ECON 211; COMM 201; COMM 203 and 204.

**AGEC 330.3 — 1(3L)**
**Land Resource Economics**

A study of natural resource economics with emphasis on environmental economics, measurement of non-market goods, project evaluation, issues in urban and rural land use, and conservation. Policy problems related to the foregoing will be examined.
**Formerly:** AGEC 430.
**Prerequisite(s):** AGEC 302 or ECON 211 or 213.

**AGEC 342.3 — 2(3L-2P)**
**Industrial Organization of Agricultural Markets**

Describes the current structure of agriculture and changes currently taking place. Theoretical concepts such as oligopoly models, game theory, and transactions costs theory are developed. These theories are used to examine such issues as market concentration, spatial competition, vertical integration, contracting, and agricultural research and development.
**Prerequisite(s):** AGEC 315 or permission of the instructor.

**AGEC 343.3 — 2(3L)**
**Grain and Livestock Marketing**

A study of the Canadian grain and livestock marketing systems, procedures and institutions. Examines the price discovery methods used in grains and livestock marketing including: open (futures) market, marketing boards, teletype auctions, etc. Other topics include: the historical evolution of current marketing systems, marketing functions, government policy and regulation and market structure.

**AGEC 344.3 — 2(3L)**
**Follow the Grain**

Provides a supply chain perspective of science, technology, production practice, product handling, product marketing systems, and end uses for grain produced in Saskatchewan. Students will learn how public and private institutions have evolved to govern the process of scientific discovery and marketing to increase the value created in the sector and how different processes, regulations and institutions have evolved to address issues within the supply chain. Contemporary issues such as organic marketing, GM market impacts, and kernel visual distinguishability will be examined.
**Prerequisite(s):** A minimum of 60 credit units of university level courses or permission from the instructor.

**AGEC 346.3 — 3L**
**Principles of Selling**

Introduces the principles of salesmanship and their application to agricultural business. Emphasis will be placed on the

application of principles to real-world situations and on building selling skills through class projects. Students will learn tactical selling skills, develop self-management skills, and study strategic selling techniques. Policies (current and impending) and regulations governing salesmanship are discussed.
**Prerequisite(s):** COMM 204 or AGEC 343 or permission of the instructor.

**AGEC 347.3 — 1(3L)**
**Agribusiness Marketing Management**

Focuses on the role of the agri-marketing manager as a decision maker who is often responsible for formulating strategic marketing plans. Topics include the agricultural and agribusiness marketing environment, selecting market targets for products/services, and the development of marketing plans. The marketing activities of Saskatchewan's agribusinesses will be examined.
**Prerequisite(s):** One of AGEC 343, COMM 204 and permission of the instructor.

**AGEC 361.3 — 1(3L-2P)**
**Intermediate Statistical Analysis**

Focuses on analysis of agricultural management and marketing issues using statistical methods. Topics include: data collection, estimation, and test of hypotheses in regression analysis; use of binary variables and non-linear regression.
**Formerly:** AGEC 362.
**Prerequisite(s):** AGEC 261; STAT 245; or equivalent.

**AGEC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGEC 420.3 — 1(3L-2P)**
**Farm and Agricultural Business Operations Management**

An introduction to the theory and practice of operations and financial management under risk and uncertainty. This consists of an examination of techniques and procedures which can be used by the manager and by the professional acting as consultant to the manager. Techniques reviewed include total farm budgeting, linear and quadratic programming and decision analysis.
**Prerequisite(s):** AGEC 322 or equivalent.

**AGEC 430.3 — 1(3L)**
**Natural Resource Economics**

Management and allocation of natural resources requires an understanding of the biophysical characteristics of resources, and the economics underlying decisions of resource users and society. This course will develop a series of tools to evaluate natural resource use from the management and policy perspective. The course will focus on renewable resources with some consideration of nonrenewable resources. Students will become familiar with dynamic mathematical and simulation models to evaluate the use of natural resources over time.
**Prerequisite(s):** AGEC 315, ECON 306 or equivalent, and at least one of AGEC 330, ECON 275 and ECON 277; permission of the instructor.

**AGEC 432.3 — 2(3L)**
**Rural Development Theory Policy and Case Studies**

Focuses on the theories of rural development, a review of the rural development policies of federal and provincial governments and an analysis of various rural development projects. Comparisons are made at appropriate points between Canadian and U.S. policies and development programs.
**Prerequisite(s):** ECON 211 and 214.

**AGEC 433.3 — 2(3L)**
**Methods of Rural Analysis Theory and Application**

The methods used in the analysis of rural economies, with particular emphasis on economic impact analyses, will be examined. Case studies utilizing these techniques will be reviewed and analyzed.
**Prerequisite(s):** ECON 211 and 214.

**AGEC 434.3 — 2(3L)**
**Economic Methods of Project Analysis**

Examines and illustrates various techniques to analyze the economics of an investment project. Techniques covered include: benefit-cost analysis, input-output based impact analysis, computable general equilibrium models, and methods to deal with linkages between environment and development. Project analysis from a sustainable development perspective and multiple criteria methods for planning of projects are also included.
**Prerequisite(s):** AGEC 302 or 315 (or 310), and ECON 214; or permission of the instructor.

**AGEC 435.3 — 2(3L-2P)**
**Agricultural Finance and Appraisal**

Study and application of economic principles in agricultural finance and capital investments analysis and farm real estate appraisal. Farm finance includes the study of financial management and agricultural credit. Farm appraisal includes a study of land values and the various approaches to the valuation and assessment of farm real estate.
**Prerequisite(s):** AGEC 420 or COMM 203.

**AGEC 440.3 — 2(3L)**
**Agricultural Marketing Systems**

Provides an understanding of how prices are discovered under alternative marketing systems in the Canadian agriculture and food industries. Price discovery mechanisms under open and regulated markets are examined including buyer-seller negotiations, futures and options, auctions and use of formulas and contracting. The performance of alternative systems is examined. The course introduces the additional subjects of information theory, institutional economics and contracting.
**Prerequisite(s):** AGEC 315 (or 310) and 342 (or 340); or permission of the instructor.

**AGEC 451.3 — 1(3L)**
**Agricultural Problems and Policies**

A review of the scope and character of problems affecting Western Canadian agriculture, and a study of the policies and legislation bearing on those problems. Students will be assigned special references for review and discussion and will complete a term assignment on a special phase of the course. Special emphasis is given to student participation.
**Prerequisite(s):** AGEC 315 (or 310).

**AGEC 461.3 — 2(3L-2P)**
**Agricultural Commodity Analysis**

Deals with two basic approaches to analysis of agricultural commodities, including variables such as prices, outputs and sales. The first approach focuses on the causal relationships among economic variables, and the topics include supply-disposition analysis, regression analysis, and an introduction to econometric modeling. The second approach focuses on the time series characteristic of an economic variable and the topics include trend extrapolation, exponential smoothing and Box-Jenkins analysis.
**Prerequisite(s):** AGEC 361; or equivalent.

**AGEC 492.3**
**Research Project and Technical Writing**

This is a major research, technical writing and communications project that involves investigation of a relevant economic problem. The project includes a literature review utilizing electronic and library resources, a clear articulation of the appropriate economic concepts, an empirical investigation, and interpretation of results. A comprehensive research report is written. Research methodology and technical writing skills are addressed in a series of lectures at the beginning of the term.
**Prerequisite(s):** Successful completion of 75 credit units towards the BSA with a major in Agricultural Economics, or towards the B.Sc.(Agbus) degree.

**AGEC 494.6**
**Research and Technical Writing (Honours Thesis)**

This is a research, technical writing and communications course in which the student conducts independent research on a relevant economic problem. The research project includes a literature review utilizing electronic and library resources, a clear articulation and use of the appropriate concepts, an empirical investigation, and the interpretation and presentation of results. A comprehensive and formal research paper is written. An oral presentation of the results is required. Research methodology and technical writing skills are addressed in a series of lectures at the beginning of the term.
**Prerequisite(s):** Successful completion of 75 credit units towards the BSAH with a major in Agricultural Economics.

**AGEC 495.3 — 1(3L)**
**Agribusiness Venture Management**

Designed to assist students in developing and understanding the skills and tools required in the preparation and presentation of a complete and professional business plan for a business entity in the agricultural industry. All aspects of the business plan are included in the project: operations, human resources, marketing and finance. Students will be expected to form groups to complete a major project.
**Prerequisite(s):** Open to third and fourth year students registered in the Colleges of Agriculture and Commerce.

**AGEC 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# AGRC — AGRICULTURE

College of Agriculture

**AGRC 40.3 — 1(2L-2P)**
**Introduction to Communication**

Provides instruction and practice in written and oral communication. Topics include developing a thesis, writing essays, letters, reports and résumés, and delivering demonstrative, social, impromptu, informative, and persuasive speeches. Assignments emphasize language usage, organization, information gathering, expression and, in oral communications, poise and projection. Students are encouraged to incorporate a discussion of agricultural issues, trends and ethics into both oral and written communications.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGRC 45.3 — 1(2P)**
**Computer Applications**

An introduction to microcomputer hardware and software currently in use within the Diploma in Agriculture program. Emphasis will be placed on learning how to use the hardware, developing some skills in word processing, and understanding the basic functioning of a spreadsheet program; the use of a database program and an accounting program will also be introduced.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGRC 60.3 — 1(3L)**
**Professional Communication**

Enhances communication skills for a business/professional context, including the proper conduct of meetings, the drafting of motions, proposals and briefs, and the process of building consensus. The course studies group dynamics, particularly in oral communications. Students participate in panel discussions and debates, strategy sessions and media relations, and consider ways in which decisions are made and implemented.
**Prerequisite(s):** AGRC 40 and enrolled in the Diploma in Agriculture program.

**AGRC 61.3 — 1(3L)**
**Leadership and Community**

Designed to introduce students to concepts of leadership in a practical and applied manner. In addition, the course will provide some insight into the various factors which are at work in the community and which influence the way in which the community functions. Past and current Canadian leaders will be examined. Government policies, lobby groups and the media will be studied, and the way in which effective leaders can respond in the interests of the agricultural industry will be addressed.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGRC 62.3 — 1(3L)**
**Human Resource Management**

Provides an opportunity to study issues related to human resource management in the agriculture industry in western Canada. Emphasis will be placed on understanding human resource management theory and practice. Topics addressed include the managerial role, management theory, group work behaviour, and leadership. More practical applications, such as motivation, staffing, performance appraisal, stress and time management, and interpersonal relations, receive considerable attention.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGRC 80.0**
**Career Readiness**

Begins the process of enabling students to articulate and document the required competencies for entry-level agribusiness management positions. The student will be required to participate in in-class discussions and participate in tutorials pertaining to developing job search skills. Information will be presented to help students make an informed choice about a specialization in the Diploma program.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**AGRC 111.3 — 1(3L-2P)**
**Agricultural Science I**

An introduction to agricultural systems illustrating the interactions between plant, animal, microbial, human and environment components. The soil/plant/environment interface is emphasized. Management decisions affecting cropping and land use are examined.

**AGRC 112.3 — 2(3L-2P)**
**Agricultural Science II**

An introduction to agricultural systems and the interactions between microbial plant, animal, and human components. The emphasis is on issues and problems associated with animal production, value-added processing, marketing and the consumption of food.

**AGRC 113.3 — 2(3L)**
**Agri Food Issues and Institutions**

Examines the institutional setting within which the agri-food sector operates, as well as the drivers that affect this setting. Attention is paid to changes in the demand for food and bio-based products, the changing nature of production, and long-term trends in productivity, prices, employment and trade. The course examines the manner in which decisions about technology adoption, employment, diversification, R&D expenditures, and government policy are made; the institutions (e.g., laws, contracts, social norms, markets) that govern this decision making; the social, legal, political and economic factors that affect these institutions; as well as the implications for the agri-food sector of decisions made.
**Prerequisite(s):** ECON 111.

**AGRC 170.0**
**Work Experience I**

Co-operative Education
**Prerequisite(s):** Acceptance into the program.

**AGRC 270.0**
**Work Experience II**

Co-operative Education
**Prerequisite(s):** AGRC 170.

**AGRC 290.3 — 1/2(3L-6T)**
**Microcomputers in Agriculture**

An introduction to microcomputer hardware and software currently in use within the College of Agriculture. Software skills necessary in advanced agricultural courses will be covered. Course content and format will reflect the microcomputer systems utilized in the college.

**AGRC 291.3 — 1(1L-2P)**
**Oral and Written Communications**

Provides instruction and practice in technical and professional writing and oral communication. Topics include preparation of a resume, memorandum, technical and business correspondence, formal and informal reports, speech organization, delivery, impromptu talks, group discussion methods, parliamentary procedures and use of audio-visual aids.

**AGRC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGRC 306.3 — 2(3L)**
**Issues in Agriculture and Food Law**

Examines current issues in agriculture and food law, including environmental, intellectual property, international trade, leasing, contracts and food safety law.
**Prerequisite(s):** Completion of 60 credit units of university level courses.

**AGRC 370.0**
**Work Experience III**

Co-operative Education
**Prerequisite(s):** AGRC 270.

**AGRC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGRC 470.0**
**Work Experience IV**

Co-operative Education
**Prerequisite(s):** AGRC 370.

**AGRC 492.3 — 1&2**
**Term Paper and Technical Writing**

The first portion of the course is composed of lectures on writing to be given in the first seven meetings. In the second portion of the course the student will select a topic and be assigned to a professor for supervision. An acceptable typed copy of the term paper must be presented to the department.
**Prerequisite(s):** For Agricultural Economics students: AGEC 315 (or 310), 342 (or 340) and 361 (or 362). Other students are asked to consult a program advisor in their area of specialization.

**AGRC 493.3**
**Team Project in Agricultural Science**

Students will be assigned to small, interdisciplinary groups to address a current problem in agriculture. They will work closely with one or more faculty members or professionals in the private or public sectors to prepare a comprehensive written report. A final oral report may be required.
**Prerequisite(s):** Successful completion of 75 credit units towards the B.S.A. degree before registration.

**AGRC 494.6 — 1&2**
**Research and Thesis**

A project is selected, in consultation with a faculty supervisor, which will provide an opportunity for the student to gain experience in literature review and collection, analysis and interpretation of primary or secondary data. The project results will be presented to the supervising department as a thesis. A seminar presentation is required.

**Prerequisite(s):** Registered B.S.A. Honours students or special permission from the Head of the supervising department. Factors taken into consideration by departments in granting permission include the student's academic record, background preparation, research aptitude, availability of an appropriate supervisor, and the resource requirements of the proposed research project.

**AGRC 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**AGRC 570.0**
**Work Experience V**

Co-operative Education
**Prerequisite(s):** AGRC 470.

# AGRN — AGRONOMY

Department of Plant Sciences, College of Agriculture

**AGRN 75.6 — 2(3L)**
**Advances in Agronomy**

Provides a forum to investigate current agrnomic issues of importance to western Canada. Students acquire information about these issues through invited presentations by recognized experts, independent research and team problem solving. They are encouraged to investigate each issue in a multidisciplinary manner and communicate their findings in both oral and written form.
**Prerequisite(s):** PLSC 41; SLSC 41, 52, and enrolled in the Diploma in Agriculture program.

# ANES — ANESTHESIOLOGY

Department of Anesthesiology, College of Medicine

**ANES 501.2 — PD**
**Anesthesiology**

This is a compulsory rotation for final year medical students with the terminal objective that the graduating student possess the technical expertise of ACLS with the knowledge required of a family practitioner to competently prepare and counsel patients for anaesthesia and surgery at a basic level. Students are taught peri-operative management. This includes pre-operative evaluation and optimization, adult, pediatric, obstetric and outpatient anaesthesia and monitoring, and post-operative care including recovery room, intensive care and pain management. Interactive seminars and rounds cover related material. Clinical exposure is provided at the Regina General Hospital and all three Saskatoon hospitals.
**Note:** Two-week course restricted to students enrolled in the College of Medicine.

# ANSC — ANIMAL SCIENCE

Department of Animal & Poultry Science, College of Agriculture

**ANSC 41.6 — 1(3L-2P)**
**Introductory Livestock Production Science**

Introduces students to the structure of the livestock industry in Canada and Saskatchewan. Includes a survey of government programs and management methods for the beef, dairy, swine, poultry and exotic livestock industries, with emphasis on sustainable farming operations. The course will also provide a scientific basis for farm animal production by exploring some of the basic biology related to animal anatomy, cell and nervous function, muscle physiology and regulation of growth and carcass quality.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ANSC 55.6 — 2(3L-2P)**
**Animal Nutrition and Feeding**

An introduction to basic nutrition and digestion in monogastric and ruminant animals. Quantification of the nutrient contribution of feeds and the consequences of deficiencies/toxicities of individual nutrient classes. The second half of the course will review feed classification, emphasizing local ingredients and their use in animal feeds. Factors affecting ingredient quality, feed mixing systems and feed processing are discussed; with feed regulations and responsibility in feed mixing. Laboratory sessions cover interpretation of dietary requirements, feed analysis, feeding attributes of ingredients and feed formulation.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ANSC 56.6 — 2(3L-2P)**
**Animal Breeding and Genetics**

Designed to acquaint students with the reproductive systems of domestic animals, principles and systems of selecting and breeding farm species of livestock in purebred and commercial enterprises, genetic principles, mating systems, selection techniques, and measures of genetic progress.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**ANSC 65.6 — 1(3L-2P)**
**Beef and Sheep Production**

The cow-calf sector of the beef industry will be covered from the standpoint of national and global concerns. Facilities, breeding and calf management, feeding, health and marketing will be discussed. The second half of this course provides an understanding of the feeding and management of feedlot cattle and sheep housed under western Canadian environmental conditions. Emphasis is placed on global competitiveness. Facilities, feeding, health and recommended management practices will be discussed. Laboratory sessions will include projects, seminars, demonstrations, tours and computer exercises to provide the student with practical training and knowledge of these sectors of the beef industry.
**Prerequisite(s):** ANSC 55 and 56, and PLSC 58 or permission of the instructor.

**ANSC 77.6 — 2(4P)**
**Livestock Production Enterprises**

Exposes students to practical aspects of livestock production and agribusiness. Critical analysis of specific livestock operations will be carried out using actual production and financial data. Guest lecturers will lead discussions on the most recent advances in animal agriculture, ethics, research, policy and industry structure.
**Prerequisite(s):** ANSC 65 or permission of the instructor and enrolled in the Diploma in Agriculture program.
**Corequisite(s):** ANSC 79.

**ANSC 78.3 — 2(3L-3P)**
**Horse Care**

A basic course on all aspects of horse management. Topics covered include conformation, nutrition, breeding, conditioning and diseases. Horse related businesses and training methods are also discussed.
**Prerequisite(s):** ANSC 55 and 56; or permission of the instructor and enrolled in the Diploma in Agriculture program.

**ANSC 79.6 — 2(3L-2P)**
**Swine Dairy and Poultry Production**

Deals with the management principles and practices in swine, dairy and poultry production. Lecture topics will include breeding, feeding, management and marketing for these livestock classes. Laboratory sessions will involve solving feeding and management problems, relevant demonstrations and exercises, and some hands-on work with livestock.
**Prerequisite(s):** ANSC 41, 55, 56 or permission from the instructor.

**ANSC 88.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANSC 89.6**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANSC 212.3 — 1(3L-2P)**
**Livestock and Poultry Production**

The structure of the livestock and poultry industries. Principles, problems, and programs associated with production.

**ANSC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANSC 301.3 — 1(L/P)**
**Animal Production Tour**

Introduces students to the diversity of animal agriculture and agri-business. Students will participate in a five day field trip that will cover traditional and exotic livestock production and marketing enterprises as well as food and feed processing facilities. Emphasis will be placed on exposing the student to livestock production conditions over the range of commercial operations found in Saskatchewan. Students will be expected to integrate information gathered from the field-trip into oral presentations and term reports with a goal of providing the student with background information necessary to complete upper year Animal Science courses. A special fee (approximately $300.00) will be assessed to cover expenses.
**Prerequisite(s):** ANSC 212 and permission of the instructor.

**ANSC 313.3 — 2(3L-2P)**
**Animal Breeding and Genetics**

Qualitative and quantitative genetics applied to animal improvement. Principles and systems of selecting and breeding domestic animals. Introduction to molecular genetics related to animals.

**ANSC 315.3 — 1(3L-2P)**

**Animal and Poultry Nutrition**

Lectures cover the principles of nutrition; the processes of digestion and utilization of foods and feeds; and the character, sources, function and requirements of the various nutrients. Laboratory work includes participation in laboratory analysis of feeds and practical nutritional exercises.
**Prerequisite(s):** BIOC 200, 211; or permission of the instructor.

**ANSC 333.3 — 2(3L-1P)**
**Animal Environments**

An integrated approach to the needs of livestock and poultry confined in intensive husbandry systems. The relationship of physiology, behaviour and productivity to temperature, ventilation, light, pen and building layout to be discussed. A project involving the evaluation of animal facilities is required.
**Prerequisite(s):** ANSC 212; or permission of the instructor.

**ANSC 340.3 — 2(3L-2P)**
**Monogastric Animal Production I**

The classification, characteristics and processing of concentrate feeds as well as operating and management applications relating to swine production. Laboratory exercises involve solving feeding and swine management problems. The course will also cover specialty feeds (pet food).
**Prerequisite(s):** ANSC 212; or permission of the instructor. ANSC 315 is recommended.

**ANSC 360.3 — 2(3L)**
**Canine and Feline Science**

Covers canine evolution, history of domestication and breed development. The use of dogs in therapy, herding, etc. will be discussed. Professional dog kennel operation, design, legislation and licensing thereof will be included. Feeding, care and management of cats and dogs will be covered.
**Prerequisite(s):** BIOL 110.6.

**ANSC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANSC 410.3 — 1(3L-2P)**
**Grazing Animal Production**

Provides senior undergraduate students with an understanding of the management, feeding and productivity of the breeding beef herd and horses. Includes both summer grazing and winter feeding management. Emphasizes the effect of climate on management and feed requirements; environmental impacts of grazing; stocking rates; plant palatability, preference and selection; nutritional behavior; nutrient cycling and energy flow; interactions with wildlife; ingestion of toxic plants.
**Prerequisite(s):** ANSC 212; or permission of the instructor.

**ANSC 411.3 — 1(3L)**
**Behaviour of Domestic Animals**

Provides students with an understanding of the principles of animal behaviour, and how these relate to management of domestic species. Emphasizes the social behaviour of animals and introduces the relationship between animal behaviour and animal welfare.
**Prerequisite(s):** ANSC 212.

**ANSC 430.3 — 2(3L-4P)**
**Intensive Management of Beef Cattle**

Covers the feeding and management of beef cattle housed under intensive conditions. Topics include the principles of growth and development, carcass quality, feedlot diseases, marketing, feedlot design and environmental concerns with intensive feedlot operations. A brief overview of production using alternative species of ruminants (deer, bison, wapiti) is also provided.
**Prerequisite(s):** ANSC 212; ANSC 315 and 340 are recommended.

**ANSC 440.3 — 1(3L-2P)**
**Monogastric Animal Production II**

Review of poultry production systems with emphasis on breeding, housing and environmental control, feeding, disease prevention, and processing of meat and eggs. Lectures will integrate scientific principles with production techniques, relate management and nutrition to problems in and the economics of industrial production and highlight current issues. Laboratories will include tours of selected poultry facilities as well as projects in artificial incubation and hatching, management techniques for poultry and judging egg quality. Similar, but less extensive coverage, will be provided for Aquaculture production systems.
**Prerequisite(s):** ANSC 212; or permission of the instructor. ANSC 315 and 340 are recommended.

**ANSC 450.3 — 2(3L)**
**Equine Studies**

Provides an overview of the horse industry, basic horse management and welfare issues stressing the unique requirements of the horse and its place in agriculture and society. In-depth study of nutrition, reproductive physiology, genetics, as well as cardio-pulmonary, muscle and bone physiology, with emphasis on the relationship between physiology and management, will be provided.
**Prerequisite(s):** ANSC 212 or permission of the instructor; VBMS 324 and 325 are recommended.

**ANSC 460.3 — 2(3L-2P)**
**Intensive Management of Dairy Cattle**

Provides students with an understanding of the management and feeding of dairy cattle housed under intensive management conditions. Topics to be covered include the economics and marketing of milk and milk products, the science of feeding dairy cattle to meet their nutrient requirements, principles of ration formulation, management of the transition dairy cow, rearing of replacement heifers, milking systems, management of reproduction, herd health, and manure management and environmental impact of intensive dairy operations.
**Prerequisite(s):** ANSC 212; ANSC 315 and 340 are recommended.

**ANSC 470.3 — 1(3L-4P)**
**Applied Animal Biotechnology**

Covers reproductive technologies; transgenic techniques; molecular genetics in animal selection; use of recombinant proteins for growth, lactation and reproduction; immunological modulation of animal production; improvement of feeds and rumen organisms; improvement of health. In addition, ethical and safety aspects will be considered. Emphasizes the application and impact of biotechnological techniques on animal production.
**Prerequisite(s):** ANSC 313; VTP 324 and 325; or equivalent.

**ANSC 480.3 — 2(3L-2P)**
**Poultry Feeds and Feeding**

Pertains to organs of digestion and the digestion of feeds, feedstuff evaluation and quality, nutrient requirements, and advanced management and problem solving with emphasis on feeding programs. Laboratory work will include ration formulation, a research project and tours of selected poultry operations.

**ANSC 492.3 — (1&2)**
**Thesis in Animal Science**

Students develop a question to be explored in depth in an area relevant to Animal Science. Working with a faculty supervisor of his or her choosing, the student prepares a thesis on this topic through several stages of development and revision. Most often the thesis relies on current scientific literature but occasionally additional new data are analyzed. Each student delivers a presentation in a conference setting at the end of the course, with other senior students and faculty in attendance.
**Prerequisite(s):** Three years completed towards a B.S.A. degree.

**ANSC 494.6 — (1&2)**
**Research Thesis in Animal Science**

Restricted to students with a 70% cumulative average as of January of third year. Students considering graduate work are encouraged to enroll. Placements are limited. The student develops a question to be explored in depth in an area relevant to Animal Science. Working with a faculty supervisor of his or her choosing, the student collects relevant data during a series of experiments conducted over the summer months. Two additional advisors participate in the student's committee. Statistical analysis of data is conducted and the student prepares a thesis based on their results, through several stages of development and revision. Each student delivers a presentation in a conference setting at the end of the course, with other senior students and faculty in attendance.
**Prerequisite(s):** Three years completed towards a B.S.A. degree and permission of the Department.

**ANSC 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ANTH — ANTHROPOLOGY

Department of Religious Studies & Anthropology, College of Arts and Science

**ANTH 111.3 — 1/2(3L)**
**Introduction to Cultural Anthropology**

Acquaints the student with contemporary social and cultural variation. The basic mechanisms of society and culture will be explained within a comparative framework.
**Note:** Students with previous credit for ANTH 110 may not take this course for credit.

**ANTH 220.3 — 1/2(3L)**
**Introduction to Ethnological Theory and Social Structure**

Outlines the major social and cultural theories which have been developed by anthropologists. It also surveys the principles of social structure (with a special

emphasis on kinship) as well as economic and political organization.
**Prerequisite(s):** ANTH 111.

**ANTH 224.3 — 1/2(3L)**
**North American Plains Ethnography**

A comprehensive survey of the ethnography and ethnohistory of the cultures of the North American plains and prairies. The composition and development of the plains culture complex will be treated together with the impact of acculturation on this life-style.
**Prerequisite(s):** ANTH 111 or NS 110.

**ANTH 225.3 — 1/2(3L)**
**Peoples and Cultures of East Asia**

General survey of the social, economic, political and religious institutions of the countries of East Asia from an anthropological perspective. Traditional culture and social organization, and contemporary responses to modernization are considered with an emphasis on minorities. China will be the primary focus, with secondary focus on Japan and Korea.
**Prerequisite(s):** ANTH 111.

**ANTH 226.3 — 1/2(3L)**
**Business and Industrial Anthropology**

Examination of the utility of cultural anthropology's concepts, theory, methodology and insights in creatively influencing the conduct of domestic and international business. Cross-cultural business etiquette, understanding of marketing and consumer behaviour, and importance of intercultural negotiation in solving business problems in multicultural/transnational organizational settings are also discussed.
**Prerequisite(s):** ANTH 111 or completion of 30 credit units at the university level including an introductory social science course.

**ANTH 227.3 — 1/2(3L)**
**Cultures of Central and Eastern Europe**

Broadly considers society and culture in Eastern and Central Europe, how the region today is related to both the socialist and pre-socialist pasts, and how ethnography as a key research tool used by anthropologists helps to account for sociocultural changes the region is undergoing since the late 1980's.
**Formerly:** ANTH 298.
**Prerequisite(s):** ANTH 111 or completion of 30 credit units at the university level, including an introductory social science course.
**Note:** Students with credit for ANTH 298 Special Topics: Cultures of Central and Eastern Europe may not take this course for credit.

**ANTH 230.3 — 1/2(3L)**
**Introduction to Cultural Dynamics**

Examines some of the major dimensions of non-material culture including religion, magic, and constructs of space and time. It also examines processes of enculturation and culture change.
**Prerequisite(s):** ANTH 111.

**ANTH 231.3 — 1/2(3L)**
**Cross Cultural Perspectives on Health Systems**

Examines the medical systems of practice and belief utilized by non-Western traditional societies in contending with the universal realities of disease and mental illness. The attempts to extend Western medical systems into traditional societies will also be considered.
**Prerequisite(s):** An introductory course in the social sciences.

**ANTH 232.3 — 1/2(3L)**
**Peoples and Cultures of South Asia**

A general survey of the social, economic, political and religious institutions of the countries of South Asia from an anthropological perspective. Both the traditional cultures and the changes which are taking place are considered. Although the primary emphasis in the course is on the peoples and cultures of India, comparative materials from Pakistan, Bangladesh, Sri Lanka, Nepal, and other areas of South Asia are also examined.
**Prerequisite(s):** ANTH 111.

**ANTH 233.3 — 1(2L-1S)**
**Anthropological Perspectives on Contemporary Ukraine**

Explores the effects of post-soviet transition in today's Ukraine on the lives, identities and practices of its people. The emphasis is placed on how ethnography - a key research tool of anthropologists - helps to account for the changes the Ukrainian society has undergone since the late 1980s.
**Formerly:** ANTH 298.3 Special Topics: Anthropological Perspectives on Contemporary Ukraine.
**Prerequisite(s):** An introductory course in the social sciences.
**Note:** Students with credit for ANTH 298.3 Special Topics: Anthropological Perspectives on Contemporary Ukraine may not take this course for credit .

**ANTH 235.3 — 1/2(3L)**
**Anthropological Approaches to Ethnicity and Ethnic Groups**

Introduction and assessment of various anthropological approaches to the study of ethnicity and ethnic groups in a cross-cultural comparative framework.
**Prerequisite(s):** ANTH 111 or completion of 30 credit units at the university level including an introductory social science course.

**ANTH 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANTH 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ANTH 300.3 — 1/2(3R)**
**Reading Course**

**ANTH 301.3 — 1/2(3R)**
**Reading Course**

Supervised reading courses in a particular aspect of one of the branches of anthropology not offered in lecture form in this department. A detailed reading program will be designed on an individual basis and will be guided by regular consultation with one or more faculty members. The student is required to prepare a comprehensive proposal for approval by the Head of the Department and make arrangements with a professor to supervise the course. Students must discuss the project with the Department Head before registration.
**Prerequisite(s):** Minimum of 24 undergraduate anthropology/archaeology credit units.
**Note:** Not more than 3 credit units will be allowed for calculation of honours standing or scholarship recommendation.

**ANTH 311.3 — 1/2(3L)**
**Selected Topics in Ethnology**

Coverage of specialized areas of ethnological analysis, method and theory of an ethnographic region of the world not covered in the listed ethnology curriculum. Topics could include peasantry; cultures of Latin America, Southeast Asia or Africa; cognitive or symbolic anthropology.

**ANTH 321.3 — 1/2(3L)**
**Myth Ritual and Symbolism**

Critically examines various approaches to the study of primitive religion and ritual symbolism. The problems in the study and interpretation of myth, ritual, and symbol are considered through a survey of the works of both early social scientists and contemporary scholars. The role of symbols and ritual in social communication is examined in preliterate societies as well as modern Western civilization.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 322.3 — 1/2(3L)**
**Visual Anthropology**

Reviews the history, theory, methodology and technology of the use of photography, film and video in anthropological research and documentation. Theories of communication, visual communication and visual expression are considered. Course work includes a research assignment and a photographic or video project.
**Formerly:** ANTH 311
**Prerequisite(s):** Any anthropology course numbered 220 to 235.
**Note:** Students with credit for Selected Topics: Visual Anthropology may not take this course for credit.

**ANTH 326.3 — 1/2(3L)**
**Principles of Applied Anthropology**

Applications of anthropological concepts to contemporary culture contact and change problems. Includes treatment of social organizational analysis, adjustment strategies, community development, communication and politics. Theory, ethics, planning and contemporaneous case materials are dealt with. Methodological techniques will be introduced.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 327.3 — 1/2(3L)**
**Anthropology of Development**

Introduces students to the anthropological contribution to development programs in so-called underdeveloped and developing societies. Critically examines the history of the development idea, its deployment across time and space, and relationship to modernity and globalism. Focuses on how development works and uses case studies to illustrate the main themes of lectures.
**Formerly:** ANTH 311.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.
**Note:** Students with credit for ANTH 311 Selected Topics: Anthropology of Development may not take this course for credit.

**ANTH 328.3 — 1/2(3L)**

**Political and Legal Anthropology**

Analytical and comparative examination of anthropological approaches to the study of political and legal structures and processes in their sociocultural contexts focusing on structural-functional, neo-evolutionary, processual and political economy paradigms. Sources of conflict resolution and the relationships between politics, law, and religion are explored from a cross-cultural comparative framework.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 329.3 — 1/2(3L)**
**Environmental Anthropology**

Examines the variety of cultural adaptations that societies make to local environments, dealing with such adaptations as hunting and gathering, pastoralism, horticulture and intensive agriculture. It also attempts to illustrate how the principles of general ecology apply to the study of man in his environmental relationships.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 330.3 — 1/2(1.5L-1.5S)**
**Oral History and Storytelling Anthropological Perspectives**

Offers an anthropological perspective on stories and storytelling events, their meanings, interpretations, and applications. Drawing on a wealth of scholarship generated by folklorists, anthropologists and oral historians, students will examine current theories and principles of oral historical research and consider the implications of storytelling and oral narrative in modern societies.
**Prerequisite(s):** Any anthropology course numbered 200-235 or permission of the instructor.
**Note:** Students with credit for ANTH 398 Special Topics: Oral History and Storytelling may not take this course for credit.

**ANTH 337.3 — 1/2(3L)**
**Economic Anthropology and Economic Development**

Analytic and comparative examination of economic relations in their sociocultural contexts and a critical appraisal of anthropological approaches to the study of economic development and underdevelopment. Primitive and peasant economic structures and transformations in their systems of exchange are assessed through substantivist, formalist, adaptivist, and political economy approaches in economic anthropology.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 339.3 — 1/2(3L)**
**Cultural Change**

Surveys anthropological theories relating to cultural change from the general trends of cultural evolution to the results of cross-cultural contacts. Anthropological perspectives on urbanization, modernization and social movements will be covered. Examples will come principally from non-Western societies.
**Prerequisite(s):** Any anthropology course numbered 220 to 235.

**ANTH 354.3 — 1/2(2L-1S)**
**Ritual Spaces in Ukrainian Culture**

By applying ritual and symbolic analysis to the study of culture, this course investigates selected sites of Ukrainian traditional and contemporary culture in which ritual plays a prominent role. A comparative perspective is applied with the objective to better comprehend complex processes of cultural continuity and change in Eastern Europe and multiethnic Canada.
**Formerly:** ANTH 398.3 Special Topics: Ritual Spaces in Ukrainian Culture.
**Prerequisite(s):** Any ANTH course numbered 200 to 235 or permission of the instructor.
**Note:** Students with credit for ANTH 398.3 Special Topics: Ritual Spaces in Ukrainian Culture may not take this course for credit .

**ANTH 385.3 — 2(2.5L-1.5S)**
**Selected Topics in Ethnography of Central America and Mexico**

Part of the La Antigua, Guatemala Study Term Abroad and offered only in Guatemala. Selected themes in the ethnology of Central America and Mexico will be examined, concentrating on the indigenous peoples. Allows for cross-cultural experience and includes guest lecturers from Guatemala.
**Prerequisite(s):** 100-level anthropology course.

**ANTH 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANTH 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANTH 421.3 — 1/2(3L)**
**Historical Perspectives of Ethnological Theory**

A critical survey of basic concepts, ideas and schools of thought in cultural and social anthropology in an historical perspective. Both European and North American schools are examined. The time period covered is from the beginning of the Enlightenment (1690) to the end of World War II. Includes the classical evolutionism, diffusionism, historical particularism, structural-functional approaches, structuralism, culture and personality school, and cross-cultural comparisons.
**Prerequisite(s):** 6 credit units of 200-level anthropology and at least 3 credit units from ANTH 311, 321, 322, 326, 327, 328, 329, 337 or 339.

**ANTH 422.3 — 1/2(3L)**
**Contemporary Ethnological Theory**

A critical survey of contemporary developments in ethnological theory from the end of World War II to the present. Both European and North American approaches are examined. Covers neo-evolutionism, cultural ecology and cultural materialism, contemporary structuralism, emics, etics and new ethnography, cognitive approaches and symbolic anthropology, feminist perspectives and anthropology of gender, post-modernist approaches, hermeneutics and semiotic anthropology, Marxist anthropology, politically correct anthropology, and ethical issues in research and application.
**Prerequisite(s):** 6 credit units of 200-level anthropology and at least 3 credit units from ANTH 311, 321, 322, 326, 327, 328, 329, 337 or 339.
**Note:** Students with credit for ANTH 420 may not take this course for credit.

**ANTH 430.3 — 1/2(3L)**
**Field Methods in Ethnology**

Topics include: historical survey of ethnological field research; formulation of a research problem; formulation and testing of hypotheses; choice of a unit of study; sampling procedures; historical and ethnohistorical data; field techniques such as participant observation; ethnographic interview; household schedule; genealogy; technical aids; projective tests, etc.
**Prerequisite(s):** 6 credit units of 200-level anthropology and at least 3 credit units from ANTH 311, 321, 322, 326, 327, 328, 329, 337 or 339.
**Note:** Each student is expected to undergo the experience of designing and executing a research project during the term as a practical training component of this course. For all ethnology students this is a highly recommended course.

**ANTH 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ANTH 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ARCH — ARCHAEOLOGY

Department of Archaeology, College of Arts and Science

**ARCH 112.3 — 1/2(3L)**
**Introduction to Archaeology and Biological Anthropology**

Acquaints the student with the principal dimensions of the growth of human culture from its earliest beginnings. The processes of biological evolution will be discussed and related to the cultural evolution.
**Formerly:** ANTH 112.
**Note:** Students with previous credit for ANTH 110 or 112 may not take this course for credit.

**ARCH 116.3 — 1/2(3L)**
**Introduction to Near Eastern and Classical Archaeology**

Introduction to the archaeology of ancient Egypt, Mesopotamia, Israel and surrounding regions, Greece and Rome. The course examines how archaeologists use material remains to reconstruct ancient societies, focusing on the archaeological characteristics and cultural dynamics of major periods, and the relationship between human communities and the environment.

**ARCH 243.3 — 1/2(3L)**
**Introduction to Archaeology of Ancient Israel and Syria**

Introduction to the archaeology of ancient Israel and Syria focusing on methodology, major sites, and cultural reconstruction from the development of early agricultural settlements during the Neolithic period to the major city-states of the Canaanite Middle Bronze Age.
**Formerly:** CLASS 243.
**Prerequisite(s):** ARCH 112 or 116.
**Note:** Students with credit for CLAS 237 or 243 may not take this course for credit.

**ARCH 244.3 — 1/2(3L)**
**Archaeology and Cultural Development Ancient Israel and Syria Late Bronze Age to Hellenistic Period**

Examines the archaeological reconstruction of cultural development in the regions of

ancient Israel and Syria from the Late Bronze Age to the Hellenistic Period, focusing on methodological issues, major sites, and the defining characteristics of the cultures themselves.
**Formerly:** CLASS 244.
**Prerequisite(s):** ARCH 112 or 116 (ARCH 243 is recommended).
**Note:** Students with credit for CLAS 237 or 244 may not take this course for credit.

**ARCH 250.3 — 1/2(3L-1P)**
**Introduction to Archaeological Science**

A study of the theory, methods and techniques used by archaeologists in survey, excavation, analysis and interpretation. Emphasizes methods and techniques. Laboratory instruction will be given in the handling of archaeological material and data.
**Formerly:** ANTH 250.
**Prerequisite(s):** ARCH 112 or 116.

**ARCH 251.3 — 1/2(3L)**
**Archaeological Interpretation of Prehistory**

A survey of prehistory with emphasis on the application of the theory, methods and techniques of modern archaeology.
**Formerly:** ANTH 251.
**Prerequisite(s):** ARCH 112 or 116.

**ARCH 252.3 — 1/2(3L-1P)**
**Near Eastern Archaeological Field Work**

Introduces students to the excavation and laboratory methods used in Near Eastern archaeology. Beginning with research design, the course leads students through the techniques of excavation in the field to the analysis of artifacts and data in the lab.
**Prerequisite(s):** 12 credit units in Archaeology or 30 credit units at the university.

**ARCH 255.3 — 1/2(3L)**
**Prehistory of North America**

Provides an overview of pre-contact cultural development across North America utilizing a cultural ecological approach.
**Formerly:** ANTH 255.
**Prerequisite(s):** ANTH 111 and ARCH 112.

**ARCH 257.3 — 1/2(3L)**
**Archaeology of Ancient Egypt**

A study of the archaeological evidence for the reconstruction of ancient Egyptian culture from the Neolithic through to the Roman periods, focusing on the particular characteristics of archaeology in Egypt, major cultural periods, and significant sites.
**Formerly:** ANTH 257.
**Prerequisite(s):** ARCH 112 or 116.

**ARCH 258.3 — 1/2(3L)**
**Archaeology of Ancient Mesopotamia**

A study of the archaeological evidence for the development of the cultures of ancient Mesopotamia from the Neolithic through to the Persian periods, focusing on the particular characteristics of Mesopotamian archaeology, major cultural periods, significant sites, and the relation of urban centres to the surrounding regions.
**Formerly:** ANTH 258.
**Prerequisite(s):** ARCH 112 or 116.

**ARCH 270.3 — 1(3L-3P)**
**Human Evolution**

An introductory overview of human biology including the background for evolutionary biology, and the evolution, structure, and function of certain primate patterns.
**Formerly:** ANTH 270.
**Prerequisite(s):** ARCH 112 or BIOL 110 (strongly recommended). It is expected that students will have had Biology 30 with a laboratory, or BIOL 107.

**ARCH 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARCH 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARCH 300.3 — 1/2(3R)**
**Reading Course**

**ARCH 301.3 — 1/2(3R)**
**Reading Course**

Supervised reading courses in a particular aspect of one of the branches of anthropology not offered in lecture form in this department. A detailed reading program will be designed on an individual basis and will be guided by regular consultation with one or more faculty members. The student is required to prepare a comprehensive proposal for approval by the Head of the Department and make arrangements with a professor to supervise the course. Students must discuss the project with the Department Head before registration.
**Prerequisite(s):** Minimum of 24 undergraduate anthropology/archaeology credit units.
**Note:** Not more than 3 credit units will be allowed for calculation of honours standing or scholarship recommendation. These courses are not available for graduate credit.

**ARCH 350.3 — 1/2(3L)**
**Introduction to Boreal Forest Archaeology**

An introduction to the archaeology of the boreal forest region stretching from Quebec to the northern prairie provinces, and including southern Keewatin and adjacent southeastern Mackenzie. The archaeological cultures will be discussed in detail and the methodological and theoretical approaches to the archaeology of this region.
**Formerly:** ANTH 350.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 352.3 — 1/2(3L-2P)**
**Historical Archaeology**

Study of the method and theory of historical archaeology in North America with emphasis on recent developments in the field. Topics include critical use of documentary sources, historic artifact and faunal analyses, pattern recognition, frontier archaeology and others will be explored.
**Formerly:** ANTH 352.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 353.3 — 1/2(3L)**
**Plains Archaeology**

A survey of the prehistory of the Plains region of North America with emphasis on the recognition and examination of archaeological problems.
**Formerly:** ANTH 353.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 354.3 — 1(3L)**
**The Archaeology of Culture Contact**

Examines the nature and consequences of early contacts between indigenous peoples and Europeans by utilizing the archaeological record, supplemented by ethnohistorical and historical sources. The primary focus will be North America north of Mexico with comparative case studies from interactions in South Africa, Australia and New Zealand.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 355.3 — 1/2(3L)**
**Archaeology of American Southwest**

An introduction to prehistoric cultural development across the American Southwest from initial occupation to the arrival of the Spanish. Theoretical concepts, especially those related to the adoption of agriculture and questions concerning abandonment, are emphasized.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 356.3 — 1/2(2L-1S)**
**Development of Complex Cultures in Eastern Mediterranean and Near Eastern Regions**

A study of the development of complex cultures in the eastern Mediterranean and Near Eastern regions from the hunting and gathering societies of the Upper Palaeolithic period to the establishment of complex urban cultures during the Early Bronze Age, with an emphasis on the geographical areas of ancient Syria and Israel.
**Formerly:** ANTH 356
**Prerequisite(s):** One of ARCH 243, 244, 250 or 251.

**ARCH 358.3 — 1/2(3L)**
**Paleolithic World**

A detailed survey of human cultural development from earliest hominids on to the emergence of modern humans and concluding with the shift towards food production. Emphasis is on the nature of interpretations formed from archaeological data and the contemporary issues surrounding these interpretations.
**Formerly:** ANTH 358.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 360.3 — 1/2(3L)**
**Archaeological Resource Management**

Provides a theoretical and methodological introduction to the management and conservation of archaeological sites and materials. Examines federal and provincial legislation, contract research and public involvement. Case studies and in-depth areas of contract archaeology will be discussed.
**Formerly:** ANTH 360.
**Prerequisite(s):** ARCH 250 or 251.

**ARCH 361.6 — SP&SU(60P)**
**Archaeological Field Methods**

Six weeks of field experience in archaeological research techniques including site survey, excavation, and laboratory analysis. The field location will

depend on areas of departmental projects. Offered only in Spring and Summer Session.
**Formerly:** ANTH 361.
**Prerequisite(s):** ARCH 250 or 251.
**Note:** Students with credit for ANTH 261 may not take this course for credit.

**ARCH 362.6 — SP&SU(60P)**
**Field Course in Mediterranean Archaeology**

A field course in Mediterranean Archaeology. Participation in a supervised excavation, interpretation of stratigraphy, architectural features, artifacts and other physical remains.
**Formerly:** CLASS 360.6
**Prerequisite(s):** One of the following two sets of courses: ARCH 252, or CLASS 247 and 248 and permission of instructor.

**ARCH 375.3 — 1/2(3L-3P)**
**Human Palaeontology**

Intensive survey of hominid evolution based upon the interpretations of the fossil record.
**Formerly:** ANTH 375.
**Prerequisite(s):** ARCH 270, or GEOL 243 or 246.

**ARCH 383.3 — 1/2(1T-80P)**
**Career Internship in Cultural Resource Management**

Designed to provide students with an opportunity to participate first-hand in cultural resource management and regulation, including such activities as site inventory, recording and impact mitigation practices, data management and (if done in conjunction with the provincial Heritage Branch) site inventory management, land development screening, impact assessment review and compliance and possible experience in legislative review and First Nations initiatives. Work experience in the museum context of artifact conservation may also be available.
**Prerequisite(s):** 60 credit units at the university level including Arch 360.3
**Note:** Requires 80 hours in total.

**ARCH 385.3 — 1/2(3L-1P)**
**Computer Applications in Archaeology**

Explores the interaction between archaeological theory, excavation methods, and modes of analysis, and various computer applications, such as databases, computer assisted mapping and drawing programs, and geographic information systems utilized in archaeological research.
**Prerequisite(s):** ARCH 250, 251 and an additional 6 credit units of archaeology at the 200/300 level or permission of the department.

**ARCH 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ARCH 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ARCH 452.3 — 1/2(3L)**
**Selected Topics in Archaeology**

**Formerly:** ANTH 452.
**Prerequisite(s):** ARCH 251 and 3 credit units in senior archaeology.

**ARCH 453.3 — 1/2(3L)**
**Selected Topics in Archaeology**

Provides coverage of specialized areas of archaeological analysis, method and theory. Topics include lithic analysis, pottery analysis, faunal analysis, study of microwear.
**Formerly:** ANTH 453.
**Prerequisite(s):** ARCH 251 and 3 credit units in senior archaeology.

**ARCH 454.3 — 1/2(3L)**
**Rock Art Studies**

The study of rock art across the world with emphasis on pre-contact North America. Analytical methods and theoretical concepts will also be discussed.
**Prerequisite(s):** ARCH 250 or 251 and a 300-level archaeology or ART 252 or ARTH 252.

**ARCH 455.3 — 1/2(3L)**
**Introduction to Lithic Technology**

Basics of stone tool manufacturing and usage, including the analysis of materials, breakage, debitage, typologies, use wear, and Old and New World tool classes. The behavioral and social context of lithic technology will also be emphasized.
**Formerly:** ANTH 455.
**Prerequisite(s):** ARCH 251 or 250 and a 300-level archaeology course.

**ARCH 457.3 — 1/2(3L)**
**Introduction to Prehistoric Pottery Technology**

A broad perspective on prehistoric pottery including the nature of clays, pottery production and use, the physical properties of pottery and pottery assemblages on the Canadian plains and adjacent boreal forest.
**Formerly:** ANTH 457.
**Prerequisite(s):** ARCH 251 or 250 and a 300-level archaeology course.

**ARCH 458.6 — 1&2(3L)**
**Zooarchaeology**

The identification of vertebrate faunal remains from archaeological sites including an examination of interpretive procedures and quantitative methods.
**Formerly:** ANTH 458.
**Prerequisite(s):** ARCH 470 or BIOL 351 or 361.

**ARCH 459.3 — 1/2(3L)**
**Geoarchaeology**

Deals with the basic components of geoarchaeology including: stratigraphy, site formation processes, and landscape reconstruction. Various methods used in paleoenvironmental reconstruction are also discussed focusing on the late Quaternary of North America.
**Prerequisite(s):** GEOL 121, 122 and ARCH 250. GEOL 247 is recommended.

**ARCH 461.3 — 1/2(3L)**
**Historical Development of Modern Archaeology**

Overview of the history of archaeology, beginning with 18th- and 19th-century developments in western Europe. The expansion of archaeology throughout the world is examined, with discussion of the development of the major schools. Advances in field methodology, laboratory analyses and theoretical concepts are emphasized.
**Formerly:** ANTH 461.
**Prerequisite(s):** ARCH 251 and 3 senior credit units in archaeology.
**Note:** Students with credit for ANTH 451 may not take this course for credit.

**ARCH 462.3 — 1/2(3L)**
**Contemporary Archaeological Theory**

Detailed survey of the basic concepts and schools of thought in contemporary archaeology considered on a world-wide basis, with emphasis on Canada and the United States. Theoretical models relating to culture history, settlement, ecological and other approaches are discussed.
**Formerly:** ANTH 462.
**Prerequisite(s):** ARCH 251 and 3 senior credit units in archaeology.
**Note:** Students with credit for ANTH 451 may not take this course for credit.

**ARCH 465.3 — 1/2(3L)**
**Spatial Analysis of Archaeological Data**

Spatial analysis examines the distribution of artifacts, ecofacts and features in the archaeological record and assesses the extent to which the distribution reflects past human activity, social structures, etc. Familiarizes students with theories of spatial analysis and provides practical experience in applying these theories to archaeological data.
**Formerly:** ANTH 465.
**Prerequisite(s):** A 300-level course in archaeology or ARCH 243 or 244.

**ARCH 466.3 — 1/2(3S)**
**Archaeology of Domestic Space**

Focuses on domestic structures at sites in the Near East and Mediterranean, from the Neolithic to Roman Imperial times. Students will examine the construction and spatial organization of the house, from prehistoric and historic contexts, to analyze the complex interactions between architecture and the functioning of the household.
**Prerequisite(s):** ARCH 251 and a 300-level ARCH course.

**ARCH 470.3 — 1(3L-3P)**
**Human Osteology**

A comprehensive investigation of the human skeleton. Primary emphasis involves preparing students for archaeological fieldwork and advanced research in biological anthropology.
**Formerly:** ANTH 470.
**Prerequisite(s):** ARCH 270.

**ARCH 471.3 — 2(3L-3P)**
**Forensic Anthropology**

Concerned with the analysis of human skeletal materials and specifically the identification of age, sex, stature, race and other features. Laboratory sessions supplement lectures.
**Formerly:** ANTH 471.
**Prerequisite(s):** ARCH 470.

**ARCH 472.3 — 1/2(L)**
**Palaeopathology**

The diagnosis and interpretation of disease in antiquity and the overall health status of earlier human populations. Although skeletal pathology will be emphasized, analysis of mummified tissues and ancient DNA will be included.

**Prerequisite(s):** ARCH 470.

**ARCH 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ARCH 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ART — ART

Department of Art & Art History, College of Arts and Science

**ART 111.6 — 1&2(2T-2P)**
**Painting I Foundation**

Explores the principles and elements of the language of art as related to the process of painting. Discussion and exposure to a variety of tools, materials, and media will be included. Historical reference to stylistic changes and various aesthetic concepts will be explored.
**Note:** Painting students must provide their own painting materials.

**ART 112.6 — 1&2(3T)**
**Drawing I Foundation**

Introduction to the formal and creative language of drawing. The course emphasizes the development of drawing skills and identification of concepts and methods as they relate to visual perception and expression.
**Note:** Drawing students must provide their own drawing materials. Students with credit for ART 181 and 182 may not take ART 112 for credit.

**ART 113.6 — 1&2(1.5T-1.5P)**
**Printmaking I Foundation**

Explores the conceptual, expressive and technical processes of three main areas of printmaking - lithography, silkscreen and intaglio. Discussion and exposure to a variety of equipment, materials and media will be included.

**ART 136.3 — 1/2(1L-2S)**
**Extended Media I Foundation**

This introductory studio course explores collaborative and interdisciplinary approaches to contemporary art-making. Sessions include lectures and experiential, interactive activities, leading to the development of multidisciplinary projects. All disciplines within the university community are welcome. No background in studio art is necessary.
**Note:** Students with credit for ART 135 may not take ART 136 for credit.

**ART 141.3 — 1/2(1.5T)**
**Sculpture I Foundation**

An introduction to the concepts and issues relating to contemporary sculpture. This combined lecture/studio class encourages a wide exploration of materials while focusing on basic formal and compositional skills.
**Note:** Sculpture students provide their own materials. Students with credit for ART 114 may not take ART 141 for credit.

**ART 161.3 — 1(3T)**
**Foundation in Photography I**

Introduction to the basic elements of black and white photography. Theory and practical application will be taught through the direct experience with the camera. Black and white film development and printing will be practiced.
**Note:** Photography students must provide their own cameras and photographic materials. Students with credit for ART 116 may not take ART 161 for credit.

**ART 211.6 — 1&2(3T)**
**Painting and Related Work II**

Continued identification of concepts and methods as they relate to the expression, structure, media and skills of pictorial art. Students may experiment with painting media and work from any subject matter. Students must acquaint themselves with the materials of their craft and its correct use in producing technically sound works of art. Emphasizes the student's artistic growth and development.
**Prerequisite(s):** ART 111.
**Note:** Painting students must provide their own painting materials. Students with credit for ART 271 or 272 may not take ART 211 for credit.

**ART 212.6 — 1&2(3T)**
**Drawing and Related Work II**

Continued identification of concepts and methods as they relate to visual perception and expression through drawing, compositional design, graphic media and skills. Use of diverse media coupled with invented and observed form is encouraged.
**Prerequisite(s):** ART 112.
**Note:** Drawing students must provide their own drawing materials. Students with credit for ART 281 or 282 may not take ART 212 for credit.

**ART 213.6 — 1&2(2T)**
**Printmaking II**

Exploration at an advanced level of the conceptual, expressive and technical means of four major print methods: Etching, Lithography, the Relief Print and Serigraphy and related photographic methods. Thorough familiarity with the craft of the traditional print methods as well as experimentation will be encouraged.
**Prerequisite(s):** ART 113.

**ART 216.6 — 1&2(3P)**
**Photography II**

Continued development in the creative language of photography both expressive and technical. Includes black and white, and colour photography (at the 316 level). Theory and practical application will be approached through assigned projects and independent work.
**Prerequisite(s):** ART 161.
**Note:** Photography students must provide their own cameras and photographic materials.

**ART 236.3 — 1/2(3T)**
**Extended Media II**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** Art 135 or completion of at least two foundation-level studio art classes, or permission of the department.

**ART 237.3 — 1/2(3T)**
**Extended Media III**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** Art 236.

**ART 241.3 — 1/2(3T)**
**Sculpture and Related Work II**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 141.
**Note:** Students with credit for ART 214 may not take ART 241 for credit.

**ART 242.3 — 1/2(3T)**
**Sculpture and Related Work II**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 241.
**Note:** Students with credit for ART 214 may not take ART 242 for credit.

**ART 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ART 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ART 311.6 — 1&2(3T)**
**Painting and Related Work III**

Continued identification of concepts and methods as they relate to the expression, structure, media and skills of pictorial art. Students may experiment with painting media and work from any subject matter. Students must acquaint themselves with the materials of their craft and its correct use in producing technically sound works of art. Emphasizes the student's artistic growth and development.
**Prerequisite(s):** ART 211.
**Note:** Students with credit for ART 371 or 372 may not take ART 311 for credit.

**ART 312.6 — 1&2(3T)**
**Drawing and Related Work III**

Continued identification of concepts and methods as they relate to visual perception and expression through drawing, compositional design, graphic media and skills. Use of diverse media coupled with invented and observed form is encouraged.
**Prerequisite(s):** ART 212.

**Note:** Students with credit for ART 381 or 382 may not take ART 312 for credit.

**ART 313.6 — 1&2(3T)**
**Printmaking III**

Explores the conceptual, expressive and technical processes of all areas of printmaking. Advanced concepts and processes are all a part of choices students can make concentrating in two or more distinct areas of printmaking.
**Prerequisite(s):** ART 213.

**ART 316.6 — 1&2(3T)**
**Photography III**

Continual development in the creative language of photography both expressive and technical. Includes black and white, and colour photography. Theory and practical application will be approached through assigned projects and independent work.
**Prerequisite(s):** ART 216.

**ART 336.6 — 1&2(3T)**
**Digital Imagery**

Conceptual and technical development of the student's work in digital imagery. Adobe Photoshop software will be used to introduce students to photomontage techniques, negative and print enhancement. Critical and theoretical concerns in the medium will be discussed and related to the given assignments.
**Prerequisite(s):** A 100-level studio course.

**ART 338.3 — 1/2(3T)**
**Extended Media III**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** Art 237.
**Note:** Students with credit for ART 335 may not take ART 338 for credit.

**ART 339.3 — 1/2(3T)**
**Extended Media III**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** ART 338.
**Note:** Students with credit for ART 335 may not take ART 339 for credit.

**ART 341.3 — 1/2(3T)**
**Sculpture and Related Work III**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 242.
**Note:** Students with credit for ART 314 may not take ART 341 for credit.

**ART 342.3 — 1/2(3L)**
**Sculpture and Related Work III**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 341.
**Note:** Students with credit for ART 314 may not take ART 342 for credit.

**ART 350.3 — 1/2(3T)**
**Hands on Survey of Historical Media**

A practical course which explores the techniques of various historical media such as: mosaic, encaustic, stained glass, carving in stone or wood, applique, lantern making, jewelry, manuscript illumination, printing, tempera painting, fresco, and oil painting. Students will gain practical experience using these older and sometimes forgotten techniques. Theoretical tracts from various historical periods will be examined for recipes and analyses of contemporary studio practices.
**Prerequisite(s):** One of ARTH 120, 121, 111, or 112 (181).
**Note:** This course can be used toward either studio or art history requirements in Art degree programs. HOAH students must provide their own materials, which may cost from $30 to $200. There is no text for the course.

**ART 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ART 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ART 411.6 — 1&2(3T)**
**Painting and Related Work IV**

Continued identification of concepts and methods as they relate to the expression, structure, media and skills of pictorial art. Students may experiment with painting media and work from any subject matter. Students must acquaint themselves with the materials of their craft and its correct use in producing technically sound works of art. Emphasizes the student's artistic growth and development.
**Prerequisite(s):** ART 311.
**Note:** Students with credit for ART 471 or 472 may not take ART 411 for credit.

**ART 412.6 — 1&2(3T)**
**Drawing and Related Work IV**

Continued identification of concepts and methods as they relate to visual perception and expression through drawing, compositional design, graphic media and skills. Use of diverse media coupled with invented and observed form is encouraged.
**Prerequisite(s):** ART 312.
**Note:** Students with credit for ART 481 or 482 may not take ART 412 for credit.

**ART 413.6 — 1&2(2T)**
**Printmaking IV**

Exploration at an advanced level of the conceptual, expressive and technical means of four major print methods: Etching, Lithography, the Relief Print and Serigraphy and related photographic methods. Thorough familiarity with the craft of the traditional print methods as well as experimentation will be encouraged.
**Prerequisite(s):** ART 313.

**ART 416.6 — 1&2(3P)**
**Photography IV**

Continued development in the creative language of photography both expressive and technical. Includes black and white, and colour photography. Theory and practical application will be approached through assigned projects and independent work.
**Prerequisite(s):** Art 316.

**ART 421.6 — 1&2(3T)**
**Special Studies Painting and Related Work I**

Emphasizes the student's independent artistic growth and development in painting.
**Prerequisite(s):** ART 411 and permission of the instructor.
**Note:** Painting students must provide their own painting materials. Students with credit for ART 473 or 474 may not take ART 421 for credit.

**ART 422.6 — 1&2(3L)**
**Special Studies Drawing and Related Work I**

Emphasizes the student's independent growth and development as it relates to drawing.
**Prerequisite(s)** Art 412 and permission of the instructor.
**Note:** Drawing students must provide their own drawing materials. Students with credit for ART 483 or 484 may not take ART 422 for credit.

**ART 423.6 — 1&2(1.5T)**
**Special Studies Printmaking I**

Emphasizes the student's independent growth and development as it relates to printmaking.
**Prerequisite(s):** Permission of the Department.

**ART 426.6 — 1&2(3T)**
**Special Studies Photography I**

Emphasizes the student's independent growth and development as it relates to photography.
**Prerequisite(s):** Permission of the department.

**ART 430.6 — 1&2(2T)**
**Problems in Contemporary Art**

Deals with key issues in contemporary art. Original documents, theories and criticisms, and subsequent interpretations and current literature, pertaining to contemporary art will serve as source material for topics selected by individual students for investigation. Faculty and students will participate through ongoing presentations and discussions.
**Prerequisite(s):** Completion of the requirements of the second year of the B.F.A. or B.A. Three-year or B.A. Four-year with a major in studio art.

**ART 431.6 — 1&2(3T)**

**Special Studies Painting and Related Work II**

Emphasizes the student's independent artistic growth and development in painting.
**Prerequisite(s):** ART 421 and permission of the instructor.
**Note:** Painting students must provide their own painting materials. Students with credit for ART 475 or 476 may not take ART 431 for credit.

**ART 432.6 — 1&2(3L)**
**Special Studies Drawing and Related Work II**

Emphasizes the student's independent growth and development as it relates to drawing.
**Prerequisite(s):** ART 412 and permission of the instructor.
**Note:** Drawing students must provide their own drawing materials. Students with credit for ART 485 or 486 may not take ART 432 for credit.

**ART 433.6 — 1&2(1.5T)**
**Special Studies Printmaking II**

Emphasizes the student's independent growth and development as it relates to printmaking.
**Prerequisite(s):** ART 423 and permission of the Department.

**ART 436.6 — 1&2(3T)**
**Special Studies Photography II**

Emphasizes the student's independent growth and development as it relates to photography.
**Prerequisite(s):** Permission of the department.

**ART 438.3 — 1/2(3T)**
**Extended Media**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** ART 339.
**Note:** Students with credit for ART 435 may not take ART 438 for credit.

**ART 439.3 — 1/2(3T)**
**Extended Media**

Continued exploration of collaborative and interdisciplinary approaches to contemporary artmaking. Projects will include alternative practices such as video, performance, installation, projection, bookworks, etc. Reading and discussion of related texts will accompany production of artworks.
**Prerequisite(s):** ART 438.
**Note:** Students with credit for ART 435 may not take ART 439 for credit.

**ART 441.3 — 1/2(3T)**
**Sculpture and Related Work**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 342.
**Note:** Students with credit for ART 414 may not take ART 441 for credit.

**ART 442.3 — 1/2(3T)**
**Sculpture and Related Work**

Continued identification of the concepts, materials and means of sculpture and related three-dimensional form. Methods of construction (casting, carving, building, assembling, etc.) and presentation, both traditional and experimental, will be encouraged. This includes a wide exploration of materials and combination of materials (such as wood, metal, cement, plaster, found objects, etc.).
**Prerequisite(s):** ART 441.
**Note:** Students with credit for ART 414 may not take ART 442 for credit.

**ART 443.3 — 1/2(3T)**
**Special Studies in Sculpture and Related Work**

Emphasizes the student's independent artistic growth and development in sculpture and related work.
**Prerequisite(s):** Permission of the Department.
**Note:** Students with credit for ART 424 may not take ART 443 for credit.

**ART 444.3 — 1/2(3T)**
**Special Studies in Sculpture and Related Work**

Emphasizes the student's independent artistic growth and development in sculpture and related work.
**Prerequisite(s):** Permission of the Department.
**Note:** Students with credit for ART 424 may not take ART 444 for credit.

**ART 445.3 — 1/2(3T)**
**Special Studies in Sculpture and Related Work**

Emphasizes the student's independent artistic growth and development in sculpture and related work.
**Prerequisite(s):** Permission of the Department.
**Note:** Students with credit for ART 434 may not take ART 445 for credit.

**ART 446.3 — 1/2(3T)**
**Special Studies in Sculpture and Related Work**

Emphasizes the student's independent artistic growth and development in sculpture and related work.
**Prerequisite(s):** Permission of the Department.
**Note:** Students with credit for ART 434 may not take ART 446 for credit.

**ART 495.0 — 2(P)**
**BFA Exhibition**

Students will mount an exhibition of work done during their program of study in the department of Art & Art History. Students must include a one-page written artist's statement with their exhibition, developed in consultation with faculty. The exhibition must be of a quantity and quality deemed acceptable by a faculty majority (determined by faculty in a meeting each term) and will be assigned a grade of CR (Completed Requirements).
**Prerequisite(s):** B.F.A. student in final year of program with minimum CPA of 70% and permission of the department.
**Note:** Students with an Art average between 70% and 79% at the end of Term 1 in the final year of their program will participate in a Group Exhibition, a student with an 80% or greater average in Art at the end of Term 1 in their final year will present a Solo Exhibition. For more information please see #5 in the B.F.A. program description.

**ART 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ART 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ARTH — ART HISTORY

Department of Art & Art History, College of Arts and Science

**ARTH 120.3 — 1(3L)**
**Introduction to History of Art I**

An introduction to the history of western visual culture from Ancient Greece to the Renaissance. The principles of art historical study will be examined.
**Note:** Students with credit for ART 110 may not take this course for credit.

**ARTH 121.3 — 2(3L)**
**Introduction to History of Art II**

An introduction to the history of western visual culture from the Renaissance to the present day. The principles of art historical study will be examined.
**Note:** Student's with credit for ART 110 may not take this course for credit.

**ARTH 250.3 — 1/2(3L)**
**Introduction to Visual Culture**

In a series of case studies, this class will explore a wide range of visual media including painting, photography, digital imaging, the internet, video, advertising, cinema, television and architecture to ask how and why visual technologies have become so central to contemporary everyday life.
**Prerequisite(s):** ARTH 120 and 121; or 6 credit units in Art History, Studio Art or cognate courses; or permission of the department.

**ARTH 252.6 — 1&2(3L)**
**First Peoples Art History**

A survey of the art of the First Peoples of North America from the precontact era to the present. Particular emphasis will be placed on artistic production after 1940.

**ARTH 257.6 — 1&2(3L/S)**
**Introduction to Canadian Art History**

Offers a brief introduction to traditional Native Canadian art practices and a survey of Canadian visual culture from the earliest period of European settlement to the present day. The institutional, geographic and social locations of artistic production and consumption will be studied. Issues of race, ethnicity, gender and class will be addressed.
**Prerequisite(s):** ARTH 120 and 121, or a course in the areas of fine arts or humanities.

**ARTH 260.3 — 1/2(3L/S)**
**History and Theory of European Architecture 1400 to 1700**

An introduction to the architecture of the European states and their colonies 1400 to 1700. The institutional, geographic and social locations of architectural production will be studied. Issues of power, nationalism, and class will be examined.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Qualifies as before 1800. Students with credit for ART 262 may not take this course for credit.

**ARTH 261.3 — 1/2(3L/S)**
**History and Theory of European Architecture 1700 to 1900**

An introduction to the architecture of the European states and their colonies 1700 to 1900. The institutional, geographic and social locations of architectural production will be studied. Issues of power, nationalism, and class will be examined.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Qualifies as before 1800. Students with credit for ART 262 may not take this course for credit.

**ARTH 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARTH 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARTH 305.6 — 1&2(3L/S)**
**Art of 15th Century**

A history of 15th-century European painting and sculpture both north and south of the Alps. Special emphasis will be placed on Leonardo da Vinci, and the formal and iconographic sources for major monuments will be considered in their historic contexts.
**Prerequisite(s):** ARTH 120 and 121, or HIST 225.
**Note:** Qualifies as before 1800.

**ARTH 308.3 — 1/2(3L)**
**Art of High Renaissance and Reformation Era 1500 to 1550**

The High Renaissance, Mannerism, and other trends in European painting and sculpture will be considered in the context of the Reformation; special emphasis will be placed upon Raphael, Michelangelo, and Dürer.
**Formerly:** 306
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Qualifies as before 1800.

**ARTH 309.3 — 1/2(3L)**
**Art of Late Renaissance 1550 to 1600**

Artistic trends in the second half of the 16th century will be considered in the context of the Council of Trent; special emphasis will be placed upon Late Titian, Tintoretto, Veronese, and the painters of the Medicean Studiolo.
**Formerly:** 306
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Qualifies as before 1800.

**ARTH 317.6 — 1&2(3L/S)**
**Art of 17th and 18th Centuries**

Baroque, Baroque Classicism and Rococo in Italy, France, Holland, Germany, England and Spain will be discussed.
**Prerequisite(s):** ARTH 120 and 121 or HIST 226.
**Note:** Qualifies as before 1800.

**ARTH 319.6 — 1&2(3L/S)**
**Studies in 19th Century Visual Culture**

Investigates 19th Century visual culture in Western Europe and North America. Examines the social production and consumption of visual culture, addressing issues of race, gender, sexuality and class. Issues of historiography will also be considered.
**Prerequisite(s):** ARTH 120 and 121.

**ARTH 322.6 — 1&2(1.5L-1.5S)**
**Picturing American and Canadian Frontiers 1820 to 1940**

An examination of the ways the West was represented in visual culture during the period of colonial exploration and settlement. Photography, film, wild west events, painting, mapping and responses of First Peoples will be studied in the context of issues of race, gender and class.
**Prerequisite(s):** ARTH 120 and 121.

**ARTH 323.3 — 1/2(3S)**
**European Colonialism in Visual Arts 1880 to 1920**

Examines how visual culture played a central role in legitimizing European colonial expansion of the late 19th and early 20th centuries. Photography, painting, popular prints, postcards, world fairs, and the urban planning of colonial cities will be studied. Anti-colonial resistance will also be examined.
**Prerequisite(s):** ARTH 120 and 121.

**ARTH 324.3 — 1/2(3L/S)**
**Early 20th Century Studies in Art and Architecture 1900 to 1918**

A study of visual culture and architecture in Europe and North America from 1900 to the end of World War I. Issues concerning art institutions, gender, class and the impact of modernism will be studied.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Students with credit for ART 320 may not take this course for credit.

**ARTH 325.3 — 1/2(3L/S)**
**Early 20th Century Studies in Art and Architecture 1918 to 1940**

A study of visual culture and architecture in Europe and North America from 1918 to World War II. Issues concerning art institutions, nationalism, gender, class and the impact of modernism will be studied.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Students with credit for ART 320 may not take this course for credit.

**ARTH 326.3 — 1/2(3L/S)**
**Studies in Photographic History 1830 to 1920**

An introduction to the study of photography from the earliest experiments to 1920. Areas include photographic theory, art photography and commercial production. Special emphasis will be placed on photography in a Canadian context.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Students with credit for ART 321 may not take this course for credit.

**ARTH 328.3 — 1/2(3L/S)**
**Studies in Photographic History 1920 to Present**

An introduction to the study of photography from 1920 to current practices. Areas include recent critical debates, commercial production and the impact of new technologies. Special emphasis will be placed on photography in a Canadian context.
**Prerequisite(s):** ARTH 120 and 121.
**Note:** Students with credit for ART 320 may not take this course for credit.

**ARTH 352.3 — 2(3S)**
**Digital Culture and Art of Internet**

A seminar course of directed studies which focus on the impact of the Internet, the computer, and distance technologies upon the production and consumption of visual culture since the 1970s.
**Prerequisite(s):** 12 credit units of Art History including ARTH 120 or ART 121.

**ARTH 354.3 — 1/2(3S)**
**Studies in Contemporary Art**

Focuses on selected moments in the rapidly changing field of contemporary art. Bringing together key works of art and stimulating cultural theory, the course covers a wealth of visual forms including painting, drawing, photography, sculpture, printmaking, extended media, video, installation, performance and digital media.
**Prerequisite(s):** ARTH 120, 121.

**ARTH 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ARTH 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARTH 406.6 — 1&2(3S)**
**Renaissance Studies**

A detailed investigation of the works of one of the following: Donatello, Leonardo da Vinci, Raphael, Dürer, Titian, Michelangelo. The Renaissance as a concept in the history of style will receive special emphasis.
**Prerequisite(s):** 12 credit units in history or art history, including either ARTH 120 and 121 or HIST 225.
**Note:** Qualifies as before 1800.

**ARTH 417.6 — 1&2(3S)**
**Baroque Studies**

A detailed investigation of the works of one of the following: Bernini, Rubens, Rembrandt. The Baroque as a concept in the history of style will receive special emphasis.
**Prerequisite(s):** 12 credit units in history or art history, including either ARTH 120 and 121 or HIST 225.
**Note:** Qualifies as before 1800.

**ARTH 418.3 — 1&2(3S)**
**Studies in Contemporary Art**

A survey of contemporary international art which includes film, video, performance, as well as more traditional media.
**Prerequisite(s):** ARTH 120 and 121 and a second or third-year course in art history.

**ARTH 419.3 — 1&2(3S)**
**Studies in Contemporary Architecture Late Modern to Present**

A survey of contemporary international architecture from Late-Modernism through Post-Modernism to current issues.
**Prerequisite(s):** ARTH 120 and 121 and a second or third-year course in art history.

**ARTH 437.3 — 1/2(3S)**
**Postcolonial Issues in Contemporary Canadian Art**

Examines recent work by artists, video/film producers and curators in Canada. Explores topics such as anti-colonial resistance by First Peoples' artists; diaspora identities and aesthetics; multiculturalism; and the role of museums and exhibitions in fictioning Canadian national identity.
**Prerequisite(s):** ARTH 120 and 121.

**ARTH 440.6 — 1&2(3S)**
**Studies in Contemporary Canadian Art**

An introduction to developments in Canadian Art since 1970, with particular attention to how this art has raised interests of social and cultural significance. Issues of representation with respect to gender, race and class will be examined in the context of various theoretical discourses.
**Prerequisite(s):** ARTH 120, 121 and 257.

**ARTH 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**ARTH 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

# ASTR — ASTRONOMY

Department of Physics & Engineering Physics, College of Arts and Science

**ASTR 101.6 — 1&2(3L-3P)**
**Descriptive Introduction to Astronomy**

A descriptive introduction to astronomy without advanced mathematics covering constellations, historical astronomy, telescopes, spectral analysis, planetary motion, including recent discoveries about planets, properties and evolution of stars, pulsars, black holes, galaxies and cosmology. The evening labs will allow students to use telescopes and to analyze data.
**Prerequisite(s):** Mathematics B30 (or, under the old mathematics curriculum, Algebra 30 or Mathematics 30).

**ASTR 213.3 — 1(2L-4P)**
**Astronomical Photometry**

An introduction to the use of telescopes for photometric studies of variable stars and star clusters. Astronomical coordinate systems and techniques for measurement of stellar distances and ages will be discussed. Evening labs will acquaint students with the use of several CCD cameras and telescopes.
**Prerequisite(s)** One of ASTR 101, PHYS 111, 121 or 128.
**Note:** Students with credit for ASTR 212 may not take this course for credit. Offered for the first time in 2004-2005, then in alternate years.

**ASTR 214.3 — 1(2L-4P)**
**Astronomical Spectroscopy**

A lab-based introduction to stellar spectral classification, spectroscopic parallax measurement, orbit analysis of spectroscopic binaries, redshift measurements of galaxies and CCD imaging techniques. Students will use telescopes to obtain spectroscopic data and will use digital CCD cameras to image star clusters and nebulae.
**Prerequisite(s):** One of ASTR 101, PHYS 111, 121 or 128.
**Note:** Students with credit for ASTR 212 may not take this course for credit. Offered for the first time in 2005-2006, then in alternate years.

**ASTR 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ASTR 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ASTR 310.3 — 2(3L)**
**Galactic Astronomy and Cosmography**

An examination of spiral, elliptical, peculiar and radio galaxies, dark matter, Hubble's law of universal expansion, galactic collisions and cannibalism, quasars and supermassive black holes. The course also investigates Big Bang nucleosynthesis, the age, expansion and future of the universe, space curvature, rival cosmographical theories and dark sky paradox.
**Prerequisite(s):** ASTR 101 or 213 or 214; PHYS 128 or PHYS 251; MATH 224 or 226 or 238.
**Note:** Offered in 2004-2005, then in alternate years.

**ASTR 312.3 — 2(3L)**
**Theoretical Models of Stars and Stellar Evolution**

An examination of the successes and failures of stellar evolution theory in tracking the protostar, main-sequence, red giant, supernova, pulsar and black hole stages in the lives of stars. Students will study physical models of stellar structure and nuclear energy generation and investigate the solar neutrino mystery.
**Prerequisite(s):** ASTR 101 or 213 or 214; PHYS 128 or PHYS 251; MATH 224 or 226 or 238.
**Note:** Offered in 2005-2006, then in alternate years.

**ASTR 320.3 — 2(3L)**
**Astronomy of Solar System**

An investigation of the formation, evolution and dynamics of the solar system. The physical properties of the sun, planets and other bodies are examined and used to constrain evolutionary models. The prospects and evidence for the existence of life elsewhere in the solar system and the detection of extrasolar planets are also considered.
**Prerequisite(s):** ASTR 101 or 213 or 214; PHYS 128 or PHYS 251; MATH 224 or 226 or 238.
**Note:** Offered in 2004-2005, then in alternate years.

**ASTR 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ASTR 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ASTR 411.3 — 2(3L)**
**Gravitation and Cosmology**

An introduction to general relativity as a theory of gravitation with applications to cosmology. Includes: principles of special and general relativity, tensor calculus in curved spacetime, Einstein's field equations, Schwarzschild solution, experimental tests of general relativity, black holes, standard cosmological models, unresolved cosmological issues, gravitational waves.
**Prerequisite(s):** PHYS 251; MATH 338, and at least 3 credit units in astronomy, or permission of the department.
**Note:** Offered in 2005-2006, then in alternate years.

**ASTR 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ASTR 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# BINF — BIOINFORMATICS

College of Arts and Science

**BINF 200.3 — 2(3L-1.5P)**
**Introduction to Bioinformatics**

An introduction to resources and basic techniques for the analysis of protein and DNA data. Students will become familiar with online DNA and protein structure databases, and with the computational methods available for analyzing data in them and with the application of databases and search tools to biological problems.
**Prerequisite(s):** CMPT 111, BIOC 200.

**BINF 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BINF 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BINF 300.3 — 2(3L)**
**Algorithms in Bioinformatics**

The principles underlying computational techniques for investigating protein and nucleic acid structure, genome mapping and sequence assembly, sequence analysis, gene expression analysis, gene prediction and genome arrangement.
**Prerequisite(s):** CMPT 360; one of BIOC 230, BIOL 211 or MICR 216; and BINF 200.

**BINF 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BINF 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BINF 400.3 — 1&2(4P-1S)**
**Advanced Techniques in Bioinformatics**

Senior students will be introduced to research in an advanced area of bioinformatics through completion of a research project under the supervision of a faculty member proficient in the area. They also will be required to attend research seminars as directed by the course coordinator.
**Prerequisite(s):** BINF 300 and permission of the Director. Preference will be given to Honours students in the program.

**BINF 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BINF 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# BIOC — BIOCHEMISTRY

Department of Biochemistry, College of Medicine

**BIOC 200.3 — 1/2(3L)**
**Molecules of Life**

Topics include: simple and complex biomolecules, amino acids, peptides, proteins, carbohydrates, lipids, nucleic acids, coenzymes, vitamins. An introduction to the structure of biological membranes and solute transport.
**Prerequisite(s):** Biology 30 or 3 credit units of university-level biology, and CHEM 112.

**BIOC 207.2 — Q1&2(2L-2P)**
**Veterinary Biochemistry**

Selected biochemical topics with special relevance to function at the level of the whole organism will be presented. The emphasis will be placed on comparative metabolic aspects of the major food and companion animal species, especially those metabolic differences which occur that are related to performance, productive capacity, and disease processes.
**Prerequisite(s):** Registration in the D.V.M. Program or permission of the instructor.

**BIOC 211.3 — 2(3L)**
**Introductory Metabolism**

Introduction to the thermodynamic aspects of energy metabolism and the principles of anabolic and catabolic metabolic pathways. Emphasis will be placed on the overall purposes of the major pathways, the precursor molecules leading into these pathways, important products, and the basic types of control that regulate metabolic flux.
**Prerequisite(s):** BIOC 200.

**BIOC 212.3 — 2(3L-4P)**
**Introductory Biochemical Techniques**

The theory, application and practice of basic biochemical techniques used in all life science and biotechnology disciplines is presented. Topics include: buffer preparation, pH determination, spectrophotometric methods, enzyme measurement, chromatography, radioisotopes, and methods for the characterization and separation of amino acids, sugars, lipids, proteins, enzymes, and DNA such as ultra centrifugation, chromatography and electrophoresis.
**Prerequisite(s):** BIOC 200.

**BIOC 213.8**
**Medical Biochemistry and Nutrition**

Reviews the structure and function of biomolecules, organization and general principles of metabolism, production and utilization of energy, and replication and expression of genetic information. Selected topics in human nutrition will be reviewed, including nutritional assessment, diet and physiological status, primary nutritional diseases, nutritional considerations in other diseases, and public health aspects of nutrition. The use of biochemical knowledge in the investigation and management of human disease will be emphasized through a case-oriented approach.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine.

**BIOC 230.3 — 2(3L)**
**Information Transfer DNA to Proteins**

Deals with the structure and function of nucleic acids at an advanced level. Chromosome anatomy, DNA replication, transcription of genes, and translation of mRNA in both prokaryotes and eukaryotes are covered. The various mechanisms whereby gene expression is regulated are also discussed.
**Formerly:** BIOC 300.
**Prerequisite(s):** BIOC 200.

**BIOC 310.3 — 1(3L-4P)**
**Proteins and Enzymes**

The properties of proteins and enzymes will be described including structure, kinetics, regulation and modification, antibodies, membrane proteins and glycosylation. Laboratories will provide experience with the determination of structural and functional properties including: ultracentrifugation, chromatography, electrophoresis, kinetics, phosphoamino acid identification, Western blotting, computer-based sequence analysis via the Internet.
**Prerequisite(s):** BIOC 212; CHEM 250 and permission of the department. Preference will be given to students in biochemistry programs.

**BIOC 311.3 — 1(3L-4P)**
**Introductory Molecular Biology**

Basic principles and techniques of nucleic acid manipulations used in molecular biology and biotechnology are presented. Information and practical experience with plasmids, restriction endonucleases, PCR, DNA sequencing, site-directed mutagenesis, cloning, hybridization, analysis of RNA and gene promoters, and protein over-expression are presented. The laboratory component will also include an Internet exercise.
**Prerequisite(s):** BIOC 212, CHEM 250, and one of BIOC 230, BIOL 211, or MICR 216 and permission of the department. MICR 214 or APMC 212 recommended. Preference will be given to students in the biochemistry programs.
**Note:** Students with credit for MICR 391(395) may not take this course for credit.

**BIOC 412.3 — 2(3L-2P alt weeks)**
**Protein Structure Function and Engineering**

The details of protein structure, domains, folding and targeting, and modern experimental approaches to protein engineering will be presented. The inter-relationship between structure and function in enzyme/protein mechanism and regulation shall be stressed.
**Prerequisite(s):** BIOC 310 and CHEM 250.
**Note:** Offered in the academic year 2007/2008 and alternate years thereafter (2009/2010, etc.).

**BIOC 420.3 — 2(3L)**
**Advanced Plant Biochemistry**

Examines topics in plant biochemistry including metabolic and developmental integration, plant interaction with the environment, cell wall biosynthesis, regulation of cell division, synthesis of hormones and elicitor molecules, natural product Biochemistry and secondary metabolites, senescence and programmed cell death and plant responses to abiotic and biotic stresses.
**Prerequisite(s):** PLSC 240 or BIOC 200, 211, 230 and CHEM 250 or permission of Instructor.
**Note:** Offered in the academic year 2006/2007 and alternate years thereafter (2008/2009, etc.).

**BIOC 430.3 — 2(3L)**
**Cell Biochemistry**

The biochemical properties of eukaryotic cells will be investigated with special emphasis on signal transduction mechanisms, cell-cell extracellular matrix interactions, cell cycle control, apoptosis, neoplastic transformation and tumor progression.
**Prerequisite(s):** BIOC 211, 310, CHEM 250.
**Note:** Offered in the academic year 2007/2008 and alternate years thereafter (2009/2010, etc.).

**BIOC 435.3 — 1(3L)**
**Intermediary Metabolism**

The organization of metabolic pathways dealing with carbohydrates, lipids, amino acids and nucleotides with emphasis on common strategies employed in different pathways, and the overall regulation and integration of metabolic flow into cells, in tissues, and in intact organisms.
**Prerequisite(s):** BIOC 211, CHEM 250.
**Note:** Offered in 2006/2007 and alternate years thereafter (2008/2009, etc.).

**BIOC 436.3 — 2(3L)**
**Advanced Molecular Biology**

Modern and advanced methods and strategies of nucleic acid manipulation, and

characterization of genes in cells and whole organisms are presented. Topics include; PCR applications; delivery of genes into cells and animals, generation of transgenic and gene knockout animals, DNA fingerprinting, and aspects of molecular medicine such as screening approaches for genetic diseases.
**Prerequisite(s):** BIOC 311 or MICR 391 (or 395).
**Note:** Offered in 2006/2007 and alternate years thereafter (2008/2009, etc.).

**BIOC 488.3 — 1/2(8P)**
**Research Approaches in Biochemistry**

The student will work on a project available in the research laboratory of a faculty member, under that faculty member's supervision; become familiar with the pertinent research literature; establish procedures, collect, record and analyze experimental results; submit to the department a written report which incorporates the background to the work done, procedures used, results obtained and a discussion of the results and their significance.
**Prerequisite(s):** BIOC 310, 311 or MICR 391 (or 395) (may be taken concurrently) and permission of the department. Preference will be given to biochemistry honours students.

**BIOC 489.6 — 1&2(8P)**
**Extended Research Approaches in Biochemistry**

The student will: work two terms on a project available in the research laboratory of a faculty member, under that faculty member's supervision; become familiar with the pertinent research literature; establish procedures, collect, record and analyze experimental results; submit to the department a written thesis which incorporates the background to the work done, procedures used, results obtained and a discussion of the results and their significance. The student will defend the thesis findings.
**Prerequisite(s):** BIOC 310, 311 or MICR 391 (or 395) (may be taken concurrently) and permission of the department. Preference will be given to biochemistry honours students.

**BIOC 490.0 — 1&2(1S)**
**Seminar**

The biochemistry seminar series presents a wide range of topics from the life sciences.

# BIOL — BIOLOGY

Department of Biology, College of Arts and Science

**BIOL 107.6 — 1&2(3L-1.5T)**
**The Living Earth**

Includes geological, biological and ecological studies. It considers the history of the earth and the forces which shape its changing surface, the nature of life and the requirements for life on the earth, heredity and evolution including the record of life preserved in the rocks, organism diversity, and the effects of people on the environment. The lectures will be supplemented by outside reading and by small-group tutorial and demonstration sessions.
**Note:** Students with credit for BISC 100 or 101 or GEOL 205 or 206 may not take this course for credit. Students who have taken Biology 30 may not take both BIOL 107 and BIOL 110 for credit. BIOL 107 is recommended for students in Program Types A, B and D. This course is not acceptable under requirement 1 of Program Type C.

**BIOL 108.6 — 1&2(3L-3P)**
**The Living Earth**

Follows the same lectures as BIOL 107 but has a three-hour laboratory each week. Designed for College of Education students in the Elementary Program. There will be a Physical Sciences/ Biological Sciences laboratory devoted to an integrated approach to the environment, using techniques from Physics, Chemistry, Biology and Geology. This laboratory is equivalent to a three-hour practicum.
**Note:** Students with credit for BISC 100 or 101 or GEOL 205 or 206 may not take this course for credit. Students who have taken Biology 30 may not take both BIOL 108 and BIOL 110 for credit.

**BIOL 110.6 — 1&2(3L-3P)**
**General Biology**

Deals with the general principles of biology and is based on a good previous preparatory course. This course is a prerequisite for senior courses in biology.
**Prerequisite(s):** Biology 30 with a laboratory, or BIOL 107 or 108. Chemistry 30 is required for registration in a biology major and strongly recommended for other students registering in BIOL 110.
**Note:** Students in Program Types A, B and D should consider BIOL 107 as an alternative to BIOL 110.

**BIOL 202.3 — 1(3L-4P)**
**Botany**

Deals in some depth with selected aspects of botany: structure, development and taxonomy of vascular plants.
**Prerequisite(s):** BIOL 110.
**Note:** Students may not take both BIOL 202 and 205 for credit. Intended primarily for agriculture students.

**BIOL 203.6 — 1&2(1L-6P)**
**Animal Structure and Function**

Surveys the structure, function, and evolution of the major groups of vertebrate and invertebrate animals.
**Prerequisite(s):** BIOL 110.
**Note:** The LAB meeting time is a self-instructional booth lab. Students will require approximately 6 hours per week for the LAB.

**BIOL 204.3 — 1(3L-4P)**
**Survey of Bacteria Algae and Fungi**

Surveys the structure, function and evolution of the bacteria, algae and fungi.
**Prerequisite(s):** BIOL 110; CHEM 112.
**Note:** Intended primarily for majors in biology, plant sciences and education. The LAB meeting time is a self-instructional booth lab. Students will require approximately 6 hours per week for the LAB.

**BIOL 205.3 — 2(3L-4P)**
**Survey of Land Plants**

Surveys the structure, function and evolution of the Bryophytes and Tracheophytes.
**Prerequisite(s):** BIOL 110.
**Note:** Students may not take both BIOL 202 and 205 for credit. Intended primarily for majors in biology, plant ecology and education. The LAB meeting time is a self-instructional booth lab. Students will require approximately 6 hours per week for the LAB.

**BIOL 211.3 — 1/2(3L-2P-1T)**
**Genetics from Genes to Genomics**

The major themes covered are transmission genetics, quantitative inheritance, molecular genetics and evolutionary genetics. Classical concepts are developed by a traditional problem solving method and integrated into contemporary genomic databases. Prominence is given to the yeast and human components of National Center for Biotechnology Information (ncbi.nlm.nih.gov).
**Prerequisite(s):** BIOL 107 or 108 or 110.
**Note:** Interactive departmental courseware in an electronic format is used in the theory and laboratory components. See example at http://www.usask.ca/biology/rank/demo. Students with credit for BIOL 105 may not take this course for credit.

**BIOL 217.3 — 1(3L-4P)**
**Introductory Animal Physiology**

An introduction to physiological principles. It includes consideration of physical, chemical and functional aspects of animal cells, study of membranes, cellular transport and extrusion mechanisms. Bioelectric and contractility phenomena are also included.
**Prerequisite(s):** BIOL 110; CHEM 112; CHEM 115 or CHEM 250 (CHEM 115 recommended); PHYS 111 recommended.
**Note:** Students with credit for PHSI 212 or HSC 208 cannot receive credit for this course.

**BIOL 253.3 — 1(3L-4P)**
**Ecosystems**

An introduction to aquatic and terrestrial ecosystems, with emphasis on western Canadian biomes and ecosystems. Community structure and dynamics, ecosystem production, energy flow and material cycling will also be considered.
**Prerequisite(s):** BIOL 107 or 108 or 110 or GEOG 111 and 112 or 113 and 114 or 6 credit units in geology.
**Note:** Students with credit for PLSC 213 cannot receive credit for this course.

**BIOL 263.3 — 2(3L-4P)**
**Introduction to Population Biology**

An introduction to the major topics of population genetics, population ecology and animal behaviour, integrated by using an evolutionary theme. Quantitative theory and mathematical models will be used.
**Prerequisite(s):** BIOL 110.

**BIOL 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**BIOL 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**BIOL 312.3 — 2(3L)**
**Northern Ecosystems**

Provides students with a greater understanding of the complexity of important concepts and issues related to the land and environment of the North. The course focuses on the impacts of ecological and physical changes of northern ecosystems on the peoples. Emphasis is given to the challenges of sustainability of ecosystems in the Circumpolar North, and to the need for long-term and international stewardship.
**Prerequisite(s):** NRTH 101 and 6 credit units in Natural Sciences (BIOL 107 or 110 recommended).

**Note:** Students enrolled in a B.Sc. Four Year, Three-year or Honours in Biology can use BIOL 312 only to fulfill degree requirement #7 of the B.Sc. This course meets the natural science requirement for Programs A, B, D.

**BIOL 316.3 — 2(3L-3P)**
**Molecular Genetics of Eukaryotes**

Includes structure and mapping of the eukaryotic chromosome, cytoplasmic inheritance, recombinant DNA technology, mutation, recombination, gene regulation in eukaryotes, developmental genetics, oncogenetics, immunogenetics and evolutionary genetics. Laboratories involve computer exercises based on genome data bases.
**Prerequisite(s):** BIOL 211.

**BIOL 318.3 — 2(3L-4P)**
**Comparative Systems Physiology**

An introduction to the function of organ systems in animals. It includes study of cardiovascular, digestive, osmoregulatory, respiratory, and endocrine and nervous systems. Examples are drawn from vertebrate and invertebrate models.
**Prerequisite(s):** BIOL 217.
**Note:** Students with credit for BIOL 218, PHSI 212 or HSC 208 will not receive credit for BIOL 318.

**BIOL 323.3 — 1(3L-4P)**
**Taxonomy of Vascular Plants**

Introduces the principles and methods of plant systematics: classification; description; nomenclature; identification of vascular plants; taxonomic characters; species and speciation; and tempos and patterns of plant evolution. Students are expected to make a collection of no more than 40 species of vascular plants and should contact the Department of Biology in the Spring for details.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 324.3 — 2(3L-2P)**
**Plants and Human Affairs**

A consideration of the higher or vascular plants which are economically important; their origins, history and botanical relationships and their fundamental role in all human societies.
**Prerequisite(s):** BIOL 107 or 110 or permission of department and completion of 60 credit units at the university.

**BIOL 325.3 — 2(3L-4P)**
**Plant Cells and Tissues**

A structural and functional study of the organization of the vascular plant body. The course deals with plant cell organelles, cell types and basic tissue organization. Examination of live material is emphasized in the laboratory.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 326.3 — 1(3L-4P)**
**Plant Development**

A survey of developmental phenomena in plants including the experimental approach to the interpretation of morphogenesis. Emphasis will be placed upon the vascular plants, but examples drawn from other groups will be used for comparison and clarification where appropriate.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 331.3 — 2(3L-4P)**
**Introductory Plant Physiology**

Three sections which deal respectively with plant cell physiology, the physiology of the whole plant and the physiology of plant growth and morphogenesis.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 342.3 — 2(3L-4P)**
**Fungi Environment and People**

Often overlooked due to their small size, or wrongly considered to be 'lower plants', fungi are more closely related to animals. They have major impacts on human health, biotechnology, the environment, and agriculture. We examine fungal diversity, cell biology and development, reproductive and genetic strategies, symbioses, and biotechnology applications in this diverse and successful group.
**Prerequisite(s):** BIOL 204.
**Note:** There will be an all-day field trip to Emma Lake the second Saturday of the term to collect forest mushrooms.

**BIOL 345.3 — 1(3L-4P)**
**Introductory Plant Pathology**

A survey of the biology of the major groups of plant pathogens and of the major types of plant diseases with emphasis on symptoms, transmission and control. Approximately equal emphasis is placed on theory and on laboratory work.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 350.3 — 1(7P)**
**Field Course**

Introduction to the principles and methods of field biology as applied to southern boreal forest and lake ecosystems. Students will complete an independent field research project. Includes an extended field study during late summer at the Biological Field Station on the Kenderdine Campus at Emma Lake.
**Prerequisite(s):** 21 senior credit units BIOL, permission of the instructor and restricted to students with a minimum CWA of 70% overall and in Biology.
**Note:** This course is required in the Honours program in Biology. Enrolment is limited and priority will be given to students admitted to the Honours program in Biology. It is recommended that this course be completed after the third year of study.

**BIOL 352.3 — 2(3L-4P)**
**Comparative Embryology**

A comparative survey of animal embryology with emphasis on morphogenesis, histogenesis and developmental mechanisms in vertebrates and selected invertebrates including insects. Live embryos of various types and a variety of sectioned material will be examined in the laboratory.
**Prerequisite(s):** BIOL 203.

**BIOL 361.3 — 1/2(3L-4P)**
**Vertebrate Biology**

An introduction to the biology of fishes, amphibians, reptiles, birds and mammals. The course will consist of a brief phylogenetic survey and an examination of the evolution of different vertebrate body systems. Emphasis will be placed on comparative morphology, embryology and physiology.
**Prerequisite(s):** BIOL 203.
**Note:** Students with credit for BIOL 351 may not take this course for credit.

**BIOL 364.3 — 2(3L-4P)**
**Economic Entomology**

Emphasizes the ecological aspects of economic entomology. Includes a laboratory and lecture survey of economically important arthropods, a consideration of the principles of pest control and discussion of pesticides.
**Prerequisite(s):** BIOL 110.

**BIOL 365.3 — 1(3L-4P)**
**Insect Diversity and Evolution**

Surveys insects and their close relatives based on morphology and taxonomy. Focuses on insect natural history, comparative anatomy and classification. Representative types examined in the laboratory provide an understanding of current trends in insect taxonomy and phylogeny.
**Prerequisite(s):** BIOL 203.

**Note:** Students are required to make a collection of insects and may wish to begin the collection over the summer prior to the course. In that case, contact the instructor for details and supplies pertaining to the insect collection.

**BIOL 366.3 — 2(3L-4P)**
**Insect Structure and Function**

Introduction to structure and function in insects. Topics are the integument, sensory systems, nervous and chemical coordination, gaseous exchange, food intake and utilization, metabolism, haemolymph and circulation, excretion, osmoregulation, reproduction, growth, and development. Comparisons with vertebrate physiological systems are made as appropriate.
**Prerequisite(s):** BIOL 203 and 217.

**BIOL 367.3 — 1/2(3L-4P)**
**Lower Invertebrate Structure and Function**

Studies functional morphology of lower invertebrate animals. Laboratories investigate the physiology of invertebrates.
**Prerequisite(s):** BIOL 203.

**BIOL 368.3 — 1/2(3L-4P)**
**Higher Invertebrate Structure and Function**

A study of the functional morphology of higher invertebrate animals. Laboratories investigate the physiology of invertebrates.
**Prerequisite(s):** BIOL 203.

**BIOL 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BIOL 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BIOL 401.3 — 1(3L-1T)**
**Evolutionary Biology**

Includes speciation and its consequences, hybridization and introgression, aspects of population genetics significant in evolutionary theory, rates of evolution and evidences for evolution. The evolution of specific groups will be considered in detail.
**Prerequisite(s):** BIOL 211 and 263.

**BIOL 412.3 — 1(3L-4P)**
**Limnology**

Introduction to the ecology of lakes. The biological, chemical and physical properties of lakes are examined at lake and watershed levels. Theoretical and applied topics, including human impacts (e.g., eutrophication, climate change, contaminants, and angling) are examined. Laboratories and field trips provide training in limnological techniques.
**Prerequisite(s):** BIOL 253.
**Note:** Students with credit for BIOL 415 may not take this course for credit. There will be costs for a field trip in addition to tuition fees.

**BIOL 414.3 — 1&2(1.5S)**
**Perspectives in Biology**

Assigned reading and tutorials. Students will be required to write a series of essays on assigned topics.
**Prerequisite(s):** Must be in Biology Honours Program or have permission of the department.
**Note:** Honours students in biology in their fourth year must take this course.

**BIOL 420.3 — 1(3L-4P)**
**Molecular Biology of Plants**

A study of the molecular biology of plants: nuclear and plastid genomes, coordination of expression between nuclear and plastid genomes, transposable elements, abiotic and hormonal effects on gene expression and plant transformation.
**Prerequisite(s):** BIOL 202 or 205 and one of BIOL 211 or BIOC 230 or permission of the instructor.

**BIOL 422.3 — 2(3L-4P)**
**Phycology**

Ecology, morphology, physiology and taxonomy of algae with emphasis on freshwater forms.
**Prerequisite(s):** BIOL 204.

**BIOL 424.3 — 2(3L-4P)**
**Grasses and Grasslands**

A study of the morphology, systematics, biogeography, synecology and autecology of the grasses and other graminoids, and ecology of grasslands. Laboratory emphasis is on the structure and taxonomy of grasses.
**Prerequisite(s):** BIOL 202 or 205.

**BIOL 430.3 — 2(3L-4P)**
**Neurobiology of Behaviour**

Studies how activities in an animal's nervous systems produces and modifies natural behaviour. Topics in the course include: the detection and coding of information from the environment, integration of information for decision-making, generation of motor patterns that underlie behaviour, and general constraints on form and function of neural circuits.
**Prerequisite(s):** BIOL 217 or HSC 208 or VBMS 212 or permission of instructor.

**BIOL 436.3 — 1(3L-3P)**
**Animal Parasitology**

Deals with helminths, arthropods and protozoa of people, domestic and wild animals, and birds. Examples from these parasite and host types will be used to illustrate important concepts, including basic structure and function, life cycles, ecology, biogeography, individual and population level host-parasite-environment relationships, epizootiology and parasite control strategies.
**Prerequisite(s):** 12 senior credit units BIOL or permission of the instructor.

**BIOL 451.3 — 1(3L-4P)**
**Ichthyology**

The biology of fishes including their morphological diversity, physiology, behaviour and ecology, and their management and utilization.
**Prerequisite(s):** BIOL 203.

**BIOL 455.3 — 2(3L-4P)**
**Mammalogy**

Introduction to local and world mammal faunas. Evolution, behaviour, ecology, morphology, phylogeny, and physiology will be emphasized in lectures. Laboratories will be concerned with taxonomic classification, identification, and anatomical adaptations.
**Prerequisite(s):** BIOL 203 or 361.

**BIOL 458.3 — 1(3L-4P)**
**Ornithology**

Introduction to the diversity of birds of the world. Lecture material focuses on evolution, ecology, behaviour, physiology and conservation. Laboratories focus on morphological diversity and taxonomy.
**Prerequisite(s):** BIOL 203 or 361.

**BIOL 466.3 — 1(3L-4P)**
**Aquatic Insects**

Identification of aquatic insects, discussions of current literature, field trips, collections, and laboratory work.
**Prerequisite(s):** BIOL 203.
**Note:** Students are advised to contact the instructor about making a collection of insects the summer before enrolling in the course.

**BIOL 470.3 — 1(3L-4P)**
**Conservation Biology**

An introduction to the theoretical and scientific foundation of conservation biology as applied to animals and plants. Course material will cover elements of population, community and landscape ecology as they apply to conservation challenges. Labs will include measuring biodiversity and analysis of current conservation issues. Field trips are compulsory.
**Prerequisite(s):** BIOL 253 and 263, or permission of the instructor.
**Note:** There will be costs for a field trip in addition to tuition fees.

**BIOL 472.3 — 2(3L-4P)**
**Animal Behaviour**

Fundamental concepts in animal behaviour. An introduction to the form, control and adaptive significance of animal behaviour.
**Prerequisite(s):** BIOL 263.

**BIOL 473.3 — 1(3L-4P)**
**Population Ecology**

The theory of population growth, distribution and abundance of organisms.
**Prerequisite(s):** BIOL 263 and a course in statistics.

**BIOL 475.3 — 1/2(3L-3P)**
**Ecological Toxicology**

An introduction to the principles of ecological toxicology, including: population modelling, experimental design and interpretation of field studies, and contaminant impact assessment on populations, communities and ecosystems. Computer laboratory exercises will be used to model populations and ecosystems and analyze changes in populations resulting from contaminant impacts.
**Prerequisite(s):** BIOL 110 or equivalent, BIOL 253 or equivalent, and 3 credit units in statistics (e.g., PLSC 314). BIOL 263 and TOX 301 are recommended.

**BIOL 480.3 — 1/2(6P)**
**Biology Research**

The student will work on a laboratory or field project under the supervision of a faculty member. Before beginning, the student must obtain a supervisor and then submit an outline of the project for approval by the Head of the Department. At the end of the project, the student will submit to the department a written report in thesis form.
**Prerequisite(s):** Restricted to fourth year biology students with a Cumulative Weighted Average of 70% or better.
**Note:** Honours Agriculture Biology students may not take both this course and AGRC 494. Those in College Scholar Programs may not take this course in addition to another laboratory or field project designed under the Program.

**BIOL 481.6 — 1&2(6P)**
**Extended Research Project in Biology**

Laboratory and/or field project under the supervision of a faculty member. Student must obtain a supervisor who submits course outline (syllabus) to the Department Head. Written reports and an oral presentation will be required.
**Prerequisite(s):** Restricted to fourth year Biology students with a minimum C.W.A. of 70% in Biology.
**Note:** Students must consult and discuss their research interests with a potential supervisor before registering for this course, preferably in the spring or early summer. Students with credit for BIOL 480 or BIOL 499 Special Topics Extended Research Project cannot take BIOL 481 for credit. Agricultural Biology students may not take both BIOL 481 and AGRC 494 for credit. Those in College Scholar programs may not take this course in addition to another laboratory or field project designed under the program.

**BIOL 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BIOL 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# BMST — BIOMOLECULAR STRUCTURE STUDIES

College of Arts and Science

**BMST 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BMST 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BMST 305.3 — 2(3L)**
**Structure and Function of Biomolecules**

Introduces the underlying properties that dictate the folding, structure and stability of biological macromolecules and how these ultimately affect function. This is a lecture-based course that will focus on advanced principles and properties of macromolecular structure, their relationship to thermodynamic principles of equilibrium and stability, and biological activity.
**Prerequisite(s):** CHEM 115, CHEM 250, BIOC 200.

**BMST 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BMST 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BMST 406.3 — 1(3P)**
**Advanced Biomolecular Techniques**

Provides an introduction to a number of techniques that are commonly used for studying biological macromolecules. This is a laboratory course to complement the knowledge gained in BMST 305. Students will become familiar with various biophysical techniques for studying biomolecular properties and activities.
**Prerequisite(s):** MATH 110 and one of BMST 305 or BIOC 310 or CHEM 353.

**BMST 408.3 — 2(3L)**
**Macromolecular Structure Determination**

Provides students with a basic understanding of techniques used to probe the structures of macromolecules. The core focus of the course will be X-ray crystallography and nuclear magnetic resonance spectroscopy (NMR) with applications to protein and nucleic acid structure determination. Cryo-electron microscopy will also be discussed.
**Prerequisite(s):** MATH 110 and one of BMST 305 or BIOC 310 or CHEM 353.

**BMST 485.6 — 1/2(8-9P)**
**Research in Biomolecular Structure Studies**

Students will work on a research project for two terms in the laboratory of a faculty member that is actively involved in structure-based studies of biomolecules. They will gain experience in experimental procedures, data analysis, and preparation of both a written report and oral presentation on their scientific findings.
**Prerequisite(s):** BMST 406 and 408, which may be taken concurrently, and permission of the Course Coordinator. Preference will be given to Biomolecular Structure honours students.

**BMST 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BMST 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# BTEC — BIOTECHNOLOGY

College of Arts and Science

**BTEC 200.3 — 1(3L)**
**Introduction to Science of Biotechnology**

Focuses on those aspects of scientific knowledge that will allow students to understand basic biological concepts as related to biotechnology. Relevant examples from agricultural and medical biotechnology will be used to illustrate and introduce these scientific principles. This course is designed specifically for non-life science students.
**Prerequisite(s):** Biology 30 or BIOL 107 plus completion of 30 credit units at the university; no 200-level life science course (except CHEM 250) without permission of the instructor.
**Note:** Students whose program requires them to take either BIOL 211 or BIOC 200 may not take BTEC 200, 300 or 400 for credit.

**BTEC 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BTEC 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BTEC 300.3 — 2(3L-2T)**
**Techniques and Approaches in Biotechnology**

Builds upon BTEC 200 and will cover techniques and approaches. A major objective is the introduction of biotechnology terminology as well as an appreciation for the variety of research approaches used in modern biotechnology and related disciplines. This course is designed specifically for non-life science students.
**Prerequisite(s):** BTEC 200.

**BTEC 301.3 — 2(3L)**
**Biotechnology and Law**

Comprises a critical review of current legal issues affecting the biotechnology industry and the interested public. Students are first introduced to fundamental principles of contract, property, business, and administrative law. Emphasis is placed on intellectual property issues involving patents, plant breeders' rights, assignment and licensing of technology, and trademarks.
**Prerequisite(s):** 54 credit units of university coursework.

**BTEC 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BTEC 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BTEC 400.3 — 1(2L-1P)**
**Applications and Uses of Biotechnology**

Interactive visits to local biotechnology companies to view the scientific operations, the production and the scale up of the final product. Pre-visit lectures will review the appropriate concepts from BTEC 200 and 300. Post-visit sessions will discuss how the science has been applied. This course is designed specifically for non-life science students.
**Prerequisite(s):** BTEC 300.

**BTEC 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**BTEC 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# BTMG — BIOTECHNOLOGY MANAGEMENT

Department of Marketing, College of Commerce

**BTMG 400.6 — 1&2(3S)**
**Honours Seminar in Biotechnology Management**

Directed readings and individual research in the area of biotechnology management. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Subject:** BTMG.
**Prerequisite(s):** Permission of the department.

# CE — CIVIL ENGINEERING

Department of Civil & Geological Engineering, College of Engineering

**CE 201.0 — 1/2(3L)**
**Elements of CAD**

Credit for this course may be gained by enrolling in AutoCAD Level 1 training at SIAST for nine 3 hour sessions. A pass/fail grade will be assigned on completion of the SIAST course. Credit may also be obtained by presenting documentary evidence of equivalent training.

**CE 212.3 — 1(3L-1.5P alt weeks)**
**Civil Engineering Materials**

An introduction to the physical and mechanical properties of materials and the phenomenological bases for these behaviours. Fundamental concepts of materials science and engineering are introduced and applied to materials commonly encountered in civil engineering

applications, including Portland cement concrete, metals and alloys, ceramics, polymers and polymer composites, and other materials such as wood, asphalt concrete, and soils.
**Prerequisite(s):** CHEM 114.

**CE 225.3 — 2(3L-3P alt weeks)**
**Fluid Mechanics**

Provides an introduction to the subject area of fluid mechanics, including the properties of fluids, concepts of a continuum, fluid statics, kinematics, the general control volume conservation equation, continuity equation, momentum equation, Bernoulliiacut's equation and measurement of fluid properties, pressure, velocity and discharge.
**Prerequisite(s):** GE 125 and MATH 223 (taken).

**CE 271.2 — 3(P-2weeks)**
**Spring Surveying Camp**

Basic introduction to the use and adjustments of survey equipment, and the associated field work and data interpretation required for engineering projects.
**Note:** A two-week field camp immediately following T2 final exams.

**CE 295.3 — 2(1.5L-1.5P)**
**Design Project**

A design course in which the principles of design are learned by application to a suitable civil engineering project. The course requires that the students work in groups to achieve the desired outcome. Group interaction and performance is monitored throughout. Guest lectures from various industrial and other representatives will be provided to enhance the student's design experience.
**Prerequisite(s):** GE 120, and 42 credit units towards the B.E. degree.
**Corequisite(s):** CE 225, GE 213, and GE 300.

**CE 311.3 — 1(3L-3P alt weeks)**
**Continuum Mechanics**

The application of equilibrium analysis to materials and systems that can be treated as continua. The laws of equilibrium, compatibility, and constitutive relationships are used to reduce physical problems to mathematical expressions. Concepts are introduced in the context of elastic theory and extended to other areas of relevance to civil engineering such as fluid flow, plasticity, viscoelasticity, and multi-phase material behaviour.
**Prerequisite(s):** CE 212 and GE 213.

**CE 315.3 — 1(3L-3P alt weeks)**
**Fluid Mechanics and Hydraulics**

Builds on the concepts studied in CE 225 Fluid Mechanics. Introduces the concepts of potential flow, dimensional analysis, boundary layer development, incompressible flow in pressure conduits, flow past objects, steady flow in open channels and hydraulic transients.
**Prerequisite(s):** CE 225 or CHE210 or ME 215.

**CE 316.3 — 2(3L-3P alt weeks)**
**Geomatics**

An introduction to Geomatics. This course describes the land subdivision system in Canada and briefly discusses land subdivision and encumbrances. Coordinate systems are presented, including a discussion of astronomic and geometric reference ellipsoids to approximate the shape of the earth. Map projections used to show the position of points on the surface of the earth on a two-dimensional surface are also discussed. Universal Transverse Mercator (UTM) projections are presented in detail, and the theory and application of this coordinate system are studied as the basis for most Canadian control surveys. The use and application of digital surveying equipment is presented along with the elements of total station and data collector operation. The combined use of UTM coordinate and digital surveying information, along with Softdesk Civil computer software for earthwork design, is also discussed. Global positioning satellite (GPS) surveys are also discussed, along with the integration of satellite data with base maps and total station surveys. Geographic information systems are also described and presented with applications in this course.
**Prerequisite(s):** CE 201 and 271.

**CE 317.3 — 1(3L-3P alt weeks)**
**Structural Analysis**

Introductory concepts for the analysis of structures are presented. Axial forces, shear forces and bending moments in statically determinant structures due to applied loads are determined, and methods for estimating deflections are covered. Computer analysis using the stiffness method is introduced and applied to 2D trusses. Manual analysis methods for statically indeterminate structures are considered briefly. An emphasis is placed on the application of basic analytical techniques, followed by the use of computer-based verifications.
**Prerequisite(s):** GE 213.

**CE 318.3 — 1(3L-3P alt weeks)**
**Applied Engineering Mathematics**

An introduction to the use of mathematical methods in applied civil engineering problems. Topics include: matrix solution methods for systems of coupled equations, eigenvalue problems, and coordinate transformations; optimization and linear programming; and the solution of differential equations describing non-stationary physical systems using analytical, finite difference and finite element methods. Numerical techniques using computer programs are emphasized.
**Prerequisite(s):** MATH 224 (taken), CMPT 116 (taken), CE 225 (taken) and GE 213 (taken).

**CE 319.3 — 2(3L-3P alt weeks)**
**Hydrology and Hydrogeology**

Basic hydrologic processes such as precipitation, evapotranspiration, runoff, infiltration, interception and depression storage are introduced. Engineering applications such as streamflow and storm hydrographs, flood routing, hydrologic analyses and design, and watershed simulation are reviewed. The role of groundwater as it pertains to infiltration and runoff processes and an introduction to regional groundwater flow systems are discussed.
**Prerequisite(s):** MATH 224 (taken), and CE 225 (taken) or CHE 210 (taken).

**CE 321.3 — 2(3L-3P alt weeks)**
**Structural Systems and Materials**

The behaviour and applications of basic forms of structural systems are reviewed, including beam and column systems, arches and cable systems, trusses, braced systems and rigid frames. Limit States design principles in accordance with the National Building Code of Canada (NBCC) are introduced as a means of dealing with uncertainty in design. The estimation of building loads is covered, including dead and live loads, snow and rain loads, and loads due to wind. An introduction is also given to the characteristics of common structural materials, including steel, reinforced concrete and wood.
**Prerequisite(s):** CE 212, 311 and 317.

**CE 327.3 — 2(3L-3P alt weeks)**
**Sanitary and Environmental Engineering I**

Fundamental topics in the discipline of sanitary/environmental engineering are introduced. Topics include the design of municipal water distribution and wastewater collection systems; an introduction to water chemistry and water quality assessment; and design of physical and chemical treatment processes as they apply to water and waste water treatment. A brief overview of municipal solid waste management systems and storm water collection systems is also presented.
**Prerequisite(s):** CHEM 114 and CE 315 (taken).

**CE 328.3 — 1(3L-3P alt weeks)**
**Introduction to Geotechnical Engineering**

Classification systems and a review of phase relationships are provided. The fundamental concepts of effective stress as applied to volume change, shear strength and consolidation are emphasized. Both steady state and transient seepage analyses are used to develop concepts of pore water pressures that are incorporated into volume change and shear strength analyses. Concepts of stress state as applied to saturated and unsaturated soils form an integral part of understanding soil behavior. An introduction to foundation engineering that provides a survey of lateral earth pressure, bearing capacity of shallow and deep foundations, settlement and slope stability are provided. This course does not provide students with a facility for design in foundation engineering. However, it will furnish a basic grounding in the fundamentals of soil mechanics for application to more advanced courses.
**Prerequisite(s):** GEOE 218, CE 225 (taken) and GE 213 (taken).

**CE 329.3 — 2(3L-3P alt weeks)**
**Transportation Engineering**

This course introduces the civil engineering student to planning, design, operation and management of air and road transportation systems.
**Corequisite(s):** CE 316.

**CE 414.3 — 1(3L-3P alt weeks)**
**Sanitary and Environmental Engineering II**

Additional topics in the discipline of sanitary/environmental engineering are introduced. Topics covered include the design of primary wastewater treatment systems; introduction to biological processes and waste degradation; design of biological wastewater treatment processes; and tertiary wastewater treatment. An introduction to sludge processing and air pollution is also presented.
**Prerequisite(s):** CE 327.

**CE 415.3 — 1(3L-3P alt weeks)**
**Structures for Water Management**

A design course in which the basics of fluid mechanics (hydrostatics, continuity, energy and momentum) are applied to hydraulic design. The concrete gravity dam and spillway structures are used to introduce the basic aspects of hydraulic structure design with respect to forces and

hydraulic analysis, including the important topic of energy dissipation. Other structures, such as those used for flood control, irrigation, hydropower, navigation, water supply, land and highway drainage, wildfowl habitat preservation, and water-based recreation, are also considered.
**Prerequisite(s):** CE 315 (taken).

**CE 416.3 — 1(3L-3P alt weeks)**
**Geotechnical Engineering Practice**

Applications in geoengineering with an emphasis on practical design of earthworks, foundations, excavations, and earth-retaining structures. Design and construction of shallow foundations based on bearing capacity and settlement analysis. Design and installation of deep foundations including piles and caissons. Introduction to geosynthetics and soil reinforcement, ground improvement and special construction techniques. As a major component of the course mark, students carry out a real world field investigation in small groups, plan and implement an appropriate laboratory testing programme and complete a Geotechnical Investigation and Design Report. Emphasis is on analysis and design as well as constructability and long term performance. A theme of construction site safety runs throughout the course.
**Prerequisite(s):** CE 328.

**CE 417.3 — 1(3L-3P alt weeks)**
**Pavement Materials and Design**

Presents methods used to design, build, and predict the performance of road structures. The course draws heavily upon a material science and mechanics framework to quantify the effects of alternative materials, traffic loading and environmental loading on road performance. Road structural design, materials specification, construction, rehabilitation, and maintenance of flexible and rigid pavements are presented in the overall context of effective road asset management.
**Prerequisite(s):** CE 311, 328 and 329.

**CE 418.3 — 1(3L-3P alt weeks)**
**Design in Reinforced Concrete**

An introduction to the analysis and design of reinforced concrete structural members. Limit States and ultimate strength methods for beams and one-way slabs (singly and doubly reinforced) in flexure and shear. Introduction to the development of reinforcement. Design of short beam-columns. Deflection, cracking and vibration control. Design of footings.
**Prerequisite(s):** CE 321 (taken).

**CE 420.3 — 1(3L-3P alt weeks)**
**Project Engineering**

An introduction to the engineering and construction industries: the engineer's role in industry, construction and the economy. Deals with various aspects of engineering including, work plans and related studies. It also deals with the marketing of engineering services. It discusses control on construction projects and methods of ensuring quality. Construction tendering is covered in detail, including the preparation of instructions to bidders, General and supplementary conditions, specifications, receiving tenders and awarding contracts. Bidding and estimating is also discussed. Computerized precedence network scheduling using various software packages is demonstrated. This course includes discussions on construction claims, professional liability, arbitration and the use of courts to settle disputes.
**Prerequisite(s):** GE 348 and 90 credit units towards the B.E. degree.

**CE 463.3 — 2(3L-3P alt weeks)**
**Advanced Structural Analysis**

Deals with advanced techniques for the analysis of determinate and indeterminate structures, including energy-based methods, moment distribution method with joint translation, influence lines, non-prismatic members. Computer analysis based on the stiffness formulation is presented for space frames. Finite element analysis is introduced for plate-like elements loaded in their own plane. Emphasis is placed on basic analytical techniques, followed by computer verification.
**Prerequisite(s):** CE 317.

**CE 464.3 — 2(3L-3P alt weeks)**
**Water Resources Engineering**

This course builds on and supplements various aspects of other hydrotechnical courses, especially those related to hydrology. The course focuses on three major parts of water resources engineering practice. Part ideals with watershed analysis and simulation, including use of state-of-the art software, and the effects of urbanization on watershed runoff, including the design of street drainage systems and detention ponds. It also covers determination of peak discharges for hydrologic design. Part II deals with water use and its associated analysis, including irrigation, drought management and hydropower. Part III deals with water excess management and flood damage mitigation. Several aspects of the course include consideration of economics as a decision-making tool, notably those aspects dealing with drought and flood management.
**Prerequisite(s):** CE 315 (taken), CE 319 and GE 348 (taken).

**CE 466.3 — 2(3L-3P alt weeks)**
**Geotechnical Modelling**

Analysis, design and construction of various earth structures, encompass virtually every aspect of geotechnical engineering. Topics for this course include embankments, geosynthetic reinforced steep slopes and retaining walls, earth and mine tailings dams, deep excavations and tunnels. The role of instrumentation to ensure the safety of earth structures and to determine their performance during their service life is also presented. Application of key concepts is emphasized during hands-on computer sessions based on the state-of-the-art geotechnical software.
**Prerequisite(s):** CE 318 (taken) and 328.

**CE 467.3 — 2(3L-3P alt weeks)**
**Transportation and Regional Development**

Introduction to regional development and the role of transportation and transportation technology. Topics include the role of technology in economic development, the nature of economic regions, location of economic activities and sustainable competitive advantage in a market economy.
**Prerequisite(s):** CE 329 and GE 348; or permission of the Department Head.

**CE 468.3 — 2(3L-3P alt weeks)**
**Geoenvironmental Engineering**

Introduction to wastes, contaminants and contaminant transport processes in the subsurface. A review of the design elements of natural and engineered barriers and analytical tools for barrier systems and for remediation of subsurface contamination. Case studies of containment and remediation systems for municipal, mining and industrial wastes.
**Prerequisite(s):** CE 319, 327 (or GEOE 475), and CE 328.

**CE 470.3 — 1(3L-3P alt weeks)**
**Design in Structural Steel**

An introduction to the design of structural steel members and connections. Limit States design principles, in conformance with the Canadian steel design Standard CSA-S16.1, are used as the basis for design. Types of members and components include tension and flexural members, columns and beam columns, and bolted and welded connections. Emphasis is placed on basic design procedures, followed by the use of computer-based verification.
**Prerequisite(s):** CE 321.

**CE 471.3 — 1/2(3L-1.5P)**
**Finite Elements Fundamentals and Engineering Applications**

This course introduces students to the theory and basic concepts of finite elements as applied to bars, beams, and plane frame structures, as well as two-dimensional elastic solids. Students also learn how to construct computer codes capable of performing finite element analysis of frame structures and two-dimensional elastic solids.
**Prerequisite(s):** CE 311, 317 and 318. Must be registered in the Study Abroad Program.

**CE 472.3 — SU(3P)**
**Study Abroad European Structures**

Consists primarily of 14 daily field trips to structures of historical interest in Europe. The influence of visionaries on the history of science and technology including: Julius Caesar, Giotti, Michelangelo, Brunelleschi, Da Vinci and Galileo, will be emphasized throughout the course. Students will be assigned homework, be required to submit a project report and a final examination.
**Prerequisite(s):** Must be registered in the Study Abroad Program and must have completed 60 credit units towards the B.E. program or permission of the Department Head.

**CE 495.6 — 1&2(6P)**
**Capstone Design Project**

A final design course in which advanced principles of design are learned by application to a suitable civil engineering project. The course, which builds upon the foundation established in CE 295, focuses on approaches to be taken in defining complex problems (including the outlining of project objectives and scope), acquisition of suitable data resources, generation of alternative solutions, methods for selecting design alternatives and project implementation. Design philosophy and methods are discussed and explored in the context of the particular assignment given for the current year. The course requires that the students work in groups to achieve the desired outcome. Group interaction and performance is monitored throughout. Guest lectures from various industrial and other representatives will be provided to enhance the student's design experience.
**Prerequisite(s):** CE 295, GE 300, 348 and 95 credit units towards the B.E. degree.
**Corequisite(s:)** CE 420.

**CE 498.3 — 1/2(3L-1.5P)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CHE — CHEMICAL ENGINEERING

Department of Chemical Engineering, College of Engineering

**CHE 210.3 — 2(3L-2P alt weeks)**
**Fluid Mechanics I**

Single phase fluid flow is considered for both gas and liquids. The mechanical energy balance and fluid force balance equations are developed with applications. Newtonian and non-Newtonian concepts are introduced including rheological measurement. The concepts of laminar and turbulent flow are developed and applied to flow in pipes and networks, and fluid metering. Compressible fluid flow is also introduced.
**Prerequisite(s):** GE 125 and MATH 223 (taken).

**CHE 220.3 — 2(3L-1.5P)**
**Introduction to Process Engineering**

The lectures and problems will illustrate the use of energy and material balances in chemical and biochemical engineering processes.
**Prerequisite(s):** CHEM 115.

**CHE 223.3 — 2(3L-2T alt weeks)**
**Chemical Thermodynamics**

Fundamental principles of thermodynamics with particular emphasis on generalized methods. Considerable time is devoted to the thermodynamics of solutions with an emphasis on generalized methods for dealing with deviations from ideal behaviour. These principles are applied to the calculation of equilibrium compositions in liquid-vapour systems.
**Corequisite(s):** CHEM 242.
**Note:** Students with credit for CHEM 347 will not receive credit for this course.

**CHE 232.0 — 2(1S)**
**Seminar**

Current and future technological changes and their impacts on society are explored from a chemical engineering point of view. Impacts of petroleum production, mineral industries, and chemical industries. Topics involving health and safety issues in the chemical industries are discussed.

**CHE 311.3 — 1(3L-2P alt weeks)**
**Mathematical Modelling I**

Numerical methods. Curve-fitting and approximation of functions. Fourier series and integral. Laplace transformation. Application of basic statistics to chemical engineering problems including fault tree analysis and catalyst performance analysis.
**Prerequisite(s):** MATH 224 (taken) and CHE 220.

**CHE 315.3 — 2(3L-2P alt weeks)**
**Mass Transfer I**

Mass transfer operations involving contact by stages, including single-stage, binary multiple-stage contacting, and multicomponent multiple-stage contacting. Gas absorption, distillation, and liquid extraction are included.
**Prerequisite(s):** CHE 311 and 323.

**CHE 320.3 — 1(3L-2P alt weeks)**
**Fluid Mechanics II**

Pumping of fluids, gas-liquid pipe flow, flow through consolidated and unconsolidated porous media, fluidization and two-phase separation processes. Applications include topics of interest in the petroleum and mineral processing industries.
**Prerequisite(s):** CHE 210.

**CHE 322.3 — 2(3L-2P alt weeks)**
**Mathematical Modelling II**

Ordinary and partial differential equations as they relate to chemical engineering processes. Laplace transforms for ordinary differential equations. Analytic and numerical solutions to partial differential equations. An emphasis will be placed on the development of mathematical models for chemical engineering systems.
**Prerequisite(s):** CHE 311.

**CHE 323.3 — 1(3L-2P alt weeks)**
**Chemical Engineering Thermodynamics**

Topics include the treatment of vapour-liquid equilibria at high pressures, expansion and compression of fluids, steam power-plant cycles, liquefaction of gases and refrigeration.
**Prerequisite(s):** CHE 223 (or CHEM 347).

**CHE 324.3 — 2(3L-2P alt weeks)**
**Heat Transfer**

Steady and transient conduction. Convective transfer processes and heat transfer coefficients. Heat exchanger design. Radiant heat transfer.
**Prerequisite(s):** CHE 210 (taken) and 311 (taken).

**CHE 325.3 — 2(3L-2P alt weeks)**
**Process Engineering and Design I**

The concepts of industrial chemical process design, industrial economics, process optimization, process simulation and plant safety. Encourages students to use their fundamental knowledge in science and mathematics to design practical chemical engineering facilities. Special emphasis will be placed on safety, hazards, sustainability and loss prevention issues in chemical plants.
**Prerequisite(s):** CHE 220 and 323.
**Corequisite(s):** CHE 324.

**CHE 332.0 — 1&2(1S)**
**Seminar**

Current and future technological changes and their impacts on society are explored from a chemical engineering point of view. Impacts of petroleum production, mineral industries, and chemical industries. Topics involving health and safety issues in the chemical industries are discussed.
**Prerequisite(s):** CHE 232.

**CHE 333.2 — 2(3P)**
**Chemical Engineering Laboratory I**

A series of experiments using bench scale and pilot plant scale apparatus to study fluid mechanics, heat transfer, and thermodynamics. The method of reporting results is emphasized.
**Corequisite(s):** CHE 210 and 324.

**CHE 364.3 — 1(3L)**
**Petrochemical Engineering**

The petrochemical industry is a significant employer of chemical engineers. This course covers the fundamental chemistry, reactions and separations involved in the value-added processing of refinery products such as ethylene, sulfur, medium heating value gas, etc. An emphasis will be placed on the use of petrochemical properties in the engineering design and operation of petroleum value-added processes. The focus will be centered on chemical industries and feed stocks associated with Saskatchewan and Western Canada. The chemistry and concerns of petrochemical pollutants will also be discovered.
**Prerequisite(s):** CHE 220, 223; CHEM 250.
**Note:** Required course for the Petroleum Option in Chemical Engineering. Cannot be used as an elective in the general CHE program or any other option. If students from options other than Petroleum enroll in this course as an elective, they may not satisfy graduation requirements.

**CHE 411.3 — 1(3L)**
**Chemical Reaction Engineering**

An examination of the principles of applied chemical kinetics and their use in chemical reactor design and chemical plant operation. Both homogeneous and heterogeneous kinetics, including catalysis, are considered.
**Prerequisite(s):** CHE 322 and CHEM 242.

**CHE 413.3 — 1(3L-2P alt weeks)**
**Process Dynamics**

The development of lumped-parameter process models is introduced. Block diagrams and transfer functions are studied, followed by an in-depth analysis of first-, second- and higher-order processes by means of Laplace transforms and frequency response techniques.
**Prerequisite(s):** CHE 322.

**CHE 414.2 — 1(3P)**
**Chemical Engineering Laboratory II**

Experiments are chosen from the fields of fluid mechanics, biochemical engineering, heat transfer, thermodynamics, data logging and process dynamics.
**Prerequisite(s):** CHE 320 and 333 (taken).
**Corequisite(s):** CHE 413.

**CHE 421.3 — 1(3L-2P alt weeks)**
**Mass Transfer II**

Further topics in mass transfer operations. Molecular diffusion, mass transfer coefficients, continuous contacting, gas absorption, air-water contacting, drying.
**Prerequisite(s):** CHE 315.

**CHE 422.6 — 1&2(6P)**
**Process Engineering and Design II**

Detailed design of an actual industrial chemical process including preparation of the engineering flow sheet, process simulation and optimization, plant energy and material balances, equipment sizing and design, plant layout, hazards and operability and environmental impacts, and economic analysis of the chemical process.
**Prerequisite(s):** CHE 325.
**Corequisite(s):** CHE 315 and 411.

**CHE 423.3 — 2(3L-2P alt weeks)**
**Process Control**

Instrumentation and the distributed control systems will be discussed. The classical linear control theory and stability criteria for control system design are introduced. The development of dynamic equations for elements of control loops is emphasized. Digital computer control with emphasis on the analysis of sampled data systems are studied. Survey and discussion of

particular control schemes for chemical engineering processes.
**Prerequisite(s):** CHE 413.

**CHE 424.2 — 2(6P)**
**Chemical Engineering Laboratory III**

Experiments are chosen from the fields of process dynamics and control, reactor design, and mass transfer.
**Prerequisite(s):** CHE 414 (taken) and CHE 421.
**Corequisite(s):** CHE 423.

**CHE 431.1 — 1&2(1S)**
**Seminar**

Current and future technological changes and their impacts on society are explored from a chemical engineering and a professional engineering point of view. Impacts of petroleum production, mineral industries, and chemical industries. Topics involving health and safety issues in the chemical industries are discussed.
**Prerequisite(s):** CHE 332.
**Corequisite(s):** GE 300.

**CHE 453.3 — 1/2(3L)**
**Corrosion Engineering**

Intended for engineers and others who wish to develop an appreciation of the principles of corrosion and corrosion control and their application to the selection of materials of construction and the protection of engineering systems.
**Prerequisite(s):** 60 credit units of university study towards the B.E. degree.

**CHE 454.3 — 1/2(3L)**
**Design of Industrial Waste Treatment Systems**

Air pollution topics include causes and effects of air pollution, sampling and analysis of air and stack gas samples, stack gas dispersion models, and the design of industrial control measures for particulates. Water pollution topics include causes and effects of water pollution, biology of receiving waters and treatment systems, sampling and analysis of wastewaters, and industrial control measures including biological methods such as trickling filters, aeration basins and activated sludge systems.
**Prerequisite(s):** 60 credit units of university study towards the B.E. degree.

**CHE 460.3 — 1/2(3L)**
**Oil and Natural Gas Upgrading**

The application of chemical engineering principles to the petroleum refining and petrochemical industries. A refinery survey looks at key unit operations such as atmospheric distillation catalytic cracking, and reforming. Bitumen and heavy oil upgrading are also discussed. Processes for the production of petrochemicals from natural gas constituents are examined.
**Prerequisite(s):** 60 credit units in the CHE program including CHE 220.

**CHE 461.3 — 1/2(3L)**
**Introduction to Biochemical Engineering**

To provide the engineering student with an understanding of the behaviour of microorganisms and their industrial application. The elements of organism structure, and enzyme and cell functions are discussed. Attention is given to the evaluation of batch and continuous fermentation processes and the operations of aeration, agitation and sterilization. Some industrial processes are considered.
**Prerequisite(s):** 60 credit units of university study towards the B.E. degree.

**CHE 464.3 — 1/2(3L)**
**Petroleum Production Engineering**

An introduction to the techniques used in the production of oil and natural gas. Topics include an introduction to petroleum geology, properties of reservoir rocks and petroleum fluids, inflow performance of vertical and horizontal wells. Wellbore hydraulics, well testing and well stimulation.
**Prerequisite(s):** CHE 210 or CE 225 or ME 215.

**CHE 470.0 — 1/2(P)**
**Field Trip**

Visits to industrial plants.
**Note:** Offered in alternate years. Student must take this course in either third or fourth year.

**CHE 477.3 — 1/2(3L-1.5P)**
**Applications of Numerical Methods**

Surveys numerical methods used in solving engineering problems in the areas of: linear equations, non-linear equations, eigenvalue problems, curve fitting and interpolation, numerical differentiation and integration, ordinary differential equations (initial-value and boundary-value problems), partial differential equations and optimization. Engineering faculty will design the lab problems for students in Engineering and emphasis in the problem labs will be placed on the application of numerical procedures to Engineering design. A different set of lab problems will be given to students in Arts & Science.
**Prerequisite(s):** MATH 224 or 238; MATH 264 or GE 120; or permission of the Department Head.
**Corequisite(s):** CHE 322 or permission of the Department Head.
**Note:** Students who have MATH 315 may not take this course for credit.

**CHE 498.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CHEM — CHEMISTRY

Department of Chemistry, College of Arts and Science

**CHEM 112.3 — 1/2(3L-3.5P)**
**General Chemistry I Structure Bonding and Properties of Materials**

Structure, bonding and properties of materials. Topics include atoms and molecules, bonding, molecular structure, intermolecular forces, states of matter, and properties of materials such as polymers, natural and synthetic materials, biomaterials, proteins, nucleic acids, carbohydrates, conductors, semiconductors, and insulators. The laboratory illustrates material covered in the lectures.
**Prerequisite(s):** Chemistry 30 and Mathematics B30 (or Algebra 30). Mathematics C30 (or Geometry-Trigonometry 30) is strongly recommended.
**Note:** Students with credit for CHEM 111 or 114 may not take this course for credit.

**CHEM 114.3 — 1(3L-3P)**
**General Chemistry for Engineers**

Topics include atoms and molecules, stoichiometry, bonding, molecular structure, states of matter, chemical reactions, and thermochemistry.
**Prerequisite(s):** Chemistry 30, Mathematics B30 (or Algebra 30) and Mathematics C30 (or Geometry-Trigonometry 30)
**Note:** This course is intended for students in the College of Engineering. Students with credit for CHEM 111 or 112 may not take this course for credit.

**CHEM 115.3 — 1/2(3L-3.5P)**
**General Chemistry II Chemical Processes**

Chemical reactions, including the rates and energetics of reactions and specific types of reactions. Topics include stoichiometry, chemical reactions, chemical kinetics, equilibrium, specific reactions, and thermodynamics.
**Prerequisite(s):** CHEM 111, 112 or 114.
**Note:** The introductory CHEM courses were changed in 2002. Students with credit for CHEM 111 may take CHEM 115.

**CHEM 221.3 — 1/2(3L-4P)**
**Analytical Chemistry I**

Discussion of the basic principles and tenets of analytical science and how these aspects are put into practice in analytical techniques.
**Prerequisite(s):** CHEM 115.

**CHEM 231.3 — 1/2(3L-3P-1T)**
**Inorganic Chemistry I**

Discussion of atomic and molecular properties in terms of modern theories of structure and bonding. The laboratory provides experience in the preparation and investigation of the properties of typical inorganic compounds.
**Prerequisite(s):** CHEM 115.

**CHEM 242.3 — 1/2(3L-3P-1T)**
**Physical Chemistry I**

The study of the structure of matter and the changes it undergoes. Topics include properties of materials, thermodynamics, chemical equilibria and chemical kinetics. The laboratory provides experience with the use of physical-chemical equipment and problem solving skills.
**Prerequisite(s):** CHEM 115 and MATH 110 or 123.

**CHEM 243.3 — 1/2(3L-2T)**
**Physical Chemistry II**

An introduction to quantum chemistry and statistics of chemical systems as a foundation for courses concerned with the theory and spectroscopy of atomic and molecular systems.
**Prerequisite(s):** CHEM 242; MATH 112 or 116 (116 preferred) or 124; PHYS 111 or 121 (121 preferred).

**CHEM 250.3 — 1/2(3L-3P-1T)**
**Introduction to Organic Chemistry**

An introduction to organic chemistry; students will learn to name organic compounds, predict some of the properties and reactivity of compounds based on molecular structure, and grasp the importance of these concepts and their application to all sciences and life in general. Almost all the reactions in living matter involve organic compounds, and it is impossible to understand the molecular processes of living systems without knowing organic chemistry. CHEM 250.3

is intended as a basis for other courses, and a beginning for understanding organic and bio-organic chemistry. The laboratory will introduce students to basic chemical laboratory skills frequently used in organic chemistry.
**Prerequisite(s):** CHEM 112 or 114.
**Note:** The introductory CHEM courses were changed in 2002. Students with credit for CHEM 111 may take CHEM 250. Students with credit for CHEM 251 may not take CHEM 250 for credit.

**CHEM 255.3 — 1/2(3L-3P-1T)**
**Bio Organic Chemistry**

Intended to give insight into the specific and fundamental role of organic reactions occurring in nature, to students of all scientific disciplines who have been introduced to organic chemistry and to the life sciences. The emphasis will be on the patterns of reactivity among natural products, rather than on the biochemical roles that these molecules play. The laboratory will introduce students to experimental approaches to biomimetic, biological and pharmaceutical chemistry.
**Prerequisite(s):** CHEM 250; CHEM 115 and BIOC 200 recommended.
**Note:** The introductory CHEM courses were changed in 2002. Students with credit for CHEM 251 may take CHEM 255.

**CHEM 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.
**Prerequisite(s):** 1/2(3L)

**CHEM 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CHEM 302.3 — 1&2(1L-1P-1S)**
**Research Seminar**

Deals with the non-technical aspects of the science of chemistry. The primary focus is scientific communication, including oral, poster, and written presentations. Other topics include: information retrieval and on-line search techniques; resumes; science and ethics; and the history and philosophy of science. An oral and a poster presentation to the department are required.
**Prerequisite(s):** 15 credit units in chemistry.
**Note:** Offered occasionally.

**CHEM 322.3 — 1/2(3L-4P)**
**Analytical Chemistry II**

Introduction to modern instrumental methods of chemical analyses. The laboratory is designed to develop basic understanding of common instrumental methods. Topics include chromatography, electrophoresis, electrochemistry and spectroscopy.
**Prerequisite(s):** CHEM 221.

**CHEM 332.3 — 1/2(3L-4P)**
**Inorganic Chemistry II**

An introduction to transition metal chemistry including coordination geometry and stereochemistry, ligand field theory, and spectroscopic, magnetic and thermodynamic properties of inorganic compounds. The laboratory work includes experiments on the preparation and characterization of transition metal compounds.
**Prerequisite(s):** CHEM 231.

**CHEM 342.3 — 1/2(3L-4P)**
**Physical Chemistry III**

Theory and practice of atomic and molecular spectroscopy including both optical and magnetic resonance methods. The application of group theory to problems of spectroscopic analyses will be introduced.
**Prerequisite(s):** CHEM 243.
**Note:** Students with credit for CHEM 349 may not take this course for credit. Offered 2006/2007 and alternate years thereafter (2008/2009, etc.).

**CHEM 346.3 — 1/2(3L)**
**Theoretical Chemistry**

The methods of quantum mechanics are introduced and applied to basic problems in atomic and molecular structure. These include the rigid rotator, harmonic oscillator and hydrogen atom, as well as approximate treatments of many-electron atoms and molecules.
**Prerequisite(s):** CHEM 243.
**Note:** Offered 2007/2008 and alternate years thereafter (2009/2010, etc.).

**CHEM 353.3 — 1/2(3L-2P)**
**Organic Structure Analysis**

Presents the theory and practice of various spectroscopic methods for structure determination with a focus on NMR based methods. Emphasizes the integrated interpretation of spectroscopic data and problem solving. The laboratory component provides 'hands-on' experience with the acquisition and manipulation of spectroscopic data.
**Prerequisite(s):** CHEM 250.
**Note:** Students with credit for CHEM 458 may not take this course for credit.

**CHEM 354.3 — 1/2(3L-4P)**
**Physical Organic Chemistry**

Provides a greater understanding of the structure of organic compounds, and the underlying principles and rationale for organic reactions. The laboratory combines preparative, analytical, and computational experiments to enhance the understanding of physical and mechanistic aspects of organic chemistry.
**Prerequisite(s):** CHEM 115 and 255 (or 252).

**CHEM 369.3 — 2(7P)**
**Synthetic Chemistry Practicum**

Laboratory course focusing on fundamental experimental techniques of synthetic chemistry (organic and inorganic). The course will focus on techniques used to quantitatively measure, transfer, and purify chemical substances including those requiring protection from air and moisture. The main part of the course will integrate those techniques in multi-step syntheses.
**Prerequisite(s):** CHEM 255 and 332 and permission of the coordinator.

**CHEM 374.3 — 1/2(3L-2.5P)**
**Energy Issues and Environment**

Discusses facts and issues related to energy production and use in order to evaluate the technological choices that must be made to ensure a reasonable quality of life. The content of this course will be extended in problem sessions.
**Prerequisite(s):** CHEM 115.
**Note:** Offered occasionally.

**CHEM 375.3 — 1/2(3L-3P)**
**Pollution Waste Disposal and Environment**

The disposal and treatment of waste materials will be discussed in terms of their effect on the gaseous and aqueous environments. A series of problems designed to illustrate the material covered in each topic will be assigned. The laboratory sessions are designed to give some understanding of how tests for environmental quality are carried out in the field and in the laboratory.
**Prerequisite(s):** CHEM 115.

**CHEM 377.3 — 1/2(3L)**
**Industrial Chemistry**

Discussion of the basic principles of chemistry utilized in diverse technological practices.
**Prerequisite(s):** CHEM 115 and MATH 110.

**CHEM 380.3 — 1/2(6P)**
**3rd Year Research**

A laboratory, library, theoretical or computer study under the supervision of a member of the Department. Project is intended to be carried out during the third year of the program. At the end of the project the student will present both an oral and a written report summarizing the results.
**Prerequisite(s):** 21 credit units in CHEM and permission of the department.
**Note:** Students who have 30 credit units or more of CHEM courses should take CHEM 482 or 483 instead. Students who have credit for CHEM 482 or CHEM 483 may not take this course for credit.

**CHEM 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHEM 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CHEM 402.0 — 1&2(1S)**
**Seminar**

Attendance at departmental seminar sessions throughout the academic year is required by students in the final year of a Four-year or Honours program. Consists of presentations by departmental visitors, faculty and students, followed by discussions.

**CHEM 420.3 — 1/2(3L-4P)**
**Selected Topics in Analytical Chemistry**

Advanced laboratory course in analytical techniques. Much of the laboratory work will use specialized equipment available in the Department of Chemistry. Lectures cover the underlying theory of the topics and the principles of the instrumentation being used.
**Prerequisite(s):** CHEM 322. Students in programs other than Chemistry who have credit for CHEM 221 or its equivalent may seek permission from the department.
**Note:** Offered in 2006/2007 and alternate years thereafter (2008/2009, etc.).

**CHEM 429.3 — 2(1L-8P)**
**Applied Analytical Chemistry Project**

Students carry out an extended analytical chemistry project in an academic, government or industrial laboratory. Projects are a practical introduction to the type of analytical methods development work expected from B.Sc. graduates in the workforce. Lecture material emphasizes practical aspects related to carrying out the project (i.e. note keeping, data analysis, instrument calibration, etc.)
**Prerequisite(s):** CHEM 322. Students in programs other than Chemistry who have credit for CHEM 221 or its equivalent may seek permission from the department.

**CHEM 430.3 — 1/2(3L)**
**Selected Topics in Inorganic Chemistry**

Selected topics that are not dealt with or are covered only at an elementary level in other inorganic chemistry courses offered by the department. Possible topics include crystallographic and spectroscopic methods of structure determination, organometallic chemistry, cluster compounds, catalysis, nonaqueous solution chemistry, bioinorganic chemistry, structure and bonding, and excited state processes.
**Prerequisite(s):** CHEM 332. Students in programs other than Chemistry who have credit for CHEM 231 or its equivalent may seek permission from the department.
**Note:** Offered occasionally.

**CHEM 433.3 — 1/2(3L-4P)**
**Bioinorganic Chemistry**

Presents a concise overview of the role of metal ions in biological systems. The laboratory is designed to help the student understand major concepts and learn a range of modern experimental techniques.
**Prerequisite(s):** CHEM 332. Students in programs other than Chemistry who have credit for CHEM 231 or its equivalent may seek permission from the department.
**Note:** Offered 2006/2007 and alternate years thereafter (2008/2009, etc.).

**CHEM 439.3 — 1/2(3L-3.5P)**
**Inorganic Chemistry III**

Topics include reaction mechanisms of thermal substitutions, oxidation-reduction and photochemical reactions, organometallic chemistry, homogeneous catalysis and other topics of current interest such as bioinorganic chemistry.
**Prerequisite(s):** CHEM 332. Students in programs other than Chemistry who have credit for CHEM 231 or its equivalent may seek permission from the department.
**Note:** Offered 2007/2008 and alternate years thereafter (2009/2010, etc.).

**CHEM 440.3 — 1/2(3L)**
**Selected Topics in Physical Chemistry**

Selected topics that are not dealt with or are covered only at an elementary level in other physical chemistry courses. Possible topics include advanced spectroscopy, nuclear chemistry, photochemistry, polymers, radiation chemistry, solid-state chemistry, structural techniques, surface and colloid chemistry.
**Prerequisite(s):** CHEM 342 or 346. Students in programs other than Chemistry who have credit for CHEM 243 or its equivalent may seek permission from the department.
**Note:** Offered 2007/2008 and alternate years thereafter (2009/2010, etc.).

**CHEM 447.3 — 1/2(3L-3.5P)**
**Statistical Mechanics and Chemical Kinetics**

Methods of statistical mechanics are introduced and applied to problems in chemistry. Advanced chemical kinetics are discussed with emphasis on fast-reaction techniques, theories of reaction and diffusion rates, and electrochemical aspects.
**Prerequisite(s):** CHEM 342 or 346. Students in programs other than Chemistry who have credit for CHEM 243 or its equivalent may seek permission from the department.
**Note:** Offered occasionally.

**CHEM 450.3 — 1/2(3L)**
**Selected Topics in Organic Chemistry**

Selected topics that are not dealt with or are covered only at an elementary level in other organic chemistry courses. Possible topics include organic synthesis, organic reaction mechanisms, natural products, organometallic chemistry, heterocyclic chemistry, carbohydrate chemistry and organic photochemistry.
**Prerequisite(s):** CHEM 255 and permission of the department.

**CHEM 455.3 — 1/2(3L)**
**Organic Synthesis**

Stresses the basic reactions, concepts, and strategies of organic synthesis with the objective of acquiring a sufficient understanding to enable the design of feasible synthetic routes to molecules of moderate complexity.
**Prerequisite(s):** CHEM 354.
**Note:** Offered 2006/2007 and alternate years thereafter (2008/2009, etc.).

**CHEM 456.3 — 1/2(3L)**
**Natural Products**

Provides a basic knowledge of Natural Products Chemistry with emphasis on secondary metabolism. Includes an overview of primary and secondary metabolism, modern techniques for studying secondary metabolism, biological reactions, interaction of plants with other living organisms, and major classes of bioactive compounds grouped according to their basic building blocks and their biogenesis.
**Prerequisite(s):** CHEM 255; CHEM 353 recommended.
**Note:** Offered 2007/2008 and alternate years thereafter (2009/2010, etc.).

**CHEM 460.3 — 1/2(3L)**
**Selected Topics in Theoretical Chemistry**

Selected topics that are not dealt with or are covered only at an elementary level in other theoretical chemistry courses. Possible topics include application of quantum mechanics to molecular structure and behaviour, advanced group theory, statistical mechanics and irreversible thermodynamics.
**Prerequisite(s):** CHEM 342 or 346. Students in programs other than Chemistry who have credit for CHEM 243 or its equivalent may seek permission from the department.
**Note:** Offered 2006/2007 and alternate years thereafter (2008/2009, etc.)

**CHEM 482.3 — 1/2(6P)**
**4th Year Research**

A laboratory, library, theoretical or computer study under the supervision of a member of the Department. Project is intended to be carried out during the final year of the program. At the end of the project the student will present both an oral and a written report summarizing the results.
**Prerequisite(s):** 30 credit units in CHEM and permission of the department.
**Note:** Students who have credit for both CHEM 380 and CHEM 483 may not take this course for credit.

**CHEM 483.6 — 1&2(6P)**
**4th Year Research**

A laboratory, library, theoretical or computer study under the supervision of a member of the Department. Project will be carried out throughout the final year of the program. At the end of the project the student will present both an oral and a written report summarizing the results.
**Prerequisite(s):** 30 credit units of CHEM and permission of department.
**Note:** Students who have credit for both CHEM 380 and CHEM 482 may not take this course for credit.

**CHEM 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHEM 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

# CHEP — COMMUNITY HEALTH & EPIDEMIOLOGY

Department of Community Health & Epidemiology, College of Medicine

**CHEP 401.6**
**Community Health and Epidemiology**

Provides a population perspective to health and the prevention and treatment of illness. It concentrates on the public health knowledge, skills and attitudes which all doctors will require in their professional careers. An understanding of epidemiology and biostatistics is essential for the evaluation of services, critical appraisal of the literature, and participation in research.
**Prerequisite(s):** Enrolment in the College of Medicine.

**CHEP 402.3 — 1(2L-1S)**
**Global Health and Local Communities: Issues and Approaches**

Explores global issues affecting personal, community and global health and development both overseas and locally in Saskatchewan. The course uses approaches from human-centred development, population health promotion and primary care to help frame analyses. Students are introduced to global patterns of disease, determinants of health, globalization and health, and participatory strategies and actions for enhancing well-being. Related aspects of gender education, indigenous health systems and practices and foreign aid are explored.
**Prerequisite(s):** Departmental approval required.

**CHEP 412.3 — 3(39L)**
**Global Health: Selected Issues in Nicaragua**

An eight-week immersion course in Esteli, Nicaragua that offers students the opportunity to build upon and expand their understanding of the theories and practices of community health and development as introduced in the prerequisite class, CHEP

402. Set in semi-urban and rural parts of Nicaragua, the class offers both classroom and experiential learning with a focus on selected issues relevant to the local and national context and the community organizations involved. Examples of topics include: primary health care, traditional medicine, and gender and development (GAD). Special attention is given to a critical analysis of various health development approaches, particularly as they relate to and are practiced in the local/national context.
**Prerequisite(s):** CHEP 402.
**Note:** Next offering 2007 (offered in alternate years).

**CHEP 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CHIN — CHINESE

Department of Religious Studies & Anthropology, College of Arts and Science

**CHIN 111.6 — 1&2(3L)**
**Introductory Chinese**

Provides conversational and reading knowledge of Chinese, with emphasis on the colloquial style. Restricted to students with no previous knowledge of Chinese.
**Prerequisite(s):** Written permission of the instructor.

**CHIN 130.6 — 1/2(3L)**
**Introduction to Classical Chinese Language and Literature**

An introduction to the classical Chinese language and literature. Topics include principles of the writing system; major features of grammar and syntax; philosophical and literary vocabulary; and translation practice using original texts from Tao Te Ching, the Analects, and other Chinese classics.
**Prerequisite(s):** Written permission of the instructor.

**CHIN 220.6 — 1&2(3L)**
**Intermediate Chinese I and II**

Further studies of selected Chinese historical, philosophical and literary materials, with emphasis on the literary (wen-yen) style.
**Prerequisite(s):** CHIN 111 and written permission of the instructor.

**CHIN 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHIN 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHIN 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHIN 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHIN 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CHIN 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CLAS — CLASSICS

Department of History, College of Arts and Science

**CLAS 103.3 — 1/2(3L)**
**Medical Terminology**

Presents the most important Greek and Latin roots of the vocabulary of contemporary medicine and demonstrates the predictable patterns by which these roots combine. Students will learn to define new compounds and phrases by analysis of their parts and will be introduced to language history, linguistic principles and etymology.
**Formerly:** CLAS 163.
**Note:** Students with credit for CLAS 163, 241, 262 or 263 may not take this course for credit. May be taken as an elective only under Requirement 7 of Program Types A, B, C, and D.

**CLAS 104.3 — 1/2(3L)**
**Classical Myths**

A study of the traditional stories of Greek gods and heroes with some consideration given to both earlier Mesopotamian and later Roman mythic traditions.
**Formerly:** CLAS 238.
**Note:** May be taken as an elective only under Requirement 7 of Program Types A, B, C and D.

**CLAS 105.3 — 1/2(3L)**
**Classical Roots of English**

An examination of the Latin and Greek roots of English vocabulary and grammar.
**Formerly:** CLAS 215.
**Note:** May be taken as an elective only under Requirement 7 of Program Types A, B, C and D and under Requirements 5 of Program Types B and C.

**CLAS 110.3 — 1/2(3L)**
**Greek Civilization**

A survey of the culture of the Greeks to the end of the Classical period, based on readings in translation from Greek literature and on other ancient source materials.

**CLAS 111.3 — 1/2(3L)**
**Roman Civilization**

Surveys Roman culture in the Republican and Imperial periods, based on readings in translation from Roman literature and on other ancient source materials.

**CLAS 121.6 — 1&2(3L)**
**Roman Culture and Civilization**

An overview of Roman culture in the Republican and Imperial periods, with some consideration of the influence of the Roman cultural/literary tradition on later ages. Based on readings in translation from Roman literature and on other source materials from the Middle Ages, Renaissance, or later.
**Note:** Students with CLAS 111 may not take this course for credit.

**CLAS 220.3 — 1/2(3L)**
**Daily Life in Ancient Greece and Rome**

Studies daily life in ancient Athens and Rome.
**Prerequisite(s):** 6 credit units from: ARCH 116; CLAS 110, 111; Hist 110, 114.; or the permission of the instructor.
**Note:** pre-1815; Europe and Great Britain.

**CLAS 225.3 — 1/2(3L)**
**Women in Antiquity**

Studies the life and achievements of women in the ancient world.
**Prerequisite(s):** CLAS 110 and 111, or completion of 30 credit units at the university.
**Note:** pre-1815; Europe and Great Britain.

**CLAS 226.3 — 1/2(3L)**
**Tragedy**

Careful reading and analysis of works by Aeschylus, Sophocles, Euripides and Seneca, with emphasis on intellectual and aesthetic questions, staging, and modern approaches to the literary interpretation of ancient plays.
**Formerly:** CLAS 331.
**Prerequisite(s):** CLAS 110 and 111 or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for CLAS 331 may not take this course for credit.

**CLAS 227.3 — 1/2(3L)**
**Comedy**

An introduction to ancient Greek and Roman comedy through careful study of the works of Aristophanes, Menander, Plautus and Terence.
**Formerly:** CLAS 332.
**Prerequisite(s):** CLAS 110 and 111 or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for CLAS 332 may not take this course for credit.

**CLAS 228.3 — 1/2(3L)**
**Epic**

An introduction to Greek and Roman epic poetry with emphasis on its artistic qualities and cultural significance. Selections from Homer, Hesiod, Apollonius, Virgil, Ovid, Lucan, and/or Statius.
**Formerly:** CLAS 334.
**Prerequisite(s):** CLAS 110 and 111 or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for CLAS 334 may not take this course for credit.

**CLAS 233.3 — 1/2(3L)**
**Introduction to Ancient Thought**

Studies the basic texts for Greek and Roman ideas about religion, science, society and morality.
**Prerequisite(s):** CLAS 110 and 111, or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 234.3 — 1/2(3L)**
**Roman Law**

The development of Roman Law from the Twelve Tables to Justinian, with some indication of its influence in medieval and modern times.
**Prerequisite(s):** CLAS 111 or HIST 201 or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 240.3 — 1/2(3L)**
**Ancient Art and Architecture I Bronze Age to Classical Greece**

An introduction to the art and architecture of the Aegean Bronze Age and the origins and development of Greek vase painting, sculpture and architecture to the end of the Classical era.
**Prerequisite(s):** CLAS 110 and 111, or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for ART 201 may not take this course for credit.

**CLAS 242.3 — 1/2(3L)**
**Ancient Art and Architecture II Graeco Roman World**

A study of the Art and Architecture of the Graeco-Roman World (200 B.C. to A.D. 400), with focus on the Roman adaptation and transformation of Hellenistic Greek aesthetic practices and principles in the spheres of architecture, sculpture, interior decoration and luxury crafts.
**Prerequisite(s):** CLAS 110 and 111, or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for ART 201 may not take this course for credit.

**CLAS 247.3 — 1/2(3L)**
**Introduction to Greek Archaeology**

An introduction to the major sites of the Aegean from the Bronze Age to the Hellenistic Era, with emphasis on the reconstruction of culture through the archaeological record.
**Formerly:** CLAS 236.
**Prerequisite(s):** ARCH 112 or 116 or CLAS 110.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for CLAS 236 may not take this course for credit.

**CLAS 248.3 — 1/2(3L)**
**Introduction to Roman Archaeology**

An introduction to the major sites of the Roman world, from the Etruscan period to the early empire, focusing on evidence from sites in Italy and the Provinces from which the rise of Roman culture and its impact on other cultures will be assessed.
**Formerly:** CLAS 236.
**Prerequisite(s):** ARCH 112 or 116 or CLAS 111.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for CLAS 236 may not take this course for credit.

**CLAS 252.3 — 1/2(3L)**
**Paganism and Christianity in Early Christian Centuries of Roman Empire**

A study of the relationships between paganism and Christianity until A.D. 430.
**Prerequisite(s):** CLAS 110 and 111, or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 259.3 — 1/2(3L)**
**Ancient Christian Literature**

A survey of the major literary works of the Greek and Latin Christian Fathers, with emphasis on the poetry of Gregory Nazianzen and on Augustine's Confessions.
**Prerequisite(s):** CLAS 111 or completion of 30 credit units at the university.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CLAS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CLAS 333.3 — 1/2(3L)**
**Satire**

Studies the origins and development of Roman Satire, with particular attention to such authors as Horace, Juvenal, Seneca, Persius and Petronius.
**Prerequisite(s):** CLAS 110 and 111.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 341.3 — 1/2(3L)**
**Greek Religion**

Greek religion to the time of Alexander.
**Prerequisite(s):** CLAS 110 and 111.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 343.3 — 1/2(3L)**
**Roman Erotic Poetry**

The love-poetry of Catullus, Propertius, Tibullus, Horace, Virgil and Ovid; English translations of each poem will be studied in conjunction with the Latin original.
**Prerequisite(s):** CLAS 110 and 111.

**CLAS 356.3 — 1/2(3L)**
**Archaeology of Aegean Bronze Age**

A study of the material remains of Bronze Age cultures in the Aegean — Minoan, Cycladic and Mycenaean — to reconstruct the contexts in which these prehistoric cultures evolved and were socially active.
**Prerequisite(s):** CLAS 247.
**Note:** Pre-1815; Other Regions.

**CLAS 357.3 — 1/2(3L)**
**Archaeology of Early Greek Polis**

A study of the material remains of the 11th to the 6th centuries B.C. in Greece that witness the emergence of culture from a period of severe recession to the florescence of the polis or city state that becomes the hallmark of the Classical era.
**Prerequisite(s):** CLAS 247.
**Note:** Pre-1815; Europe and Great Britain.

**CLAS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CLAS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CLAS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CLAS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CME — COMPUTER ENGINEERING

Department of Electrical Engineering, College of Engineering

**CME 365.3 — 1(3L)**
**Introduction to Digital Signal Processing and Communication**

Provides fundamental knowledge of digital signal processing and digital communication for students not majoring in Electrical or Computer Engineering. Topics covered are z-transform, frequency response of discrete time systems, sampling and frequency aliasing, Fourier series and discrete Fourier transform, fast Fourier transform (FFT), amplitude modulation, quadrature amplitude modulation, and time and frequency division multiple access. Coding the FFT is also discussed.
**Prerequisite(s):** MATH 223 or 225 and CMPT 111 or 116.
**Note:** This course may not be taken for credit by Electrical or Computer Engineering students. This course will first be offered in 2008.

**CME 392.3 — 2(1L-4P)**
**Computer Engineering Laboratory**

Laboratory experiments in electronic hardware and software relevant to the pre- and corequisite courses.
**Prerequisite(s):** EE 372.
**Corequisite(s):** EE 332, 352, 362 and 431.
**Note:** Students who have credit for EE 392 may not register. This course will first be offered in 2008.

**CME 433.3 — 1(3L-1P)**
**Digital Systems Architecture**

Components and architecture complement each other in the design of digital systems implemented in ASIC (Application Specific Integrated Circuit), ASSP (Application Specific Standard Product), FPGA/CPLD (Field Programmable Gate Array/Complex Programmable Logic Device), Microprocessor, DSP (Digital Signal Processor) and SOC (System on Chip). EE 431 and CME 435 teach how to build a system from components. CME 433 teaches guiding principles to organize a system using a top down design approach.
**Prerequisite(s):** EE 232, 431.
**Note:** This course will first be offered in 2008.

**CME 435.3 — 1(3L-1P)**
**Verification of Digital Systems**

Covers the verification of digital circuits and systems with emphasis on e, a verification tool. It starts with the basics, such as functional verification methodologies, and e fundamentals, and gradually builds to more complex examples and advanced topics. At the end

of the course, a complete verification system is created using e.
**Prerequisite(s):** EE 431.
**Note:** This course will be first offered in 2008.

**CME 451.3 — 1(3L-3P)**
**Transport Networks**

Topics include requirements of core and metropolitan telecommunication networks for the transport layer; physical layer technologies such as optical and electrical transmission, clock synchronization and reciever code alignment; protocols for transport networks, including SONET, ATM, MPLS, Ethernet, IP and RPR; packet switching, queuing and traffic management; and the design of network elements and the design of next-generation transport networks.
**Prerequisite(s):** EE 331 or CME 365, and CMPT 250.
**Note:** This course will first be offered in 2008.

**CME 462.3 — 2(3L-1P)**
**Multimedia Protocols and Video Signals**

Covers the principles of multimedia protocols related to sound and speech of both analog and digital video signals, and extends the knowledge to digital video formats standardized in MPEG. This course discusses signals for human perception based on the 1D and 2D DSP theories in time and frequency domain and methods to match their speed to communication bandwidth.
**Prerequisite(s):** EE 461 or CME 365.
**Note:** This course will first be offered in 2009.

**CME 495.6 — 1&2(6P)**
**Capstone Design Project**

Emphasizes the application of a formal design process. Students, working in small groups, apply top-down design principles to a year-long project starting with a basic description of the product or system and culminating with an oral presentation of the final working design.
**Prerequisite(s):** EE 395 and 90 credit units towards the B.E. Degree.
**Note:** This course will be first offered in 2008.

# CMPT — COMPUTER SCIENCE

Department of Computer Science, College of Arts and Science

**CMPT 100.3 — 1/2(3L-1.5T)**
**Introduction to Computing**

A survey of major computer science areas, combining a breadth of topics with depth via specific examples within each topic. Topics include: history of computing, computer applications, analysis and design, high level programming, computer software, computer hardware, artificial intelligence, and the social impact of computers.
**Prerequisite(s):** Mathematics A30 or B30 or C30.
**Note:** Students wishing to major in computer science are advised to take CMPT 111. Students may not receive credit for both CMPT 100 and CMPT 102. Students majoring in computer science may not use CMPT 100 as a course in their major, but may count it as a junior elective as long as CMPT 100 is taken before CMPT 115 or CMPT 117; may not take CMPT 100 for credit concurrent with or following CMPT 115 or CMPT 117.

**CMPT 102.3 — 2(3L-2T)**
**Introduction to Computing and Programming**

A survey of major computer science areas and provides an introduction to the art and science of programming. Topics include the internet, interface design, programming in a high-level language and computers in society. Each student must choose an additional application topic module from: computer hardware, E-commerce and artificial intelligence.
**Prerequisite(s):** Mathematics B30.
**Note:** Students may not receive credit for both CMPT 100 and CMPT 102. CMPT 102 may not be taken for credit after completion of CMPT 111 or CMPT 116.

**CMPT 111.3 — 1/2(3L-1T)**
**Introduction to Computer Science and Programming**

Introduces basic concepts of computer science through the study of traditional elementary programming, object-oriented programming, debugging, design of objects, and standard algorithms with their analysis.
**Prerequisite(s):** Mathematics B30.
**Note:** While designed for students majoring in Computer Science, Computing, Bioinformatics, or Software Engineering, it is open to all students seeking a solid introduction to Computing. Students may receive credit for only one of CMPT 111 or CMPT 116.

**CMPT 115.3 — 2(3L-1.5T)**
**Principles of Computer Science**

Introduces more of the basic concepts of computer science and object-oriented software development with an emphasis on fundamental data structures (lists, stacks, queues, trees) and associated algorithms. This course includes recursion, abstract data types and selected topics exploring some of the breadth of computer science.
**Prerequisite(s):** CMPT 111 or equivalent.
**Note:** While designed for students majoring in Computer Science, Computing, Bioinformatics, or Software Engineering, it is open to all students seeking a solid introduction to Computing. Students may receive credit for only one of CMPT 115 or CMPT 117.

**CMPT 116.3 — 1(3L-1.5P)**
**Computing I**

Gives the fundamentals of programming, including functions, procedures and arrays. It introduces object-oriented programming and GUI components. Also some basic numerical methods and engineering applications are presented.
**Prerequisite(s):** Mathematics B30. Restricted to students in Physics and Engineering.
**Note:** Students who have credit for CMPT 111 may not receive credit for this course.

**CMPT 117.3 — 2(3L-1.5P)**
**Computing II**

Continues the development of programming skills started in CMPT 116, with an emphasis on object-oriented programming. Data structures for the storage and efficient retrieval of information will be studied and analyzed, in particular stacks, queues, linked lists and simple binary trees. Examples and exercises will be drawn from engineering applications and numerical methods.
**Prerequisite(s):** CMPT 116. Restricted to students in Physics and Engineering.
**Note:** Students who have credit for CMPT 115 or 123 may not take this course for credit.

**CMPT 214.3 — 1(3L-2P)**
**Programming Principles and Practice**

The purpose of this course is to broaden students' view of software development. Topics include introductions to imperative programming languages and scripting languages, programming practices, and tools and techniques for program development and maintenance.
**Prerequisite(s):** CMPT 115 or 117, MATH 110.
**Note:** Students who have credit for CMPT 330 may not take this course for credit.

**CMPT 215.3 — 2(3L-1.5T)**
**Introduction to Computer Organization and Architecture**

An introduction to the design of contemporary computer systems, focusing on the hardware-software interface and the upper hardware levels. Topics include machine and assembly language, computer arithmetic, the processor datapath and control, pipelining, memory hierarchies, and I/O systems.
**Prerequisite(s):** CMPT 214.
**Note:** A student cannot receive credit for more than one of CMPT 215 and EE 331.

**CMPT 250.6 — 1&2(3L-1.5T)**
**Data Structures and Software Development**

A continuation of CMPT 115 or 117 by means an intermediate study of data structures and object-oriented programming. The topics include searching, balanced trees, graphs, file structures, and timing analysis. Introduction to the field of Software Engineering, including formal ADTs, design-by-contract, and UML-based software design and development.
**Prerequisite(s):** CMPT 115 or 117, and MATH 110.

**CMPT 260.3 — 1(3L-1.5T)**
**Mathematical Logic and Computing**

Focuses on elementary applied logic and set theory and relates these concepts to a variety of computer science areas such as syntactic analysis, relational databases, logic programming, artificial intelligence, and formal program verification.
**Prerequisite(s):** CMPT 115 or 117, and MATH 110.

**CMPT 275.3 — 1(3L)**
**Organizational Information Systems**

Studies the development of information systems in organizations. The development life cycle of information systems is used as a framework for studying the management of systems development and the evaluation of opportunities for improving information systems within organizations.
**Prerequisite(s):** CMPT 100. Restricted to students enrolled in the College of Commerce.
**Note:** May not be taken for credit at the same time or subsequent to CMPT 250 or CMPT 370. Also, this course cannot be part of a major in Information Systems Development, or a major in Computer Science in the College of Arts & Science.

**CMPT 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMPT 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMPT 317.3 — 2(3L-1T)**
**Introduction to Artificial Intelligence**

A survey of Artificial Intelligence techniques and underlying theory. Topics include problem solving and planning, knowledge representation techniques, reasoning engines and expert systems, and a tour of various application areas of Artificial Intelligence including machine learning, natural language processing and high-level computer vision.
**Prerequisite(s):** CMPT 250 and 260.

**CMPT 320.3 — 1/2(3L-1.5T)**
**Introduction to Digital Systems Design**

An introduction to the application of Boolean Logic to the design of digital systems. Topics include logic reduction and minimization techniques, single and multi-level combinatorial circuit synthesis, arithmetic circuits, sequential circuit synthesis, and finite state machine analysis, design, and optimization.
**Formerly:** CMPT 220.
**Prerequisite(s):** CMPT 215. CMPT 260 is recommended.
**Note:** Students with credit for EE 232 or EP 321 or CMPT 220 may not take this course for credit. EE 232, EE 310 or EP 321 can be used to meet the requirement for CMPT 320.

**CMPT 332.3 — 1/2(3L-1P)**
**Operating Systems Concepts**

An introduction to the principles of modern operating systems. The synchronization and communication of cooperating processes. Process Scheduling. Virtual Memory. File System design and organization. Introduction to distributed systems.
**Formerly:** CMPT 422.
**Prerequisite(s):** CMPT 250, and CMPT 215 or EE 331.
**Note:** Students with credit for CMPT 422 may not take this course for credit.

**CMPT 340.3 — 1/2(3L-1T)**
**Programming Language Paradigms**

A comparative study of programming languages and paradigms. Introduction to functional programming languages, such as Haskell; topics include: recursion, higher-order functions, polymorphic types, lazy evaluation. Introduction to logic programming languages, such as Prolog; topics include: unification, backtracking, resolution, non-determinism. An introduction to interpreters, parsers, program transformations, and semantic models.
**Prerequisite(s):** CMPT 214, 250, 260; one of CMPT 215 or EE 331 recommended.

**CMPT 350.3 — 2(3L-1.5T)**
**Web Programming**

Focuses on the concepts, technologies and tools needed for the development of web-centric applications. Special emphasis will be given to client-server programming, scripting, integration of existing application and high-level networking issues, e.g., use of SOAP.
**Prerequisite(s):** CMPT 250.

**CMPT 352.3 — 2(3L)**
**Computer Security**

Considers various aspects of security in information systems, both networked and non-networked. The challenges are managerial and administrative as well as technical. Students will have the opportunity to research real-world cases and to engage in classroom debates about current information security issues.
**Prerequisite(s):** CMPT 250.

**CMPT 355.3 — 2(3L-1T)**
**Theory and Application of Data Bases**

Lectures, assignments and projects dealing with the management, storage, and retrieval of large volumes of data. Concentrates on the relational data model, and relational data base management systems. Topics include: recovery and concurrency, integrity and security, query optimization, normalization, and semantic modelling. Additional topics include multimedia databases and other paradigms.
**Formerly:** CMPT 374.
**Prerequisite(s):** CMPT 250, 260.
**Note:** Students with credit for CMPT 374 may not take this course for credit.

**CMPT 360.3 — 1(3L)**
**Machines and Algorithms**

The first part develops and analyzes some standard techniques for algorithm development which are widely applicable to computer science problems. The second part analyzes several formal models of computers so that their capabilities are known.
**Prerequisite(s):** CMPT 250 and 260, 6 credit units in 200-level MATH or STAT (excluding MATH 213 and STAT 244).

**CMPT 370.3 — 1(3L-1.5T)**
**Intermediate Software Engineering**

Principles and techniques for developing software combined with the practical experience of creating a mid-size software system as a member of a software development team. Includes: teamwork; projects, planning and process; users and requirements; use cases; modeling; quality; software architecture; testing; GUI design, design principles, patterns and implementation; ethics; professionalism.
**Prerequisite(s):** CMPT 214 and 250.

**CMPT 371.3 — 2(3L-1.5P-1.5T)**
**Software Management**

Covers software management topics in the context of a significant group project. Includes: software process; process improvement; project tracking and metrics; project planning; project and group management; IT enterprise strategy and planning; software configuration management; deployment and maintenance; inspection; testing; verification and validation; and quality assurance.
**Prerequisite(s):** CMPT 370.

**CMPT 385.3 — 1(3L)**
**Computer Graphics**

Introduction to computer graphics. An overview of rendering, modeling, and animation. Emphasis is on raster graphics. Topics include algorithms for generating lines, circles, and ellipses; half-toning; shading; the Z-buffer; the three-term lighting model; non-photorealistic rendering. A course project involves implementation of some selected graphics algorithms.
**Formerly:** CMPT 460.
**Prerequisite(s):** MATH 264 or 266 or EE 216 or CE 318.
**Corequisite(s):** CMPT 332 or 340.
**Note:** Students with credit for CMPT 460 may not take this course for credit.

**CMPT 393.3 — 1(3L)**
**Operations Research**

History and methodology of operations research. Mathematical programming techniques including linear programming, network analysis, dynamic non-linear optimization. Probabilistic models including queuing models, inventory models and simulation. Applications of operations research techniques and models.
**Prerequisite(s):** CMPT 111 or 116; one of STAT 241, 245, GE 210 or EE 216 (STAT 241 preferred); MATH 264 or 266 or CE 318 or EE 216; or permission of the department. STAT course may be taken concurrently.
**Note:** Students with credit for COMM 393 may not take this course for credit.

**CMPT 394.3 — 2(3L)**
**Simulation Principles**

Introduction to the development of logical, numerical and statistical models of systems; deterministic and probabilistic models; Monte Carlo simulations. Basic elements involved in simulation such as entities, attributes, events and time representation. Properties of computer modelling languages; design, development and testing of models.
**Prerequisite(s):** CMPT 115; one of STAT 242, 245 or EE 216 (STAT 242 preferred). STAT course may be taken concurrently.
**Note:** Students with credit for CMPT 398 Simulation Principles may not take this course for credit.

**CMPT 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMPT 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMPT 400.3 — 1&2(1.5S)**
**Research Topics in Computer Science**

Senior students will be introduced to research in an advanced area of computer science under the supervision of a faculty member specializing in the area.
**Prerequisite(s):** In the final year of an Honours Program; or a cumulative percentage average of at least 70% in 24 credit units in computer science and written permission of the department.

**CMPT 401.0**
**Professional Internship I**

Internship students register in this zero-credit-unit course for the first four-month installment of the 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** Professional Internship placement with a sponsoring employer, and approval of the department.

**CMPT 402.0**
**Professional Internship II**

Internship students register in this zero-credit-unit course for the second four-month installment of the 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** CMPT 401.

**CMPT 403.0**
**Professional Internship III**

Internship students register in this zero-credit-unit course for the third four-month installment of the 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** CMPT 402.

**CMPT 404.0**
**Professional Internship IV**

Internship students register in this zero-credit-unit course for the last four-month installment of the 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** CMPT 403.

**CMPT 405.3 — 1&2(1.5P-1.5S)**
**Project Design and Implementation**

Senior students apply engineering and scientific methods to develop a major computer system or system component. Students work individually or in teams and are supervised by a faculty member specializing in the area. Students prepare and present interim and final reports on their project.
**Prerequisite(s):** In the final year of an Honours Program; or a cumulative percentage average of at least 70% in 24 credit units in computer science and permission of the department.

**CMPT 408.3 — 2(3L)**
**Ethics and Computer Science**

Addresses social, ethical, legal and managerial issues in the application of computer science to the information technology industry. Through seminars and case studies, human issues confronting computer science graduates will be addressed. Topics include managerial and personal ethics, computer security, privacy, software reliability, personal responsibility for the quality of work, intellectual property, environment and health concerns, and fairness in the workplace.
**Formerly:** CMPT 490.
**Prerequisite(s):** Successful completion of 30 credit units in computer science, including at least 3 credit units at the 400-level.
**Note:** Students with credit for CMPT 490 may not take this course for credit.

**CMPT 417.3 — 1(3L)**
**Knowledge Representation and Reasoning**

An introductory study of logic-based approaches to knowledge representation and automated reasoning. Topics include search techniques, constraining satisfaction problems, meta-programming, truth maintenance systems, modal logics, and situation calculus. Besides these logic-based approaches, we will also discuss uncertainty formalisms such as probabilistic causal nets and the Dempster-Shafer theory.
**Prerequisite(s):** CMPT 317, one of CMPT 340 or 360.
**Note:** May only be offered every second year.

**CMPT 418.3 — 1(3L)**
**Intelligent Systems**

Covers selected topics from the areas of intelligent information management and intelligent user interaction. The theme of the course is the management and effective use of data in largely non-formal application environments, such as the Web, unstructured documents, user interaction, and multi-agent systems.
**Prerequisite(s):** STAT 245 and either CMPT 317 or both CMPT 355 and CMPT 340.
**Note:** May only be offered every second year. Check registration guide for offerings.

**CMPT 420.3 — 2(3L-1T)**
**Advanced Computer Architectures**

A detailed study of computer architecture principles employed in single and multiple processor systems with a focus on high-performance systems. Topics include instruction set design, instruction-level parallelism, hardware-level parallelism in the datapath and memory systems, and high-speed interconnection networks.
**Formerly:** CMPT 321.
**Prerequisite(s):** CMPT 215 or EE 331.
**Note:** May only be offered every second year. Students with credit for CMPT 321 may not take this course for credit.

**CMPT 432.3 — 2(3L)**
**Advanced Operating Systems Concepts**

An advanced look at the principles of modern operating systems. The process and the kernel, communication between processes, interrupt handling in the kernel. Message passing and synchronization primitives and their implementation. Implementation of Virtual memory and file systems. Device drivers and I/O.
**Prerequisite(s):** CMPT 332.
**Note:** May only be offered every second year.

**CMPT 433.3 — 2(3L)**
**System and Network Administration**

The deployment and maintenance of modern computer systems. Topics to be covered include architectures, heterogeneous systems, authentication and security, network services including firewalls, storage services, performance analysis and tuning, management and configuration of services and system resources, system initialization, drivers, cross-platform services, policies and procedures.
**Prerequisite(s):** CMPT 332, one of 352, 432, 434 (may be taken concurrently).
**Note:** May only be offered every second year.

**CMPT 434.3 — 1/2(3L)**
**Computer Networks**

The principles and practice of computer networking, focusing on the Internet and its structure, protocols, and applications. Topics include network applications and programming, reliable data transfer, flow and congestion control, routing, multimedia networking, local area networks, security, and network management.
**Formerly:** CMPT 424.
**Prerequisite(s):** CMPT 332.
**Note:** Students with credit for CMPT 424 may not take this course for credit.

**CMPT 435.3 — 2(3L-1P)**
**Foundations of Concurrent Programming**

Theory and practice of concurrent programming. Process interaction using shared variables and message passing; parallel computing; development of correct programs; general problem solving techniques; scientific computing; distributed programming.
**Prerequisite(s):** CMPT 260, 332.

**CMPT 436.3 — 1(3L)**
**Mobile and Ubiquitous Computing**

Investigates the problems and possible approaches for enabling mobile and ubiquitous computing. After a brief discussion of the basic problems in developing applications for the field, the class will focus on the use of Java and CORBA as possible frameworks.
**Formerly:** CMPT 426.
**Prerequisite(s):** One of CMPT 332, 350 or 370.
**Note:** Students with credit for CMPT 426 may not take this course for credit.

**CMPT 440.3 — 2(3L)**
**Advanced Topics in Programming Languages**

Advanced topics in programming languages will be selected from: programming language design, programming language semantics, code optimization, memory management, garbage collection, closures, functional programming, logic programming, aspect-orient programming, concurrent programming, history of programming languages, advanced programming language features and their implementation, polymorphic type systems, domain specific languages.
**Prerequisite(s):** CMPT 340.
**Note:** May only be offered every second year.

**CMPT 442.3 — 2(3L)**
**Compiler Design and Implementation**

Introduction to the systematic construction of a compiler: context-free and regular grammars, scanners, attribute grammars, parsing, syntax trees, runtime organization, symbol tables, internal representations, compile-time error handling, semantic analysis, storage allocation, code generation, linking, byte code, interpreters. Students will use compiler construction tools in a term project.
**Formerly:** CMPT 429.
**Prerequisite(s):** CMPT 360. CMPT 340 recommended.
**Note:** May only be offered every second year. Students with credit for CMPT 429 may not take this course for credit.

**CMPT 461.3 — 2(3L)**
**Intractable Problems and Models of Computation**

Problems which have no known efficient solution are studied; exact inefficient algorithm design techniques are introduced, as are efficient approximation algorithms. NP-completeness proofs are developed as evidence of intractability. Part of the course is a rigorous and systematic introduction to models of computation via formal language theory.
**Formerly:** CMPT 361.
**Prerequisite(s):** CMPT 360.
**Note:** Students with credit for CMPT 361 may not take this course for credit.

**CMPT 463.3 — 1/2(3L)**
**Advanced Algorithms**

A continuation of the algorithms part of CMPT 360. Some of the algorithm techniques include: augmenting algorithms for network flows, matching and graph connectivity, geometric algorithms for nearest neighbour, intersection problems, and convex hull, parallel and distributed algorithms.
**Formerly:** CMPT 416.
**Prerequisite(s):** CMPT 360.
**Note:** Students with credit for CMPT 416 may not take this course for credit.

**CMPT 470.3 — 1(3L)**
**Advanced Software Engineering**

Covers advanced software engineering principles and techniques. Includes: software architecture; software evolution; reverse engineering; design recovery; refactoring; software comprehension; software analysis; domain specific techniques; requirements and specification; advanced design and modeling techniques; formal methods; and the business of software.
**Prerequisite(s):** CMPT 370.

**CMPT 475.3 — 2(3L)**
**Information Resource Management**

Focuses on the planning for and management of complex state of the art information systems. Topics include: capturing and producing information; evaluating, enhancing, and protecting the value of information; independent and interdependent information systems; and the support and management of information infrastructures.
**Prerequisite(s):** Either CMPT 370 or CMPT 275. Restricted to students enrolled in the College of Commerce.

**CMPT 481.3 — 1(3L)**
**Human Computer Interaction**

Fundamental theory and practice in the design, implementation, and evaluation of human-computer interfaces. Topics include: principles of design, usability engineering, methods for evaluating interfaces with or without user involvement, techniques for prototyping and implementing graphical user interfaces.
**Prerequisite(s):** CMPT 370.

**CMPT 485.3 — 2(3L)**
**Advanced Computer Graphics**

Advanced topics in computer graphics, concentrating on image formation and modelling issues. The implications of the data-driven approach to computer graphics. Simulation and non-parametric methods contrasted. The course will involve a project investigating and implementing some current algorithms from the literature.
**Prerequisite(s):** CMPT 385; CMPT 332 or 340.
**Note:** May only be offered every second year.

**CMPT 487.3 — 2(3L)**
**Image Processing and Computer Vision**

Presents fundamental concepts in computer vision and image processing. Topics may include properties of digital images, digital image formats, image acquisition devices, edge detection, convolution filtering, image segmentation, shape representation, image compression, image morphology, spectral analysis, texture, object recognition, motion analysis and 3D interpretation.
**Prerequisite(s):** CMPT 385.
**Note:** May be offered every second year.

**CMPT 496.3 — 2(3L)**
**Markov Chains and Queuing Theory**

Markov and queuing processes in maintenance, inventory and traffic problems. The analysis of queues. Transient and steady state solution.
**Prerequisite(s):** CMPT 393.

**CMPT 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMPT 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CMRS — CLASSICAL, MEDIEVAL, AND RENAISSANCE STUDIES

College of Arts and Science

**CMRS 201.6 — 1&2(3L)**
**Introduction to Themes and Approaches**

Explores major themes uniting Greco-Roman, medieval and renaissance culture such as: war and society; monotheisms; love and sex; gender, marriage and family; literacy and learning; structures of rural life; urbanism; travel and trade; state and state building; performance and procession.
**Prerequisite(s):** 6 credit units chosen from CLAS 110, 111, 121, HIST 110, 111, 114; or 30 credit units of university study.
**Note:** Pre-1815; Europe and Great Britain.

**CMRS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMRS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMRS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMRS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMRS 401.3 — 1(3S)**
**CMRS Texts and Themes**

Many aspects of medieval and renaissance culture had their roots in the Greco-Roman Classical period. Detailed study of a selected text or theme and related scholarship aims to deepen understanding of cultural continuity and change between the three periods. Texts and themes will change yearly. Please consult CMRS homepage: http://www.usask.ca/cmrs/index.shtml.
**Prerequisite(s):** CMRS 201 or permission of the program director.
**Note:** Pre-1815; Europe and Great Britain.

**CMRS 402.3 — 1&2(1.5S)**
**Directed Research**

A directed research course wherein students in biweekly meetings with a supervisor and a monthly class seminar will develop skills required for graduate study: preparation of annotated bibliography, research proposal, major research paper and oral presentation. Projects will be focused on the classical, medieval or renaissance period.
**Prerequisite(s):** CMRS 401 or permission of the program director.

**CMRS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CMRS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CNS — CANADIAN STUDIES

Department of Native Studies, College of Arts and Science

**CNS 160.3 — 1(3L)**
**What is Canada**

A multi-disciplinary study of important issues in the concept of Canada, including regionalism, international affairs and security, the evolving voice of women and minorities, rural versus urban perspectives and conditions, industrialization and unionization, issues of science, health, and technology, multiculturalism, immigration, ethnicity, secularization, influence of media, institutions and bureaucracy, education, communications, and corporate and popular culture. This is an online course.
**Note:** This course may only be used to meet requirement 7 in Arts & Science programs.

# COMM — COMMERCE

Department of Management & Marketing, College of Commerce

**COMM 100.3 — 2(1L-2T)**
**Business Communication I**

Introduces students to the theory and practice of effective business communication for specific audiences and purposes in a changing business environment. Students will apply reasoned, practical, and ethical principles to producing and evaluating typical business messages. Working in independent and group situations, students will conduct research, produce a portfolio of memos, letters, and employment communication, write a group proposal and report, and deliver oral presentations.
**Subject:** BSCM
**Formerly:** BSCM 100
**Note:** Students with credit for BSCM 100 cannot take this course for credit.

**COMM 101.3 — 2(3L)**
**Introduction to Business**

The focus of this course is on integrated organizational decision making. To achieve this, students will examine case studies requiring an integrated analysis across six Commerce disciplines (Accounting, Finance, Human Resources, Management/Strategy, Marketing and Operations) over the four stages of an organizational life-cycle (start-up, growth, maturity and revitalization) as an organization's activities shift from strategic

exploration to exploitation and back to exploration again.
**Subject:** GEN

**COMM 102.3 — 1(3L)**
**Introduction to Business Management**

Examines the management processes including environment and business analysis, planning, decision making, execution and performance measurement. This course will make major use of case analyses, simulations, organizational audits or other instructional methods that allow the student to assume the role of manager of the organization.
**Subject:** MGT
**Note:** This course may not be used for credit toward the B.Comm. degree.

**COMM 104.3 — 1/2(3L)**
**Business Statistics I**

Teaches descriptive statistics, index numbers, probability concepts, probability distributions, sampling distributions, statistical inference - estimation and hypothesis testing, and introduces time series forecasting (moving averages and exponential smoothing). Spreadsheet-based statistical functions and/or computer programs will be used to demonstrate the concepts and theory and to analyze practical business situations.
**Subject:** QUAN
**Prerequisite(s):** MATH 110.
**Note:** Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**COMM 105.3 — 1/2(3L)**
**Introduction to Organizational Behaviour**

Introduces various behavioural concepts and tools that will assist the administrator in both understanding behaviour in organizations and enhancing organizational effectiveness. Topics include the role of the administrator, schools of management thought, forces affecting employee and work group behaviour, leadership and supervision, interpersonal and organizational communication, and organizational change.
**Subject:** HRM
**Formerly:** COMM 202
**Note:** Students with credit for COMM 202 cannot take this course for credit.

**COMM 109.0 — 1/2**
**Library Research I**

Introduction to the University of Saskatchewan libraries and the wide variety of electronic resources available.
**Subject:** GBUS

**COMM 110.0 — 1**
**Computer Skills**

Introduction to the computer skills necessary to successfully use computers and software in upper year courses. Consists of three modules: General Computing, Spreadsheets and Word Processing.
**Note:** Workshops run for eight consecutive weeks.

**COMM 201.3 — 1/2(3L)**
**Introduction to Financial Accounting**

Helps the student understand, use and appreciate the limitations of information provided in an organization's financial statements. As such, the course examines what financial statements are, what they include and the means of deriving information for and from them. Specifically, the course will enable the student to: (1) link the results of management's financing, investing and operating decisions to financial statement reporting; (2) understand the boundaries and limitations of information in the financial statements; (3) demonstrate a basic but real awareness of financial accounting systems; and (4) use information in financial statements to help make various decisions about an organization.
**Subject:** ACC
**Prerequisite(s):** One of COMM 101, COMM 102, ECON 211, or ECON 213.

**COMM 203.3 — 1/2(3L)**
**Introduction to Finance**

Deals with the functions of the financial manager, including the problems and techniques of financial decision-making. Topics include: goals of the firm, management of working capital, financial problems and decisions involving intermediate and long-term financing, capital budgeting under certainty, and capital structure as it relates to weighted average cost of capital.
**Subject:** FIN
**Prerequisite(s):** COMM 104 and MATH 110.

**COMM 204.3 — 1/2(3L)**
**Introduction to Marketing**

Introduction to the marketing concept in business. Business activities are analyzed from the point of view of recognition, stimulation and satisfaction of consumer demand.
**Subject:** MKT

**COMM 205.3 — 1/2(3L)**
**Introduction to Operations Management**

Introduces students to concepts and decision-making techniques used in the design, planning, execution, control, and improvement of operations of world-class manufacturing and service companies. It begins with introductory issues such as operations strategy and forecasting, continue with design topics such as product design, capacity planning, process design, facility layout, work design, and location planning, then covers quality management and control, and finally ends with planning decisions such as inventory management, aggregate planning, material requirements planning, just-in-time systems, scheduling, and supply chain management. Time permitting, project management and waiting line management may be covered too.
**Subject:** QUAN
**Prerequisite(s):** COMM 104 and MATH 110.

**COMM 206.3 — 1/2(3L)**
**Employment and Industrial Relations**

Investigates an array of perspectives on industrial and employment relations in work organizations. Examines the economic, political, and social forces present, including the institutional framework affecting employee/employer practices and stresses the phenomenon of collective action as revealed through union and management strategies.
**Subject:** INDR

**COMM 207.3 — 1/2(3L)**
**Business Statistics II**

Teaches inferential statistics, chi-square contingency tests, goodness-of-fit tests, analysis of variance, simple linear regression and correlation, multiple regression and correlation, nonparametric statistics, statistical decision theory, and some statistical applications in quality control. Spreadsheet-based statistical functions and/or computer programs will be used to demonstrate the concepts and theory and to analyze practical business situations.
**Subject:** QUAN
**Prerequisite(s):** COMM 104 and MATH 110.
**Note:** Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**COMM 209.0 — 1/2**
**Library Research II**

Introduction to a variety of sources of industrial information including company reports, standard industrial classification schemes, statistical information and stocks and bonds.
**Subject:** GBUS
**Prerequisite(s):** COMM 109 and Second-year standing in the College of Commerce.

**COMM 210.3 — 1/2(3L)**
**Introduction to Management Accounting**

Introduces students to the vital role that modern management accounting information plays in running a successful business in today's business world. Topics covered include the use of management accounting information to support decision making, planning and controlling activities and the behavioral impact of using accounting information to make decisions. In addition, students will gain an appreciation of the limitations of accounting information and an understanding of the needs of management accounting systems.
**Subject:** ACC
**Formerly:** COMM 301 or 302.
**Prerequisite(s):** COMM 201
**Note:** Students with credit for COMM 301 or 302 cannot take this course for credit.

**COMM 300.3 — 1(3L)**
**Business Communication II**

Building upon the foundation of COMM 100, this course focuses on responsible, professional internal and external communication in an environment of socio-cultural, economic, technological, regulatory, and other change. Students will examine the roles and responsibilities of individuals and organizations and the particular challenges and opportunities of communicating in an increasingly diverse workplace and a global knowledge economy. Topics include ethical communication, professional standards, and corporate social responsibility; cross-cultural communication; equity and diversity; and information technology policies, protocols, and procedures.
**Subject:** BSCM
**Prerequisite(s):** BSCM 100 or COMM 100.
**Note:** Not to be offered in 2006-07.

**COMM 303.3 — 1/2(1.5L-1.5S)**
**Government Policy**

Introduction to government structures and policy making processes. Topics include the structure of governments (federal, provincial, municipal), the current political system and parties, market failures and potential solutions, opposing views on macro-economic policy in the context of current monetary and fiscal policy, government deficits and debt and an overview of world economic and social policies. Guest speakers provide views from different perspectives such as

business, labour, government and other special interest groups. Current events and topics will be discussed and debated.
**Subject:** MGT
**Prerequisite(s):** Third-year standing in the College of Commerce.

**COMM 304.3 — 1/2(3L)**
**Introduction to Business Law**

An introduction to the general principles of law relating to contract and tort. Special contracts to be considered include agency, assignment, bailment, employment, guarantee, insurance, negotiable instruments, sale of goods and contracts creating a security interest in goods. Some aspects of the law relating to real property, partnerships and corporations will be discussed.
**Subject:** BLAW
**Formerly:** COMM 208
**Note:** Students with credit for COMM 208 cannot take this course for credit.

**COMM 306.3 — 1/2(3L)**
**Business Decision Making II**

Decision making in contemporary organizations is simultaneously impacted by a complex mingling of external policies - from both the private and public sectors - across the local, provincial, national and increasingly international levels. Therefore, this Policy Analysis course introduces students to strategic management frameworks for policy analysis that will assist them in understanding the impact that external policies have upon organizational decision making.
**Subject:** GEN
**Prerequisite(s):** COMM 101

**COMM 308.3 — 2(3L)**
**Cost Management Systems**

The objective of this course is to provide an in-depth understanding of cost management systems from a preparer focus. Particular attention will be devoted to providing students with an understanding of Job Order Costing, Process Costing, and Hybrid Costing Systems. Students will examine cost allocations, variance analysis, and absorption and variable costing. This will be complemented by examining topics such as target costing, life-cycle costing, total quality management, just-in-time management and activity based management.
**Subject:** ACC
**Prerequisite(s):** COMM 302 or COMM 210 and permission of the department.

**COMM 321.3 — 1(1L-2S)**
**Corporate Financial Reporting I**

An intensive examination of professional pronouncements and practices regarding concepts, principles, and procedures for recognizing, measuring, and disclosing assets and related revenues and expenses which are presented in financial statements prepared for third parties. Within this knowledge base, skills regarding reading, analysis, diagnosis, evaluation and judgment are developed in a context of new and unfamiliar situations.
**Subject:** ACC
**Prerequisite(s):** COMM 201 and permission of the department.

**COMM 323.3 — 2(3L)**
**Corporate Financial Reporting II**

A continuation of corporate financial reporting as described for COMM 321 but focusing on issues regarding liabilities and owners' equity and related revenues and expenses. Consideration is also given to cash flow analysis, the impact of various accounting methods on the reported results of a firm's activities and interpretation of financial statements.
**Subject:** ACC
**Prerequisite(s):** COMM 321 and permission of the department.

**COMM 329.3 — 1/2(3L)**
**Personal Finance**

Teaches students how to analyze personal goals and assess the financial implications of these goals, construct and examine financial statements for individuals, determine personal net worth, analyze financial products and services, and suggest investment alternatives appropriate to individuals and families. In addition, this course explains personal taxation, insurance contracts to protect the life styles of families, financial alternatives in retirement, and estate planning.
**Subject:** FIN
**Prerequisite(s):** COMM 203
**Note:** Students may receive credit for only one of COMM 329 and 429. If COMM 329 taken prior to 2006W, it can be used in finance major. If COMM 329 taken in 2006W or after, cannot be used in finance major.

**COMM 332.3 — 1(3L)**
**Introduction to Health Care Administration**

Introduction to the administrative structures of health care services in Canada and the role expectations of different groups and organizations involved in the delivery of health care services.
**Subject:** HCA

**COMM 337.3 — 2(3S)**
**Business Information and Accounting Systems**

The role of the accounting system in a total management information system is examined. In addition, the major considerations involved in the design and installation of accounting systems are discussed. Cases in systems review and analysis concerning matters such as internal control evaluation, forms design and flow charting are used extensively. Manual, mechanical and electronic data processing techniques are investigated in relation to their use in accounting systems.
**Subject:** ACC
**Prerequisite(s):** Permission of the department.
**Corequisite(s):** COMM 308.

**COMM 340.3 — 1/2(3L)**
**Introduction to International Business**

Introduction to the global setting in which international business decisions are made. In addition to the basic economic factors, socio-cultural, legal and political considerations are examined. Emphasis is placed on the factors which are relevant to decision making in a wide range of international business functions (i.e. marketing, finance) and international business forms (i.e. export-import, foreign manufacturing, joint ventures).
**Subject:** MGT
**Prerequisite(s):** Third-year standing in the College of Commerce.

**COMM 342.3 — 1/2(3S)**
**Organization Structure and Design**

Completes the introduction to organizational behaviour begun in COMM 202 by providing an understanding of the theory, research and managerial choices relevant in structuring, designing and maintaining effective organizations. A contingency approach will be used to examine the influence of factors such as environment, goals and strategy and technology on the structure and behaviour of organizations. Methods for organizational development and change will also be introduced and discussed.
**Subject:** HRM
**Prerequisite(s):** COMM 105 and permission of the department.

**COMM 345.3 — 1/2(3S)**
**Business and Public Policy**

Considers various areas of government activities which affect business decision making and considers their impact on management decision making.
**Subject:** MGT
**Prerequisite(s):** COMM 204

**COMM 346.3 — 1/2(1.5L-1.5S)**
**Commercialization of Biotechnology**

Provides a practice oriented bridge between the laboratory and the world of commerce. Examines the theory and practice of launching new business ventures in the biotechnology industry. Practicing biotechnology managers, entrepreneurs and special advisors will describe their activities and experiences in a series of industry seminars.
**Subject:** MGT
**Prerequisite(s):** 60 credit units at the university or Third-year standing in the College of Commerce, with priority given to students registered in the biotechnology program.

**COMM 347.3 — 1/2(3S)**
**Aboriginal Business in Canada**

Examines the cultural and historical development of Aboriginal business and analyzes issues at the local, national and global levels. Aboriginal and non-Aboriginal corporate strategies will be compared and Aboriginal and non-Aboriginal business partnerships explored.
**Subject:** MGT
**Prerequisite(s):** Third-year standing in the College of Commerce.

**COMM 348.3 — 1/2(3S)**
**Leadership**

Extended coverage of topics covered in COMM 105 with a focus on leadership. Uses various media to examine theories and issues related to leadership in organizations. Cases, role playing and seminars are used to provide practical exposure to leadership issues and problems.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202 and permission of the department.

**COMM 352.3 — 1/2(2.5S-.5P)**
**Marketing Strategy**

Concentrates on the development of marketing strategies. An operational framework is built for analysing the marketing environment and selecting among strategic alternatives, primarily through case analysis.
**Subject:** MKT
**Prerequisite(s):** COMM 204 and permission of the department.
**Corequisite(s):** COMM 210.

**COMM 354.3 — 1/2(3S)**
**Consumer Behaviour**

Considers factors influencing consumer behaviour as a focal point of marketing decision making. Topics include market

segmentation and positioning, and environmental and individual determinants of consumer behaviour and consumer decision processes. This material is analyzed for its usefulness in designing, evaluating and implementing marketing strategies.
**Subject:** MKT
**Prerequisite(s):** COMM 204 and permission of the department.

**COMM 357.3 — 1/2(2S-1P)**
**Marketing Research**

Examines the principles and procedures associated with the collection and analysis of relevant information in the context of solving practical marketing problems. Students have the opportunity to apply these principles at each stage of the marketing research process: problem definition, research design, data collection, data analysis and report preparation.
**Subject:** MKT
**Prerequisite(s):** COMM 204 and permission of the department.
**Corequisite(s):** COMM 207.

**COMM 363.3 — 1/2(3L)**
**Intermediate Corporate Finance**

Deals with analytical techniques and theory of corporate finance. Covers investment and financing decisions including leasing, take-overs, corporate failures and reorganizations as well as other intermediate-level topics in the area of corporate finance. The concept of financial mobility is also emphasized.
**Subject:** FIN
**Prerequisite(s):** COMM 203 and permission of the department.

**COMM 364.3 — 1/2(3L)**
**Risk and Insurance**

Deals with the concepts of risk, risk measurement and treatment, various kinds of insurance including life, health and social security insurance; property and liability insurance; insurance institutions and contracts regulation. Other topics include theft insurance; surety bonds, re-insurance, insurance and inflation and business risk management.
**Subject:** FIN
**Prerequisite(s):** COMM 203 and permission of the department.

**COMM 367.3 — 2(3L)**
**Security Analysis and Evaluation**

Principles and techniques of investing in securities are discussed. Other topics include sources and analysis of investment information and evaluation of risks and returns associated with various investment instruments. Security analysis includes fundamental and technical approaches.
**Subject:** FIN
**Prerequisite(s):** COMM 203 and permission of the department.

**COMM 368.3 — 1/2(3S)**
**Entrepreneurial Finance and Venture Capital**

Analyzes the characteristics, unique features, and valuation methods associated with the various financing arrangements for start-up, growing and mature small firms. Topics include borrowing from banks, private debt and equity placements, venture capital financing, initial public offerings (IPO) and seasoned debt and equity offerings. In addition, the course investigates the implications of various financing arrangements for corporate control.
**Subject:** FIN
**Formerly:** COMM 468
**Prerequisite(s):** COMM 203 and permission of the department.
**Recommended:** COMM 363
**Note:** Students with credit for COMM 468 cannot take this course for credit.

**COMM 382.3 — 1/2(3L)**
**Employment Law**

Deals with four major statutes and public policies comprising employment law: Employment Standards, Human Rights, Occupational Health and Safety, and Workers' Compensation legislation.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202 and permission of the department.

**COMM 383.3 — 1/2(3S)**
**Employment Relations and Labour Markets**

Critically analyzes government labour market policies and corporate labour strategies in the context of globalization. Topics include the role of ideology, politics and the power of employers and labour; human capital and labour market segmentation theories of labour markets; the role of trade unions; and innovative solutions for balancing efficiency and equity.
**Subject:** INDR
**Prerequisite(s):** COMM 206 and permission of the department.

**COMM 384.3 — 1/2(3L)**
**Workplace Health and Safety**

Acquaints students with the full scope of job-related safety and health hazards, the key institutions and their responsibilities including government, industry, labour, medical/scientific and industrial engineering. Historical and economic developments, enforcement, and compliance will be reviewed. Special emphasis will be placed on the element of an effective workplace health and safety program.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202 and 206 and permission of the department.

**COMM 385.3 — 1/2(3L)**
**Training and Development**

Focuses on training and development of employees within work organizations, as well as approaches to organizational development and change. Topics include the nature of organizational learning, needs analysis, training methods, the evaluation of training and techniques of change management.
**Prerequisite(s):** COMM 202 or 105 and permission of the department.

**COMM 386.3 — 1/2(3L)**
**Human Resource Management**

Primarily concerned with the problem of staffing large organizations. Topics include procurement; employee interviewing, testing and placement, wage and salary administration; and other topics pertaining to the personnel management function.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202 and 206 and permission of the department.

**COMM 387.3 — 1/2(3S)**
**Labour Law**

Introduction to the collective bargaining policy, and particularly the Saskatchewan Trade Union Act and major labour relations board rulings. Rights arbitration will also be covered.
**Subject:** INDR
**Prerequisite(s):** COMM 206 and permission of the department.

**COMM 393.3 — 1(1.5L-1.5P)**
**Spreadsheet Modeling for Business Decisions**

Deals with modelling business problems to help managers make better decisions regardless of their functional areas. It introduces students to analytical decision making tools including linear programming, integer programming, network models, decision analysis and simulation. Spreadsheets will be extensively used for solving managerial problems.
**Subject:** OM
**Prerequisite(s):** COMM 104.

**COMM 395.3 — 2(2.5L-.5S)**
**Business Forecasting**

The process of business forecasting involves the study of historical data to discover their underlying tendencies and patterns and the use of this knowledge to project the data into future time periods. Topic areas include moving averages and exponential smoothing methods, simple and multiple regression analysis, time series analysis, and Box-Jenkins (ARIMA) methodology. Each module is accompanied with a computer lab class where students get hands on experience in applying the associated forecasting technique. An important component of the course is a forecasting project where students choose a variable of interest and forecast it by applying the methods taught in the lectures and lab classes.
**Subject:** OM
**Prerequisite(s):** COMM 104.

**COMM 401.3 — 1/2(3S)**
**Business Policy I**

An integrative course which focuses on the functions and responsibilities of senior management. Deals with the concept of organizational strategy and how it is formulated, developed and implemented in real-life situations.
**Subject:** MGT
**Prerequisite(s):** Open to Commerce students in their graduating year.

**COMM 402.3 — 1/2(3S)**
**Management Skills**

Focuses on the skills managers require to effectively get things done in organizations. The course concentrates on ten skills that research identifies as those most frequently associated with effective managers: verbal communication, managing time and stress, motivating and influencing others, delegating, setting goals and articulating vision, self-awareness and empathy, team building, managing conflict, problem recognition, and problem solving and managing individual decisions. Skill learning will involve some lectures, but will focus primarily on student involvement through cases, exercises and role playing.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202. Open to Commerce students in their graduating year.

**COMM 404.3 — 1/2(3L)**
**Business Law**

Provides a more comprehensive examination of several of the topics surveyed in COMM 304. Special attention will be given to those aspects of the law relating to real property, negotiable instruments secured transactions,

partnerships and corporations. Other topics include administrative law, wills, creditor rights (including bankruptcy) and trade practices.
**Subject:** BUSLW
**Prerequisite(s):** COMM 304.

**COMM 405.3 — 1/2(3L)**
**Taxation and Business Decisions**

Students acquire an understanding of the fundamentals of the Canadian tax system and its impact on business and personal decision-making. The Canadian income tax structure is examined, a theory for tax planning is developed and specific tax planning topics are discussed.
**Subject:** TAX
**Prerequisite(s):** Fourth-year standing in the College of Commerce, COMM 210 and permission of the department.
**Note:** Students may receive credit for only one of COMM 405 or COMM 406.

**COMM 406.3 — 1(3L)**
**Liability for Tax and Computation of Net Income**

Exposes students to the technical provisions of the Income Tax Act and their interpretation and application. In particular, the course examines the liability for tax and the computation of net income for tax purposes. Emphasis is placed on learning how to read, understand and apply the legislation itself. Students are also introduced to the skills necessary to research a tax issue.
**Subject:** TAX
**Prerequisite(s):** COMM 321 and permission of the department.
**Note:** Students may receive credit for only one of COMM 405 or COMM 406.

**COMM 407.3 — 2(3L)**
**Individual and Corporate Taxes Payable and Tax Planning**

Further exposes students to the technical provisions of the Income Tax Act, with continued emphasis on learning to read the legislation with understanding. In particular, the course examines the determination of taxable income and taxes payable for individuals and corporations, the application of the provisions of the Act to various business situations and reorganizations, as well as tax planning issues related to these topics. Students are given the opportunity to further develop their tax research skills.
**Subject:** TAX
**Prerequisite(s):** COMM 321, COMM 406, and permission of the department.

**COMM 412.3 — 1/2(1.5L-1.5S)**
**Accounting Theory**

A critical examination of contemporary problem areas in financial accounting theory. Selected topics are covered in depth, and panel discussions and debates are a vital aspect. Specific skill development focuses on how to learn and think creatively about accounting issues, develop reasoned positions and justification thereof, express criticisms in a constructive manner, improve written and oral communication abilities and participate actively in discussions.
**Subject:** ACC
**Prerequisite(s):** COMM 323 and permission of the department.
**Note:** It is highly recommended that students take COMM 412 and COMM 413 in the same term.

**COMM 413.3 — 1/2(3S)**
**Contemporary Issues in Accounting**

Examines various contemporary issues facing the 'accounting profession'. These issues are drawn from both the academic and professional accounting literatures. The course challenges students to develop (more) informed positions on various issues, and exercises and improves their skills in critical thinking, persuasive writing and effective oral communication. Class meetings take place in an interactive, 'seminar-style' format and include the use of formal debates. Students must also submit term papers.
**Subject:** ACC
**Prerequisite(s):** COMM 323 and permission of the department.
**Note:** It is highly recommended that students take COMM 412 and COMM 413 in the same term.

**COMM 419.3 — 1/2(3L)**
**Derivative Securities**

Deals selectively with the theories, strategies, and applications of derivative securities. Topics include futures and forward contracts, swaps, standard options, exotic options and other derivative securities on different underlying assets; valuation techniques; empirical studies; governance and regulation of derivative securities trading and exposure; and management of financial risks.
**Subject:** FIN
**Prerequisite(s):** COMM 203, 363, and permission of the department.

**COMM 420.3 — 1(3L)**
**Fraud Prevention Detection and Investigation**

Will provide an overview of the nature of fraud and how it is committed. It will also provide an insight into: tools and procedures that can be utilized to detect the presence of fraud, controls that can be implemented in the organization to prevent or deter fraud, and an introduction into the investigative mindset and the proper manner in which allegations of fraud should be investigated.
**Subject:** ACC
**Prerequisite(s):** COMM 201, 210, 321, and 323 and permission of department.

**COMM 421.3 — 1/2(3L)**
**External Auditing**

Considers the demand for independent external audits, including environmental determinants (social, legal and professional) and individual auditor behaviour. The satisfaction of the demand for an audit is examined within a risk reduction expression of an auditor's opinion formulation process.
**Subject:** ACC
**Prerequisite(s):** COMM 323 and permission of the department.

**COMM 429.3 — 1/2(3L)**
**Personal Financial Planning**

Deals with the advanced concepts related to personal financial strategies. The focus is on developing the skills and teaching the tools a professional will need to practice as a personal financial planner. Topics include knowing your client's profile and financial situation, constructing appropriate investment strategies, advanced tax strategies, understanding of personal risks and risk management strategies, and advanced estate planning strategies. A major objective of this course is to teach the student how to integrate the various strategies to develop a comprehensive financial plan for the client. The legal and ethical considerations in personal financial planning will be considered separately and emphasized throughout the course.
**Subject:** FIN
**Prerequisite(s):** COMM 363 or COMM 367 and permission of the department.
**Note:** Students may receive credit for only one of COMM 329 or 429.

**COMM 433.3 — 1/2(1L-2T)**
**Accounting for Equity Interests**

Focuses on accounting and reporting issues associated with economic entities consisting of multiple parts. The simplifying assumption that corporations operate independent from other organizations is relaxed. Theory and practice related to accounting for business combinations, intercorporate investments, foreign currency denominated transactions, and foreign investments will be examined. Accounting and reporting by not-for-profit organizations will be considered.
**Subject:** ACC
**Prerequisite(s):** COMM 323 and permission of the department.

**COMM 438.3 — 1/2(3L)**
**Management Planning and Control Systems**

Based primarily on the case method of instruction, this course provides students with a conceptual framework, an exposure to the component parts and a systematic procedure so that they can begin to evaluate, design and implement management planning and control systems. Specific topics include: controlling discretionary expenditures, cost, profit and investment centres, transfer pricing, budgeting, performance measurement, innovation, compensation and instilling ethical behaviour in organizations.
**Subject:** ACC
**Prerequisite(s):** COMM 308 and permission of the department.
**Corequisite(s):** COMM 401.

**COMM 441.3 — 1/2(3S)**
**High Involvement Work Systems**

Examines the various elements for creating high involvement work systems including job and task redesign, ergonomics, self-managed work teams, participative management, financial participation, joint labour-management committees, joint consultation through worker councils or board representation and employee ownership. The evidence on the consequences of each of the elements will be assessed and implementation issues will be examined.
**Subject:** HRM
**Prerequisite(s):** COMM 105 or 202 and permission of department.

**COMM 446.3 — 1/2(3S)**
**Applications of Management Theory**

Examines applied management in a variety of contexts, building upon a core of management strategy theory. The creation of business plans and competitive strategies as solutions to business problems will develop managerial, interpersonal and leadership skills. Facilitates participation for a proportion of registered students in various intercollegiate business competitions.
**Subject:** MGT
**Prerequisite(s):** Permission of the instructor.

**COMM 447.3 — 1/2(1S-2P)**
**Entrepreneurship and Small Business Management**

Examines the processes and skills required for the successful formation of new business ventures and the on-going management of small businesses. Students can examine their own entrepreneurial potential and experience the process of new venture formation and financing through the preparation and formal presentation of a plan for the initiation of a business venture of their choice.

**Subject:** MGT
**Prerequisite(s):** Fourth-year standing in the College of Commerce.
**Note:** Students may receive credit for only one of COMM 447 or 492.

**COMM 450.3 — 1/2(2S-1P)**
**Current Issues in Marketing**

Deepens the student's understanding of a specialized area in the field of marketing. Potential topics include marketing of agricultural products, business to business marketing, management of the sales forces, the impact of new technology on marketing practice and advanced marketing research. Contact the Department for details.
**Subject:** MKT
**Prerequisite(s):** COMM 204, 352, and permission of the department.
**Note:** Students with credit for COMM 450 cannot take this class for credit.

**COMM 451.3 — 1/2(2S-1P)**
**Integrated Marketing Communication**

Introduces students to the basic concepts which underlie the promotional activities of the firm. The concept of the promotional mix is introduced and the proper strategic roles for advertising, public relations and sales promotion are discussed in the context of the findings of communication theory.
**Subject:** MKT
**Prerequisite(s):** COMM 204 or 200, 352 and 354 or permission of the department.

**COMM 452.3 — 1/2(2S-1P)**
**Services Marketing**

Considers the unique marketing issues and problems facing service organizations. Examines issues including the role of the client, quality in service organizations, demand management and pricing problems. Within the overall context of the service sector, marketing issues related to health care and non-profit organizations are also considered.
**Subject:** MKT
**Prerequisite(s):** COMM 204, 352 and permission of the department.

**COMM 453.3 — 1/2(3S)**
**Marketing Logistics Management**

Focuses on the physical distribution element of the marketing mix. Deals with the cost and value added to products or services by making them available in the desired condition when and where they are needed while making the greatest contribution to the firm. Major topics include transportation, inventory levels, processing customer orders, warehousing, packaging, facility location, materials handling and other activities directed to the achievement of customer service standards.
**Formerly:** MKT
**Prerequisite(s):** COMM 204 or 200, 352, and permission of the department.

**COMM 454.3 — 1/2(3L)**
**Retail Marketing**

To familiarize students with the decisions involved in developing sustainable competitive advantage in retailing and the concepts and principles for making those decisions to promote higher sales and profits. Topics covered include but are not limited to the strategic importance of retailing in the distribution chain, the retailing environment, retail entrepreneurship, types of retailers, multi-channel and electronic retailing, retail strategy, customer relationship management, store location, design, layout and visual merchandising, buying merchandise, managing store operations and customer service.
**Subject:** MKT
**Prerequisite(s):** COMM 352, 354 and permission of the department.

**COMM 456.3 — 1/2(3S)**
**International Marketing**

Examines the managerial aspects of international marketing activities of the firm. The various decision areas in marketing including marketing research, product policy, pricing, distribution and promotion are considered in an international context. Also presented are the problems relating to the formulation and implementation of an integrated marketing plan for the firm's international operations.
**Subject:** MKT
**Prerequisite(s):** COMM 204, 340 and permission of the department.

**COMM 457.3 — 1/2(3L)**
**Marketing and Popular Culture**

Explores Marketing's role in culture through reading about cultural theory and applying cultural theory to everyday cultural practices. Topics include meaning, identity, ritual, production, myth, and other cultural theories.
**Subject:** MKT
**Formerly:** COMM 450- Popular Culture topic.
**Prerequisite(s):** COMM 352, 354 and permission of the department.

**COMM 459.3 — 1/2(3S)**
**Management of Marketing Channels**

Examines the activities and technologies associated with the distribution of goods and services from both societal and managerial perspectives.Topics include design and management of channels, distribution systems including franchising, shopping centres and other types of institutions. Various topics related to retail management are also considered.
**Subject:** MKT
**Prerequisite(s):** COMM 204, 352, and permission of the department.

**COMM 461.3 — 1(3L)**
**Theory of Finance**

Intensive treatment is given to selected areas of finance, including capital budgeting; cost of capital and capital structure, dividend policy, evaluation of growth and expansion of business firms and evaluation of portfolio performance.
**Subject:** FIN
**Prerequisite(s):** COMM 203, 207, 367, and permission of the department.

**COMM 466.3 — 1/2(3L)**
**International Business Finance**

Involves analysis of the problems, opportunities and questions confronting the financial management of multinational enterprises. Consideration is given to macro aspects of international finance including the problems of international liquidity and related institutional developments as inputs to the financial decision making of multinational enterprises.
**Subject:** FIN
**Formerly:** COMM 366
**Prerequisite(s):** COMM 203, 363 and permission of the department.
**Note:** Students with credit for COMM 366 cannot take this class for credit.

**COMM 467.3 — 1(3L)**
**Portfolio Theory and Management**

Involves theory and practice of portfolio management for the purpose of selecting various financial instruments to meet the preference of investors. Topics include: diversification effects, evaluation of performance, timing for buying and selling financial instruments and use of computers as applied to portfolio management.
**Subject:** FIN
**Prerequisite(s):** COMM 203, 367, and permission of the department.

**COMM 469.3 — 2(3L)**
**Management of Financial Institutions**

The managerial problems of some important financial institutions such as chartered banks, insurance companies, trust companies, mortgage and loan companies, pension funds and investment companies; management techniques of assets and liabilities of these financial institutions; the regulatory environment. This course will be built around case discussion, lectures and reading material on the latest issues in the management of the relevant financial institutions.
**Subject:** FIN
**Prerequisite(s):** COMM 367 and permission of the department.

**COMM 481.3 — 1/2(3S)**
**Collective Bargaining**

Provides students with an understanding of the structures, processes and dynamics of collective bargaining. Topics include dispute resolution mechanisms and current bargaining issues. Contains a bargaining simulation exercise.
**Subject:** INDR
**Prerequisite(s):** COMM 206 and permission of the department.

**COMM 485.3 — 1/2(3S)**
**International and Comparative Employment Relations Systems**

Analyzes the collective bargaining process by a comparison of the history, structure and function of labour organizations, primarily in the Western democracies. Other topics include the roles of trade unions, employers and the state in developing countries and making the transition from centralized state planning.
**Subject:** INDR
**Prerequisite(s):** COMM 206 and permission of the department.

**COMM 487.3 — 1/2(3L)**
**Collective Agreement Arbitration**

Deals with administering grievances under a collective agreement; drafting collective agreement articles; preparing and presenting a case for arbitration; jurisdictional irregularities in grievance arbitration and other forums for processing employment claims.
**Subject:** IROB
**Prerequisite(s):** COMM 206 and permission of the department.

**COMM 488.3 — 1/2(2L-1P)**
**Compensation**

Deals with compensation theory and practice. Topics include job evaluation, wage surveys, performance evaluation, incentive systems, benefits and legal concerns in developing and administering compensation systems in organizations. The course's primary focus is a major project involving students in designing a compensation plan for an organization.
**Subject:** HRM
**Formerly:** COMM 388
**Prerequisite(s):** COMM 105 or 202 and permission of the department.

**Note:** Students with credit for COMM 388 cannot take this course for credit.

**COMM 491.3 — 1(2L-1S)**
**Purchasing and Supply Management**

Introduces fundamentals of purchasing and supply management, including terminology, concepts, procedures, and models. It includes purchasing objectives and organization, operating procedures, specification, supply search and supplier selection, price determination, bidding and negotiation, forward buying, cost and value analysis, outsourcing, legal and ethical issues, supplier relations and partnerships, warehousing, inventory control models, and material requirements planning. The first 2/3 of the course concentrates on purchasing, while the remaining 1/3 focuses on inventory control systems. Purchasing uses decision-making cases, whereas Inventory Control emphasizes quantitative problems and models. Where appropriate and available, selected software programs will be used.
**Subject:** OM
**Prerequisite(s):** COMM 205.

**COMM 492.3 — 1(1S-2P)**
**Agribusiness Venture Management**

Assists students in developing and understanding the skills and tools required to prepare and present a complete and professional business plan for a business entity in the agricultural industry. Agriculture and Commerce students are expected to combine knowledge and skills to produce an agricultural business plan. This course serves as the capstone course for Agriculture students taking the Agribusiness Minor.
**Subject:** GEN
**Prerequisite(s):** Third-year standing in the College of Commerce or Agribusiness minor in Agriculture.
**Note:** Students may receive credit for only one of COMM 447 or 492.

**COMM 493.3 — 1(3L)**
**Total Quality Management**

Basic concepts of total quality control, strategic quality planning, quality value and engineering, loss function and quality level, statistical process control, management of process quality, quality and operation results, Taguchi methods, preventive maintenance and other aspects of quality management.
**Subject:** OM
**Prerequisite(s):** COMM 205.

**COMM 495.3 — 2(3L)**
**Supply Chain Management and E-Commerce**

Supply chain management and business logistics deal with the physical distribution of goods and services. Today's heavy dependence on the internet and E-commerce has made supply chain management central to business strategic planning. Supply chain management and logistics include the managing of acquisition, transportation, materials storage and handling, production scheduling, order processing, warehousing, and distribution both internally and among suppliers and customers. Today this planning must also take into account the internet and the distribution of goods and services electronically. Thus, the focus of this course is on the planning and control of both physical and electronic distribution systems. The required planning and analysis will make use of the different computer models and E-commerce options.
**Subject:** OM
**Prerequisite(s):** COMM 205.

**COMM 498.3 — 1/2(3S)**
**Special Topics**

Develops students' awareness of a number of specialized topics through class discussion and individual research reports. Content will vary depending on when the course is offered, as well as student and instructor interests.
**Subject:** GBUS
**Prerequisite(s):** Permission of the department offering the class.

# CREE — CREE

Department of Native Studies, College of Arts and Science

**CREE 101.6 — 1&2(3L-3P)**
**Introductory Cree**

Presents the elements of the grammar and vocabulary of Cree as spoken in central Canada and will introduce the oral literary tradition associated with it. Its objective will be to develop elementary competence in the language and a basic acquaintance with Cree culture and traditions.

**CREE 120.6 — 1&2(3L-3P)**
**Intermediate Cree**

Continues the study of the Y dialect of Cree at the intermediate level, with increased emphasis on Cree literary traditions. The structure of transitive verbs, noun inflections, various interrogative forms, imperatives, subjunctives and complex syntactic forms will be treated. Textual material will be analyzed and discussed.
**Prerequisite(s):** CREE 101.

**CREE 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CREE 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**CREE 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CREE 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CREE 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**CREE 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# CSCH — COLLEGE SCHOLARS

College of Arts and Science

**CSCH 298.3**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

**CSCH 299.6**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

**CSCH 398.3**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

**CSCH 399.6**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

**CSCH 498.3**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

**CSCH 499.6**
**College Scholar**

Designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

# CTST — CATHOLIC STUDIES

College of Arts and Science

**CTST 105.3**
**Catholic Studies for Teachers I**

Introduces students to the central, historical components of both Eastern and Western Catholic belief and identity, the Bible as revelation, the person of Jesus, and the nature of the Church.
**Note:** Not acceptable for credit in the College of Arts & Science. Intended as an elective in the College of Education, for students planning to teach in a Separate School system.

**CTST 106.3**
**Catholic Studies for Teachers II**

Introduction to Eastern and Western Catholicism as a way of life, focusing on liturgical practice, personal morality in

contemporary society, and corporate morality as related in Catholic teaching on social justice.
**Note:** Not acceptable for credit in the College of Arts & Science. Intended as an elective in the College of Education, for students planning to teach in a Separate School system.

# DENT — DENTISTRY

College of Dentistry

**DENT 200.0**
**Pre-Clinical Learning Experience**

Pre-clinical or clinical practice outside of the academic year for College of Dentistry students. The experience complements the first-year curriculum and may be recommended as additional preparatory work for the second year students in the program.
**Note:** For students who have completed the first year of the D.M.D. program.

**DENT 208.3 — 1(2L)&2(1L)**
**Principles and Practice of Dentistry**

Introduces students to a number of topics related to the social context within which dentistry exists. These include the history of dentistry, dentistry and ethics, the development of dental education, oral health care delivery systems, current issues in oral health and oral health services in Saskatchewan.

**DENT 210.2 — 2(1L)**
**Application of Dental Research to Clinical Decision Making 1**

Provides students with knowledge of how to access, understand and critically evaluate dental scientific literature. The course will consist of lectures and laboratory sessions. In the laboratory sessions, students will perform computer generated literature searches in the Health Science Computer Lab.

**DENT 214.2 — 1(2L)**
**Oral Histology and Embryology**

A lecture and laboratory course that studies the development, histology and function of oral structures that have special significance to dentistry. Course content considers the processes involved in craniofacial development; the development of the teeth and palate; and the histology of hard and soft tissues of the oral and perioral regions.

**DENT 220.6 — 1(2L-4P)&2(1L-2P)**
**Operative Dentistry 1**

A preclinical lecture/ demonstration/ laboratory course introducing the student to the basic biomechanical principles of tooth restoration. The course emphasizes the development of manual dexterity skills using rotary and hand instruments. Attention is also given to the development of professional skills in terms of organization, tidiness and time management. The need for infection control is also introduced.

**DENT 221.2 — 1&2(1L)**
**Dental Materials**

A basic program to familiarize students with the terminology and theoretical concepts of dental materials used in clinical dentistry, as well as the safety issues concerning dental materials.

**DENT 225.2 — 1(2L/P)**
**Dental Anatomy and Morphology**

An introductory course in dental anatomy and morphology. The general objective is to provide the undergraduate dental student with the knowledge of dental anatomy and morphology that forms the basis for much of the practice of clinical dentistry.

**DENT 226.3 — 2(2L/P)**
**Occlusion**

A lecture and laboratory course that provides an in-depth study of the interrelationships of the components of the stomatognathic system as these apply to the principles of intermaxillary occlusion. Included will be discussions of sleep apnea, bruxism, occlusal traumatism, and occlusal equilibration.

**DENT 288.3 — 2(2L)**
**Infection Control in Dentistry**

Successful prevention of disease spread and proper maintenance of clinic safety require the knowledge of infection control. Dental students must play key roles in the maintenance of the well being of patients and in the organization of safe dental clinics. These responsibilities require an understanding of procedures used for infection control. The objective of the course is to provide a basic concept of infection control in the form of didactic lectures and clinical practice.

**DENT 300.0**
**Clinical Learning Experience**

Clinical practice outside of the academic year for College of Dentistry students. The experience complements the second-year curriculum and may be recommended as additional preparatory work for the third year in the program.
**Note:** For students who have completed the second year of the D.M.D. program.

**DENT 301.2 — 1(1L-4C)&2(2C)**
**Oral Radiology 1**

Provides didactic information on: basic radiation physics; radiation biology; creation of a film-based radiographic image; digital radiography; intraoral, panoramic and extraoral radiographic technique; introduction to normal radiographic appearances; and radiographic localization techniques. The preclinical laboratory component provides instruction in intraoral radiographic techniques, and introduces digital radiography, pantomography and other extraoral imaging procedures.

**DENT 314.3 — 1(2L)&2(2L)**
**Oral Microbiology Immunology and Physiology**

Considers those areas of microbiology, immunology and physiology with special significance to dentistry. Major topics are oral microflora and ecology; molecular biology of microbial adherence; formation and metabolism of dental plaque; microbiology of dental caries and periodontal disease; immunology of dental caries and periodontal disease; physiology of salivary glands and saliva; classification and physiology of neuroreceptors and their integration/modulation by the central nervous system; and the physiology of pain, taste, swallowing and mastication.

**DENT 317.3 — 2(1L-2.5P)**
**Orthodontics 1**

The orthodontic lectures in this year emphasize the diagnostic and treatment planning aspect of simple and complex orthodontic cases, as well as their treatment and management. Second year provides the basics of case presentation and patient evaluation and prepares the student for the orthodontic clinic.

**DENT 318.2 — 2(2L)**
**Preventive Dentistry**

Reviews the epidemiology of oral diseases and current concepts of prevention and their practical application. The various uses of fluorides in disease prevention are dealt with in depth. Other measures discussed include fissure sealants, nutritional counselling and patient motivation in relation both to dental practice and community health programs.

**DENT 319.4 — 1(1L)&2(1L-3C)**
**Periodontics 1**

A lecture and clinical demonstration course which provides an introduction to the etiology, pathogenesis and epidemiology of diseases that affect the periodontal tissues. Students will be given opportunities to provide preventive periodontal care in the clinic.

**DENT 320.5 — 1(1L-2.5P)&2(1L-3C)**
**Operative Dentistry 2**

Term 1 consists of review material and a six-week competency performance exam to prepare students for patient treatment in Term 2. Upon entering the dental clinic, students are introduced to clinic protocol and staff through a series of exercises using extracted human teeth in plaster pucks. Once familiarized with the clinic, students commence patient care supplemented by weekly lectures on treatment planning, restorative techniques and materials.

**DENT 324.3 — 2(1L-2P)**
**Pedodontics 1**

Strives to introduce students to various aspects of basic Pediatric Dentistry. Consists of a series of lectures, laboratory exercises, and a visit to a pre-kindergarten classroom. Develops skills required for clinical diagnosis and restorative treatment of the primary and young dentition. Pulpal therapy for primary and permanent young teeth is covered. Clinical skills and knowledge for identifying the indications and contraindications for the restoration of primary teeth using fissure sealants, resin, amalgam, and full coverage is explored. Students will gain knowledge of the development, morphology, and eruption of the dentition. Differences between the permanent and primary dentition and how these apply to restoration procedures are dealt with. A basic knowledge of space maintenance and basic management skills are introduced.

**DENT 330.5 — 1&2(1L-2.5P)**
**Removable Prosthodontics 2**

A preclinical/clinical lecture/ demonstration/ laboratory course in which students undertake exercises relating to technical procedures involved in fabricating complete dentures and treatment planning of removable partial dentures. It will also prepare students for patient treatment in Term II. Once oriented, students start treatment on patients in the provision of complete denture prostheses. Clinical experience will be supplemented by weekly lectures and seminars related to the art and science of removable prosthodontics.

**DENT 340.4 — 1&2(1L-2.5P)**
**Fixed Prosthodontics 1**

A preclinical course that introduces the basic fixed prosthodontics principles and techniques required to prepare teeth, to fabricate provisional restorations and to learn the clinical and laboratory techniques necessary to fabricate a definitive cast metal restoration.

**DENT 348.3 — 1&2(1L-2C)**
**Diagnosis 1**

Prepares students for clinical management of patients. It includes a systematic approach to diagnosis and patient management. Students are introduced to history taking, patient examination, laboratory testing and record systems. The problem-oriented approach to diagnosis and management is presented. A complementary clinical course provides experience to prepare students for clinical sessions in diagnosis and patient management. Principles of treatment

planning are also covered to prepare students for practice in the clinic.

**DENT 353.2 — 1&2(1L)**
**Local Anaesthesia**

The objectives are to teach students the basic principles of administering local anesthetics safely and effectively. Topics to be discussed will include the indications and advantages of regional anesthesia, and the various techniques available to the dentist. Emphasis will be placed upon an understanding of the pharmacologic actions of local anesthetics and vasoconstrictors and their side effects and complications. Proper patient evaluation to identify high-risk patients will be stressed.

**DENT 400.0**
**Clinical Learning Experience**

Clinical practice outside of the academic year for College of Dentistry students. The experience complements the third-year curriculum and may be recommended as additional preparatory work for the fourth year in the program.
**Note:** For students who have completed the third year of the D.M.D. program.

**DENT 401.3 — 1&2(1L-1S)**
**Oral Radiology 2**

Lectures, self-instructional packages, and seminars cover normal radiographic appearances in the jaws as well as the radiographic manifestations of disease processes. Time is also spent discussing general principles of radiographic interpretation. The clinical component of this course involves selecting an appropriate intra-oral radiographic series, taking intra-oral radiographs and interpreting intra-oral and panoramic radiographs of clinic patients that the student sees in the Diagnosis clinic.

**DENT 410.2 — 1&2(1L)**
**Application of Dental Research to Clinical Decision Making 2**

The concepts learned in DENT 210 will be extended by reviewing basic statistical issues. Students will conduct a laboratory and/or clinical study to be presented as a table clinic. Findings from the literature review and the experiment will be presented in class and at Table Clinic Night. This course will consist of lectures and seminars.

**DENT 417.4 — 1&2(1L-2.5C)**
**Orthodontics 2**

Orthodontic lectures in this year will continue to emphasize the diagnostic and treatment planning aspects of simple and complex orthodontic cases, as well as provide an insight into their treatment techniques and patient management.

**DENT 419.5 — 1&2(1L-3C)**
**Periodontics 2**

A lecture/seminar/clinic course designed to enable students to become competent in periodontal diagnosis and to develop the clinical skills necessary to perform periodontal therapy within the context of a comprehensive dental treatment plan. In term 2, the interrelationship of periodontics to other disciplines is emphasized and a review of current aspects of the periodontal scientific literature is undertaken.

**DENT 420.5 — 1(1L-2.5C)&2(4C)**
**Operative Dentistry 3**

A program of continued experience in the discipline of operative dentistry, providing treatment planning and efficient delivery of restorative dental procedures. Students will build upon previous experience tackling more complex cases and utilizing a broader array of dental materials. The lecture program will provide supplemental knowledge to encourage independent inquiry and self-evaluation.

**DENT 424.4 — 1&2(1L-2.5C)**
**Pedodontics 2**

A continuation of DENT 324 and strives to introduce further aspects of basic pedodontics not covered in the introductory course. The course objectives have also been designed to aid the students in gaining a clinical knowledge of subjects such as traumatic injuries to primary and young permanent teeth, child growth and development, behaviour management.

**DENT 430.6 — 1&2(1L-5.5C)**
**Removable Prosthodontics 3**

Lecture/discussion/seminar sessions in clinical application of complete and removable partial denture theory. Clinical practice in complete and partial denture therapy.

**DENT 440.5 — 1&2(1L-3C)**
**Fixed Prosthodontics 2**

Lectures throughout the year concentrate on basic fixed prosthodontic clinical procedures and treatment. Practical experience is gained through basic treatment on clinical patients.

**DENT 448.3 — 1&2(1L)&2(3C)**
**Diagnosis 2**

Various oral medicine topics, emphasizing temporomandibular disorders (TMD) and other orofacial pain states, are covered. In Term 2, students are responsible for performing diagnosis and treatment planning (and dental emergency procedures) under faculty guidance.

**DENT 450.5 — 1&2(1L-3C)**
**Endodontics 2**

Presents three segments: a lecture series, a preclinical laboratory, and clinical procedures on patients. The lectures outline the basic rationale and treatment materials and techniques. In addition, clinical topics regarding specific treatment modalities are covered. Technical procedures are learned through laboratory exercises designed to permit visualization and practice, and examined via competencies. The clinical management of lesions of endodontic origin through treatment of patients occurs in the second term.

**DENT 453.2 — 1(1L-2P)**
**Sedation and Pain Control**

Lectures and demonstrations are used to introduce concepts of managing patient apprehension through the use of various techniques of conscious sedation. Although students will gain facility mainly with the use of nitrous-oxide/oxygen inhalation sedation, other modalities will also be covered. The indications, advantages and disadvantages, and complications of the various techniques will be discussed.

**DENT 455.2 — 1(1L)**
**Basic Internal Medicine**

Consists of lectures/seminars. Common medical problems affecting dental management are discussed and illustrated using case reports.

**DENT 463.3 — 1&2(1L-3C)**
**Oral and Maxillofacial Surgery 1**

Introduces students to the basic principles on which the practice of oral and maxillofacial surgery is founded. Proper history taking and patient assessment are stressed, and students are introduced to the core theoretical knowledge and basic surgical skills and sterile techniques needed to practice minor oral surgery. Students are taught basic and advanced techniques for the removal of teeth, and the prevention and management of their intraoperative and postoperative complications. The selection and prescribing of appropriate analgesic and antibiotic medications is discussed. Students are rostered into the oral surgery clinic where opportunity is given initially to observe and assist, and then to participate in minor oral surgical procedures. Students are also introduced to hospital dentistry, including operating room protocol and observing major maxillofacial surgery. Lectures and demonstrations are used to introduce concepts of managing patient apprehension through the use of various techniques of conscious sedation. Although students will gain experience mainly with the use of nitrous-oxide/oxygen inhalation sedation, other modalities will also be covered. The indications, advantages and disadvantages, and complications of the various techniques will be discussed. Introductory implant lectures will be given.

**DENT 466.2 — 1&2(1L)**
**Hospital Rosters**

Students are assigned for one week to Royal University Hospital and rotate through various medical services and hospital dentistry. Under the guidance of the medical and house staff, students observe and participate in the patient care and management of diseases that they have studied to appreciate the effects of these and gain further insight into medical problems they may encounter in their practice.

**DENT 475.2 — 2(1L)**
**Introduction to Implant Supported Prosthodontics**

Introduction by lecture and laboratory assignments to the history of implantology, biology of osseointegration, indications and contraindications for implants, treatment planning, implant components, surgical placement of implant fixtures, and principles and procedures of implant prosthodontics.

**DENT 480.2 — 1&2(1L)**
**Dental Practice Management 1**

Introduces the concepts of practice management to the dental student. The first term deals with the Dental Profession Act and the regulations under the Act, the Dental Code of Ethics, and Dentistry and the law. The second term provides an introduction to the business and legal aspects of dental practice.

**DENT 486.3 — 1(3L)&2(2L)**
**Oral Pathology**

Provides the students with the knowledge and understanding of diagnosis, pathogenesis, clinical and histologic features, management, and prognosis of oral diseases with emphasis on their oral manifestations and implications. Topics include developmental abnormalities of the oral hard and soft tissues; infections of the oral cavity; physical and chemical injuries of the oral cavity; benign and malignant neoplasms; the oral manifestations of metabolic, dermatologic, hematologic and immunologic disease; fibro-osseous lesions; non-odontogenic and odontogenic tumors and cysts; salivary gland disease; and forensic odontology. Supplementary clinical case exercises are given weekly to enhance, examine and reinforce students' knowledge.

**DENT 501.2 — 1(4C)**
**Oral Radiology**

Clinical course involving the selection of intra-oral radiographic series in the Diagnosis clinic, taking intra-oral radiographs in the Radiology roster and occasionally the Diagnosis clinic, and the interpretation of intra-oral and panoramic and other selected radiographs in interpretation sessions.

**DENT 517.4 — 1&2(1L-5C)**
**Orthodontics**

Orthodontic lectures in this year will continue to emphasize the diagnostic and treatment planning aspects of simple and complex orthodontic cases, as well as provide insight into their treatment techniques and patient management. Content is mainly directed to various areas not previously covered or where a need for further in-depth study is indicated. The objective is to refine the final-year dental student's diagnostic abilities, and emphasis is directed at orthodontic case selection and treatment modalities as well as the multidisciplinary and ethical aspects of orthodontic dental treatment.

**DENT 519.5 — 1&2(1L-4C)**
**Periodontics**

Emphasizes and reinforces the methods of managing periodontal diseases that have been learned earlier. Recent advances in periodontics will be introduced and seminars involving student presentation of case reports will be held. Student clinical experience is continued in the form of comprehensive care.

**DENT 520.3 — 1&2(1L-3C)**
**Operative Dentistry 4**

Consists mainly of routine general dental care of patients, providing the full range of restorative dental procedures including the examination, diagnosis and treatment of traumatic injuries to teeth as well as damage due to dental caries. More complex situations will be encountered and new materials and techniques included. Emphasis will be placed on independent and comprehensive dental care.

**DENT 524.4 — 1&2(1L-5C)**
**Pedodontics 3**

Continues the objectives and philosophy of Year 3. In addition, issues that are related to adolescence, patients with handicapping conditions, medical issues, developmental issues such as speech, special interest topics as applicable, and the use of sedation and other modalities are explored. Second term is a seminar format. The objective is to provide a format for review and discussion of certain advanced topics in pediatric dentistry, to discuss what is considered to be new in pediatric dentistry, to review interesting journal articles, and to present interesting cases which have been treated by students.

**DENT 530.5 — 1&2(1L-3C)**
**Removable Prosthodontics 4**

Clinical practice in complete and removable partial dentures with an emphasis on self-evaluation and peer evaluation. This course also includes lectures and seminars with in-depth discussions of selected prosthodontic and related topics.

**DENT 540.5 — 1&2(1L-3C)**
**Fixed Prosthodontics 3**

Lectures, seminars and clinical practice in fixed prosthodontics with a strong emphasis on treatment planning and sequencing.

**DENT 542.2 — 2(1L)**
**Health Sciences Interdisciplinary Relationships**

The relevance of the basic sciences to clinical dentistry and the scientific basis of various aspects of clinical dentistry are examined in detail. As well, this course provides opportunities to learn more about and discuss the impact of the medical conditions on dental treatment, and the interaction between dentists and physicians with regard to the medical management of patients under the care of dentists.

**DENT 548.3 — 1(2L-3C)&2(3C)**
**Oral Medicine and CPRCs**

Various oral medicine topics are covered, including the management of oral lesions, radiation therapy and chemotherapy patients, patients with salivary disorders and patients with infectious diseases. In addition, students participate in multi-disciplinary seminars to gain experience in applying previous knowledge to simulated clinical patient cases (CPRC's). Students also perform dental emergency procedures and diagnosis and treatment planning under faculty guidance in the emergency, diagnosis and oral medicine/oral pathology clinics.

**DENT 550.3 — 1&2(1L-3C)**
**Endodontics 3**

Students enhance their clinical skills by managing patients with endodontic problems on an increasingly independent basis. Conservative orthograde endodontic therapy is the treatment of choice; however, students are encouraged to observe the surgical management of endodontic lesions. Students should develop an appreciation of the varying degrees of difficulty associated with endodontic procedures, and an understanding of their own limitations in certain cases. The ability to review the literature critically and evaluate objectively new concepts and techniques should enter into their decision making. Lastly, the need for self-evaluation and continuing education is stressed.

**DENT 563.3 — 1&2(1L-3C)**
**Advanced Oral and Maxillofacial Surgery 2**

This course is a continuation of DENT 463 and covers more advanced topics in oral surgery. Topics discussed include orofacial infections, major maxillofacial surgery (i.e., cleft palate surgery, preprosthetic surgery, orthognathic surgery, maxillofacial traumatology, etc.), and the surgical management of head and neck cancers. Students are given more opportunity to develop expertise in minor oral surgery in a clinical setting. A portion of this course focuses on the prevention, recognition and management of medical emergencies in the dental office. Common medical emergencies that could be encountered and the agent(s) used to treat them are discussed. Clinical experience continues with more advanced patient management in order to develop competence in routine minor oral surgery.

**DENT 573.2 — 2(1L)**
**Medical Emergencies in Dental Office**

Devoted to the prevention, recognition and management of medical emergencies in the dental office. Various types of emergencies such as chest pain, respiratory difficulties and altered consciousness are covered. The equipment and drugs necessary to manage common medical emergencies are discussed. The laboratory component is a review of basic CPR.

**DENT 580.2 — 1&2(1L)**
**Dental Practice Management 2**

Continues with the concepts, theory and practical approaches to dental practice management that began in DENT 440. The student will already have begun to apply this knowledge.

**DENT 585.5**
**Comprehensive Care Clinics**

The Comprehensive Care Clinics will allow patient care to be provided in a comprehensive manner. Procedures from multiple disciplines will be able to be done at the same appointment, if deemed appropriate at the time.

**DENT 590.3**
**Option Program**

The option program encourages students to explore areas of personal interest in dentistry. Students select a program consisting of one or more options in any clinical, teaching, or research area subject to approval by the Undergraduate Education Committee. Locations range from the University of Saskatchewan to areas in foreign countries. Students are required to submit written reports about their activities during the option period. Supervisors at each locale provide written evaluations. Satisfactory performance in this program is necessary for students to be considered eligible for graduation.

# DRAM — DRAMA

Department of Drama, College of Arts and Science

**DRAM 101.3 — 1/2(3L)**
**How to Read Drama**

An introductory course in the reading and analysis of playscripts. The course will offer a brief survey of script analysis techniques (used by directors, actors, and other theatre personnel) as applied to major plays from various genres and historical contexts.

**Note:** Students with credit for DRAM 100 may not take DRAM 101 for credit.

**DRAM 104.6 — 1&2(3P)**
**Introduction to Theatre**

Direct experience of theatre arts and crafts. Designed to encourage the individual's creative impulse. Dramatic activities for teachers at all levels are explored and students move toward an understanding of drama as education.
**Note:** Not accepted in a drama major except with written permission of the Head of the department.

**DRAM 110.3 — 1/2(1.5L-3P)**
**Technical Theatre I Scenic Construction**

Introduces the fundamentals of scenic construction techniques including construction methods and materials, scene painting and aesthetic aspects of producing scenery for the stage. Requires a minimum of 25 hours of production work beyond the regular class and lab hours. Students should avoid taking any evening classes because of the demands of evening production set-up and rehearsals.

**DRAM 113.3 — 1/2(1.5-3P)**
**Technical Theatre II Stage Properties**

Introduction to the fundamentals of stage properties construction, materials and techniques. Emphasis will be placed on the practical and aesthetic aspects of producing stage properties for theatre productions. There is a requirement of a minimum of 25 hours of production work beyond the regular class and lab hours. Students should avoid taking any evening classes because of the demands of evening production set-up and rehearsals.

**DRAM 116.3 — 1/2(1L-2P)**
**Acting I**

The essentials of acting through the exploration of body, voice, idea, and imagination.

**DRAM 117.3 — 1/2(1L-2P)**
**Acting II**

Fundamentals introduced in Acting 1 will be applied to the process of interpreting the dramatic text.
**Prerequisite(s):** DRAM 116.

**DRAM 121.3 — SP/SU(1L-2P)**
**Directing for the Non Specialist**

A practical and theoretical course for those interested in directing plays for amateur bodies such as schools and community groups. The directing process will be explored in terms of script analysis, script

scoring, audition methods, coaching techniques, the development of rehearsal schedules, and the design of floor plans and blocking.
**Note:** Normally offered only in Spring and Summer Session. Open to drama majors as an elective only under Requirement 7 of Program Type D.

**DRAM 203.3 — 1/2(3L)**
**History of Theatre from 600 BCE to 1850 CE**

History of theatre, dominantly in the Western tradition, from antiquity through to the Romantic revolt and the beginnings of realism. The evolution of theatrical production (acting, production, theatre architecture) will be emphasized, with assigned plays being examined largely within the context of the production and performance dynamics of their period.
**Prerequisite(s):** Completion of 30 credit units at the university.
**Note:** Students with credit for DRAM 201 may not take DRAM 203 for credit.

**DRAM 204.3 — 1/2(3L)**
**History of Theatre from 1850 to Present**

History of theatre, dominantly in the Western tradition, from the rise of the modern theatre to the present day. Evolution of theatrical production (acting, directing, production, theatre architecture) will be emphasized, with assigned plays being examined largely within the context of the production and performance dynamics of their period.
**Prerequisite(s):** Completion of 30 credit units at the university.
**Note:** Students with credit for DRAM 202 may not take DRAM 204 for credit.

**DRAM 209.3 — 1/2(3L)**
**Theories of Acting and Directing**

Acting and directing theory from the Enlightenment to the present day. Emphasis will be placed on the evolving role of the director and actor, as conceived of by important theoretician/practitioners, and on the influence of accelerating technology and changing trends in social, political, psychological and cultural thought.
**Prerequisite(s):** Completion of 30 credit units at the university.
**Note:** Students with credit for DRAM 302 may not take DRAM 209 for credit.

**DRAM 210.3 — 1/2(3L-3P)**
**Technical Theatre III Costume Construction**

A study of the craft and art of the theatre costumer. Emphasizes the practical and aesthetic aspects of producing costumes for the stage. There is a requirement of 50 hours of production work beyond the regular class and lab hours. Students should avoid taking any evening classes because of the demands of evening production set-up and rehearsals.
**Prerequisite(s):** DRAM 110 or 113 and permission of the department.

**DRAM 213.3 — 1/2(3L-3P)**
**Technical Theatre IV Stage Management**

Introduction to the fundamentals of the craft and art of stage lighting, sound production, and theatre stage management. There is a requirement of a minimum of 50 hours of production work beyond the regular class and lab hours. Students should avoid taking any evening classes because of the demands of evening production set-up and rehearsals.
**Prerequisite(s):** DRAM 110 or 113 and permission of the department.

**DRAM 216.3 — 1/2(1L-3P)**
**Acting III**

The exploration of character in acting.
**Prerequisite(s):** DRAM 117.

**DRAM 217.3 — 1/2(1L-3P)**
**Acting IV**

Exploration of character development as affected by the creative relationship between actors in rehearsal and performance.
**Prerequisite(s):** DRAM 216.

**DRAM 220.3 — 1/2(2L-4P)**
**Theatre Design I Introduction**

Introduction to the technical and aesthetic skills and methods required of the theatre designer. Special consideration will be given to the development of skills required to communicate with fellow theatre practitioners, directors, designers and technicians in the visual medium.
**Prerequisite(s):** DRAM 110, 113 and permission of the department.

**DRAM 221.3 — 1/2(2L-4P)**
**Theatre Design II Introduction**

An exploration of the role of the theatre designer in the areas of setting, costumes and lighting. Special consideration will be given to the development of skills required to communicate with fellow theatre practitioners, directors, designers and technicians in the visual medium. An application of the technical skills learned in DRAM 220.
**Prerequisite(s):** DRAM 220, and permission of the department.

**DRAM 236.3 — 1/2(3P)**
**Stage Combat**

The principles and techniques used to successfully achieve the illusion of physical violence for the stage. Actor safety, effective blocking, believable energy transfer and the analysis of physical motion during conflict will be examined.
**Prerequisite(s):** DRAM 116.

**DRAM 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**DRAM 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**DRAM 303.3 — 1/2(3L)**
**Advanced Studies in Theatre History I**

Intended for students who have acquired some background in the theatre from 600 BCE to 1850 CE. The course will involve more intensive study of the aesthetic, literary and production/performance aspects of the theatre of the past, integrating theoretical and practical approaches to the material.
**Prerequisite(s):** DRAM 203 or permission of the department.
**Note:** Students with credit for DRAM 201 may not take DRAM 303 for credit.

**DRAM 304.3 — 1/2(3L)**
**Advanced Studies in Theatre History II**

Intended for students who have acquired some background in the theatre from 1850 to the present. The course will involve a more intensive study of the aesthetic, literary and production/performance aspects of the theatre of the contemporary period, integrating theoretical and practical approaches to the material.
**Prerequisite(s):** DRAM 204 or 209 or the permission of the department.
**Note:** Students with credit for DRAM 202 may not take DRAM 304 for credit.

**DRAM 316.3 — 1/2(6P)**
**Acting V**

An advanced course in the art of Shakespearean acting focussing on the demands Shakespeare's texts make upon the actor's intellect, emotions, voice, and movement.
**Prerequisite(s):** DRAM 217 and permission of the department through an audition.
**Note:** Students with credit for DRAM 315 may not take DRAM 316 for credit.

**DRAM 317.3 — 1/2(6P)**
**Acting VI**

A course in acting styles other than Shakespeare. Scene study and exercises in various periods and genres, which may include Greek theatre, medieval theatre, comedy of manners, farce, absurdist and epic theatre.
**Prerequisite(s):** DRAM 316.
**Note:** Students with credit for DRAM 315 may not take DRAM 317 for credit.

**DRAM 320.3 — 1/2(2L-4P)**
**Theatre Design III Intermediate**

Further development of the theatre designer in the areas of costume, lighting and set design. Continued exploration of design aesthetics in theoretical design projects. Focus is on individual paper projects involving the complete planning and execution of projects in costume, sets and lighting.
**Prerequisite(s):** DRAM 221.
**Note:** Students with credit for DRAM 314 may not take DRAM 320 for credit.

**DRAM 321.3 — 1/2(2L-4P)**
**Theatre Design IV Intermediate**

Continued exploration and identification of concepts and methods as they relate to costume, set and lighting design. Focus on continued exploration of the theatre design process and the continued improvement of technical and aesthetic skills. Course may involve a design project that relates to a departmental production.
**Prerequisite(s):** DRAM 320.
**Note:** Students with credit for DRAM 314 may not take DRAM 321 for credit.

**DRAM 322.3 — 1/2(4P-2T)**
**Technical Theatre I**

For the student who wishes to pursue advanced studies in technical theatre practices in such areas as stage management, lighting and sound, theatre properties and effects. Studies will be closely related to the department's schedule of productions.
**Prerequisite(s):** DRAM 220 is a prerequisite to 322; completion of 60 credit units at the university; and permission of the department.

**DRAM 323.3 — 1/2(4P-2T)**
**Technical Theatre II**

For the student who wishes to pursue advanced studies in technical theatre practices in such areas as stage management, lighting and sound, theatre properties and effects. Studies will be closely related to the department's schedule of productions.
**Prerequisite(s):** DRAM 322 is a prerequisite to 3323; completion of 60 credit units at the university; and permission of the department.

**DRAM 330.3 — 1/2(6P)**
**Physical Theatre I Clown**

Neutral mask and clown: studies in physical theatre. The first half will consist of the student's discovery of neutral expression and expressiveness through the use of neutral mask. The second half will allow the student to develop the personal clown.
**Prerequisite(s):** DRAM 217.
**Note:** Students with credit for DRAM 327 may not take DRAM 330 for credit.

**DRAM 331.6 — 1&2(3S)**
**Playwriting**

The craft of writing plays, explored through exercises and class discussions.
**Prerequisite(s):** At least 12 credit units in Drama and 12 credit units in English.

**DRAM 341.6 — 1&2(6P)**
**Play Directing**

Basic problems in directing and producing plays.
**Prerequisite(s):** DRAM 110, 113; 216 and 217 (both may be taken concurrently).

**DRAM 364.3 — 3P**
**Voice for Actor I**

Development of the student's vocal technique and awareness of the vocal process through exercises in relaxation, body alignment, support of tone and placement of sound. Emphasis on freeing the vocal apparatus of tension, extending pitch range and developing greater responsiveness to language values.
**Prerequisite(s):** DRAM 217.
**Note:** Students with credit for DRAM 326 may not take DRAM 364 for credit.

**DRAM 365.3 — 3P**
**Movement for Actor I**

An introduction to the various areas of movement training, with emphasis on observing and recreating human behaviour.
**Prerequisite(s):** DRAM 217.

**DRAM 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**DRAM 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**DRAM 401.3 — 1/2(3L)**
**Dramatic Theory and Criticism**

An examination of significant theories of major critics, theorists and writers of the theatre from ancient to modern.
**Prerequisite(s):** At least 12 credit units in English.

**DRAM 402.3 — 1/2(3L)**
**Studies in Canadian Theatre**

An examination of dominant trends in Canadian theatre practice.
**Prerequisite(s):** At least 12 credit units in English.

**DRAM 416.3 — 1/2(6P)**
**Acting VII**

A studio production for fourth-year actors. The student will be encouraged to enhance strengths and correct weaknesses in technical delivery. The course will focus on the concept of the ensemble as well as rehearsal and performance strategies.
**Prerequisite(s):** DRAM 317.
**Note:** Students with credit for DRAM 415 may not take Dram 416 fpr credit.

**DRAM 417.3 — 1/2(6P)**
**Acting VIII**

A course in acting for film, television, and radio, with special concentration on the technical demands of acting for the media.
**Prerequisite(s):** DRAM 416.
**Note:** Students with credit for DRAM 415 may not take DRAM 417 for credit.

**DRAM 420.3 — 1/2(2L-4P)**
**Theatre Design V Advanced**

An advanced study of set, costume and lighting design. Emphasis will be placed on the student's growing independence as a practicing theatre designer.
**Prerequisite(s):** DRAM 321.
**Note:** Students with credit for DRAM 414 may not take DRAM 420 for credit.

**DRAM 421.3 — 1/2(2L-4P)**
**Theatre Design VI Advanced**

An advanced study of set, costume and lighting design as it relates to practical application. The student will be assigned a design project that relates to a departmental production.
**Prerequisite(s):** DRAM 420.
**Note:** Students with credit for DRAM 414 may not take DRAM 421 for credit.

**DRAM 430.3 — 1/2(6P)**
**Physical Theatre II Commedia**

A study of commedia dell'arte masks or types, physical acting, comedy, lazzi and concetti.
**Prerequisite(s):** DRAM 365.

**DRAM 446.3 — 1/2/SP/SU(1T-6P)**
**Work Study**

Enables students, in consultation with a faculty supervisor, to develop a working relationship with a professional theatre or theatre-based organization. The student studies an aspect of the host organization's operation while performing meaningful work for the host organization.
**Prerequisite(s):** Completion of 90 credit units of university coursework including DRAM 110 or 116 and approval of the department.
**Note:** Students are expected to devote seven hours per week to this course.

**DRAM 464.3 — 3P**
**Voice for Actor II**

Specialized problems for the vocal professional will be addressed: dialects; physical characterizations and their effect on voice and speech; cold readings; rehearsal and performance demands (shouting, crying, laughing); vocal hygiene; keeping the vocal performance fresh; vocal coaching in support of performance for Greystone productions.
**Prerequisite(s):** DRAM 364.

**DRAM 465.3 — 3P**
**Movement for Actor II**

Consolidates the training given in DRAM 365, with special emphasis on developing performance configurations; trios, quartets, and choral groupings.
**Prerequisite(s):** DRAM 365.

**DRAM 481.6 — 1&2(6P-3S)**
**Advanced Reading and Special Studies**

Restricted to students who wish to pursue further planned study in a phase of drama of their choice with approval of the Head of the Department.

**DRAM 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**DRAM 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EADM — EDUCATIONAL ADMINISTRATION

Department of Educational Administration, College of Education

**EADM 422.3 — 1/2(3L)**
**Teacher in School Organization**

Familiarizes prospective and practising teachers with the nature of school structures and social systems, and examines the effects of the organization and group interaction patterns on the school experiences of individual teachers.
**Prerequisite(s):** Admission to the College of Education and completion of 60 credit units at the university.

**EADM 423.3 — 1/2(3L)**
**Teacher and School Improvement**

Prospective and practising teachers will explore trends and issues in school improvement, innovations, and effectiveness. Research on school effectiveness in various countries will be examined, and models of school improvement employed in specific schools and school systems will be assessed.
**Prerequisite(s):** Admission to the College of Education and completion of 60 credit units at the university.

**EADM 424.3 — 1/2(3L)**
**Teacher as Leader**

Provides a comprehensive understanding of concepts of leadership by integrating theory, research, philosophy, and practice. Students will discuss the history and nature of leadership; the tasks, contexts, attributes, and powers associated with leadership; and the related roles of the teacher as leader.
**Prerequisite(s):** Admission to the College of Education and completion of 60 credit units at the university.

**EADM 425.3 — 2(3L)**
**Legal and Institutional Contexts of Education**

Students will integrate the knowledge and experience acquired in earlier coursework and the extended practicum by examining the components of governmental, administrative, legal, ethical and professional aspects of public education in Saskatchewan and Canada.
**Prerequisite(s):** EXPR 402.
**Note:** Students with credit for EADM 321 may not take this course for credit.

**EADM 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EART — ART EDUCATION

Department of Curriculum Studies, College of Education

**EART 303.3 — 1/2(3L)**
**Methods in Elementary Visual Art**

Introduces elementary classroom teachers to current issues, principles and methods needed in visual art programs including art basics, processes, media, practices and resources. Consideration will be given to health and safety concerns, classroom management, art criticism, gender equity and cultural/historical approaches in art curriculum planning.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and a fine arts course.
**Note:** Students may receive credit for only one of EART 300, 303, 310 and 311.

**EART 311.3 — 1/2(3L)**
**Methods in Middle Years Visual Art**

Offers prospective middle years classroom teachers information on current issues, principles and methods in visual art programs including art basics, processes, media, practices and resources. Consideration will be given to health and safety concerns, classroom management, art criticism, gender equity and cultural/historical approaches in art curriculum planning.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and a fine arts course.
**Note:** Students may receive credit for only one of EART 300, 303, 310 and 311.

**EART 331.3 — 1/2(1L-1S-2P)**
**Methods in Secondary Visual Art**

Provides prospective secondary teachers in art an overview of history and practice, current concerns, principles, teaching methods, and resources for curriculum planning and teaching art in secondary schools.
**Prerequisite(s):** ECUR 200 and 12 credit units in Art including 6 credit units in Art History.

**EART 421.3 — 2(1L-3P)**
**Ceramics for Teachers**

Explores methods of teaching ceramics. Teaching strategies and resources, exploration of forming processes, methods of finishing and enhancing in clay, kiln firing, health and safety concerns, and cultural and historical developments will be studied as applicable for the Saskatchewan curriculum in visual art.
**Prerequisite(s):** EART 303 or 311 or 331.

**EART 433.3 — 2(1L-1S-2P)**
**Advanced Methodology in Art Education**

Helps prospective art teachers to study personal strengths and to work on their shortcomings in moving towards preparedness for teaching. Topics will include knowledge of methodology in art education, media and processes, classroom management, health and safety, cultural and historical approaches, gender equity, evaluation, fostering individual growth in perception, cognition, creativity and skill.
**Prerequisite(s):** EART 303 or 311 or 331 and EXPR 402.

**EART 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ECMM — EDUCATION COMMUNICATIONS AND TECHNOLOGY

Department of Curriculum Studies, College of Education

**ECMM 370.3 — 1/2(2L-1P)**
**Survey of Microcomputer Applications in Educational Environments**

Emphasis is on the utilization and integration of text processing, database management, spreadsheet, and telecommunications software into classroom instruction. Computer programming skills are not required.

**ECMM 402.3 — 1/2(2L-1P)**
**Designing Multimedia and Computer Based Learning Resources**

Assists educators in the design and production of multimedia learning materials. Introduces principles of instructional design and applies them to the design and production of interactive instruction and resource materials.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 404.3 — 1/2(2L-1P)**
**Distance Education I Tools and Strategies**

Examines development, organization and implementation of distance education programming for elementary and secondary schools. Distance education systems, technology, instructional development and course design are explored through presentation, demonstration and experimentation. This course is offered as a fully on-line course via the World Wide Web. Please refer to the College of Education website for further information.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 460.3 — 1/2(3L)**
**Introduction to Educational Communications and Technology**

Surveys the field of educational communications and technology. Topics include resource-based learning, media literacy, media utilization, distance education and instructional design. Educators learn to use media and resources to construct exciting and productive learning environments.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 470.3 — 1/2(2L-1P)**
**Computer Mediated Communication**

Internet is a system that links together most of the current on-line networks around the world. Explores the informational and interpersonal resources available on the Internet network and focuses on ways that teachers can integrate these resources into classroom instruction.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 473.3 — 1/2(2L-1P)**
**Producing and Using Instructional Resources**

Design, production and use of instructional resources materials for educational and training environments. Involves the study and application of principles of audio and visual communication as they apply to the development of mediated instruction.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 474.3 — 1/2(3L)**
**Mass Communication and Media Literacy Studies for Educators**

Explores media literacy, the language and literature of mass communication, examines how mass media influence learning, and discusses significant social, legal and educational issues such as copyright, bias and visual literacy.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 476.3 — 1/2(2L-1P)**
**Introduction to Television Production**

Explores the technique of instructional television production on location and in the studio. Production experience includes single camera field production, full scale multi-camera studio production, audio mixing, graphics creation and video editing, scripting, directing, producing, editing and using television for traditional and distance education instructional formats.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 478.3 — 1/2(2L-1P)**
**Still Photography in Education**

Introduces the basics of communication through still photographic and digital imagery. The student will learn to use a conventional camera, computer scanner and digital camera. Skills include film processing, print making, digitization and manipulation of still photographic and computer images for planning and developing instructional and training resources.
**Prerequisite(s):** Completion of 60 credit units at the university.

**ECMM 498.3 — 1/2(3P)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ECNT — CONTINUING EDUCATION

Department of Educational Foundations, College of Education

**ECNT 410.3**
**Adult Educator in Society Today**

Introduction to the field of adult education. Students will develop an understanding of the scope of the field, current trends and issues, and the role of the adult educator in today's society. Special attention will be given to Native Canadian education, gender issues and education of people with disabilities.

**ECNT 420.3**
**Processes in Continuing Education**

Introduction to planning, conducting, and evaluating continuing education programs in a variety of formal and informal contexts. Students are actively involved in the examination and use of methods and delivery systems. Special attention is given to Native Canadian education, gender issues and education of people with disabilities.

**ECNT 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ECON — ECONOMICS

Department of Economics, College of Arts and Science

**ECON 111.3 — 1/2(3L)**
**Price Theory and Resource Allocation**

Shows the student how to understand the individual consumption and production decisions which are made within a market economy, guided by prices and costs. Economic concepts of supply, demand, cost, response to price changes, production, equilibrium, and income distribution are analyzed.

**ECON 114.3 — 2(3L)**
**Money and Income**

Shows the student how to understand the collective problems in economic policy, and the choices which face a modern economy. Social accounting, national income, consumption, saving, government spending, taxation, investment, interest rates, money and banking, foreign trade, and balance of payments are analyzed.
**Prerequisite(s):** ECON 111 recommended.

**ECON 204.6 — 1&2(3L-1P)**
**Statistical Applications in Social Sciences**

An introduction to statistical methods and their application to problems in economics and related disciplines.
**Prerequisite(s):** ECON 111.
**Note:** Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**ECON 211.3 — 1/2(3L)**
**Intermediate Microeconomic Theory**

Presents the student with a formal analysis of demand, elasticity, cost, production, firm and market equilibrium, competition, monopoly, oligopoly, factor demand and prices, general market equilibrium, and welfare.
**Prerequisite(s):** ECON 111.
**Note:** Students with credit for ECON 213 may not take this course for credit.

**ECON 213.3 — 1/2(3L)**
**Applied Microeconomics**

Presents the student with an understanding of consumer and producer behaviour in the market place. Emphasis will be on applied problems and case studies.
**Prerequisite(s):** ECON 111.
**Note:** Students with credit for ECON 211 may not take this course for credit.

**ECON 214.3 — 1/2(3L)**
**Intermediate Macroeconomic Theory**

Presents the student with a formal analysis of national accounting, the consumption function, investment, public expenditure, taxes, budgets, money and interest, IS-LM analysis of general equilibrium in an open economy, aggregate supply and demand, public policy, inflation, and the rudiments of growth theory.
**Prerequisite(s):** ECON 111, 114, and 211 or 213.

**ECON 221.3 — 1/2(3L)**
**Women and the Economy**

An examination of women's changing economic roles. Includes an analysis of labour force participation, wage inequality, gender differences in education, intra-household distribution of resources, economics of reproduction, and how technological change affects women.
**Prerequisite(s):** ECON 111.

**ECON 223.3 — 1(3L)**
**Labour Economics**

An economic analysis of the labour market. Topics discussed will include the allocation of the labour force among sectors, industries and occupations and the functions and nature of the labour market. The problem of unemployment and public policy will be considered.
**Prerequisite(s):** ECON 111 and 114.

**ECON 227.3 — 2(3L)**
**Wage Determination**

A study of the theories of wage determination in various institutional settings. Analysis of the general level of wages and employment will also be considered. Emphasis will be on theoretical models.
**Prerequisite(s):** ECON 111 and 114.

**ECON 231.3 — 1/2(3L)**
**Co operatives**

The historical background, philosophy and development of co-operatives are studied with special reference to the experience and problems of the prairie economy. Economic problems peculiar to co-operative organization are analyzed.
**Prerequisite(s):** ECON 111.

**ECON 234.3 — 1/2(3L)**
**Economics of Health Care**

An application of economic analysis to selected aspects of the health care delivery system. Emphasis will be placed upon an evaluation of the applicability of consumption and production theory to the delivery of physicians' services. Empirical work on the demand for and supply of physicians' services will be reviewed with particular reference to its significance for public policy.
**Prerequisite(s):** ECON 111.

**ECON 254.3 — 1(3L)**
**International Trading System**

A survey of the development of the international trading system with particular attention to its evolution in the post-World War II period.
**Prerequisite(s):** ECON 111.

**ECON 256.3 — 1/2(3L)**
**International Monetary System**

A survey of the development of the international monetary system with particular attention to its evolution in the post-World War II period.
**Prerequisite(s):** ECON 114.

**ECON 261.3 — 1/2(3L)**
**Economic History of Europe and British Isles from Roman Empire to European Expansion**

This is an analytically oriented survey of the economic development and growth of the European economy in the context of the world economy, beginning with a brief survey of the pre-historic economies. This course ends with an analysis of the economics of colonization and the expansion of international trade and how these impacted differentially on the economies of Western Europe.
**Prerequisite(s):** ECON 111 and 114.

**ECON 263.3 — 1/2(3L)**
**Economic History of Europe and British Isles and Rise of Western Economies**

An analytically-oriented survey of the economic development and growth of the European economy in the context of the world economy, beginning with a comparative analysis of the economies of Europe in the 16th Century. This is followed by a discussion of the details of Britain's Industrial Revolution, the lessons to be learned from this experience and how it affected the rest of the world.
**Prerequisite(s):** ECON 111 and 114.

**ECON 265.3 — 1/2(3L)**
**Economic History of Canada from Pre Contact Era to 18th Century**

Economic analysis of Canadian history from the pre-European era to the 18th century. The course focuses on the causes of differential economic development which occurred in Canada and how this discussion might improve our understanding of the process of economic development.
**Prerequisite(s):** ECON 111 and 114.

**ECON 267.3 — 1/2(3L)**
**Economic History of Canada from Early 19th Century to Great Depression**

Economic analysis of the history of Atlantic colonies as well as of Quebec and Ontario, and the Western lands still controlled by the Hudson's Bay Company. Concludes with an analytical discussion of the process of Canadian economic development in the 19th and 20th Centuries in the context of the international economy.
**Prerequisite(s):** ECON 111 and 114.

**ECON 270.3 — 1(3L)**

**Development in Non Industrialized Countries**

A review of the economic development of selected countries. The relevance of resources, financial institutions, government action and regional differences to problems of industrialization in these countries will be studied in the light of past and current theories of economic development.
**Prerequisite(s):** ECON 111 and 114.

**ECON 275.3 — 1(3L)**
**Economics of Natural Resources**

The application of economic analysis to issues concerning the use of natural resources, their management and conservation, as well as environmental effects following therefrom. Policy problems related to the ownership of natural resources, their management, and taxation will also be discussed.
**Prerequisite(s):** ECON 111 and 114.

**ECON 277.3 — 1/2(3L)**
**Economics of the Environment**

An introduction to the economic analysis of environmental issues. It will include analysis of environmental quality, benefit-cost analysis, and evaluation of different environmental policies and their application in Canada and Saskatchewan. It will conclude with analysis of global environmental issues.
**Prerequisite(s):** ECON 111 and 114.

**ECON 280.3 — 1(3L)**
**Classical Economics**

The history of classical economics: Adam Smith, David Ricardo and Karl Marx, among others, with emphasis on the theories of value, distribution, growth, population, money and trade.
**Prerequisite(s):** ECON 111 and 114.

**ECON 285.3 — 2(2.5L-1.5S)**
**Economics of Central American Development**

Part of the La Antigua, Guatemala Study Term Abroad. Examines selected aspects of the theory of development and its experience in Central America, with a particular emphasis on Guatemala. Through lectures and discussions, students will look at trade, technology, infrastructural investment, industrialization, agricultural efficiency and other issues.
**Prerequisite(s):** ECON 111 and 114.

**ECON 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECON 299.3 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECON 305.3 — 1(3L-3P)**
**Quantitative Methods in Economics I**

An introduction to the application of quantitative methods in Economics.
**Prerequisite(s):** ECON 111, 114 and a junior course in calculus.
**Note:** Students with credit for a course in linear algebra may not take this course for credit.

**ECON 306.3 — 2(3L-3P)**
**Quantitative Methods in Economics II**

An introduction to comparative statistics and optimization methods in Economics.
**Prerequisite(s):** ECON 111 and a junior course in calculus, ECON 114 and 305 or a course in linear algebra.
**Note:** Students with credit for ECON 304 or a course in the calculus of multiple variables may not take this course for credit.

**ECON 307.3 — 2(3L)**
**Economic Forecasting**

Presents forecasting techniques for the economic variables necessary for planning by business, government and NGOs. The course includes choosing forecasting techniques. The course discusses both how to prepare a forecast and how to attack or defend a forecast.
**Prerequisite(s):** ECON 111 and a junior course in calculus, ECON 214 and a course in statistics taken previously or concurrently.

**ECON 311.3 — 1(3L)**
**Money Banking and Capital Markets**

A study of the evolution and kinds of money, its functions and its economic significance. Topics discussed include theories of the demand for money, the money supply process with particular emphasis on the role of chartered banks, central banking, and financial intermediation. The concepts developed in this analytical survey are then utilized to evaluate recent Canadian monetary policy.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 316.3 — 1(3L)**
**Portfolio Theory and Investment Analysis**

Concerned with the theory of asset choice under conditions of risk and uncertainty. It considers various models of portfolio analysis, and capital market equilibrium.
**Formerly:** ECON 216.
**Prerequisite(s):** ECON 111, 114, 204 (or an equivalent course in statistics), 211 (or 213) and a junior course in calculus.

**ECON 327.6 — 1&2(3L)**
**Economics of Pay Inequality**

Addresses the causes and extent of pay inequality with special emphasis on pay differentials between men and women. The theoretical and empirical material available on pay inequality from the perspective of economics will be studied.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 343.3 — 1(3L)**
**Industrial Organization**

Extends the use of basic price theory to the study of market structure, conduct, and performance results. The major structural characteristics of industries in Canada, and their market conduct and performance in relation to general standards of economic welfare will also be discussed.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 344.3 — 2(3L)**
**Industrial Regulation**

An analysis of the rationale and the public policies designed to affect the market conduct and performance of firms in Canada. Includes an analysis of competition policies, economic regulations, crown corporations, and controls over multinational firms in Canada.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 347.3 — 1(3L)**
**Design and Evaluation of Regional Economic Policy**

This class will consider the theory and practice of the evaluation of public regional policy initiatives.
**Prerequisite(s):** ECON 111, 204, 211 (or 213) and a junior course in calculus.
**Note:** Students with credit for ECON 346 may not take this course for credit.

**ECON 348.3 — 2(3L)**
**Urban Economics**

A consideration of those factors which systematically influence the development and growth of cities, their spatial structure, the markets for selected public services, and some special problems of urban public finance. Selected reference is made to empirical studies of Canadian cities.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 349.3 — 2(3L)**
**Regional Economic Models and Methods**

Using the Arts Computer Lab examines a series of currently-used regional economic models and the practical applications of these models to data sets from various sorts of regions, both Industry-based and resource-based.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 350.3 — 1/2(3L)**
**Economics of Public Expenditures**

A survey of the principles of resource allocation in the public sector in relation to the role and effect of expenditure policies on the achievement of the major economic objectives. Topics include public choice, cost-benefit analysis and major expenditure programs.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 352.3 — 1/2(3L)**
**Economics of Taxation**

A survey of the principles of resource allocation in the public sector in relation to the role and effect of taxation policies on the achievement of the major economic objectives. Topics include the major taxes, fiscal federalism, and growth and the debt.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 354.3 — 1(3L)**
**International Trade and Commercial Policy**

A survey of the theory and practice of international trade and commercial policy. Topics include theories of the determinants of trade, the effects of customs unions, imperfect competition and growth on trading patterns and welfare, and the theory of trade policies.
**Prerequisite(s):** ECON 111, 211 (or 213) and a junior course in calculus.

**ECON 356.3 — 2(3L)**
**International Monetary Economics**

A survey of the theory and practice of the international monetary system. Topics examined include the determination of exchange rates, the international movements of capital, the conditions for balance of payments equilibrium, the process adjustment to disequilibria, and policy options in open economics.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 380.3 — 2(3L)**
**History of Economic Thought after 1870**

The marginal utility theory, marginal productivity theory, neoclassical monetary theory and Keynesian economics; Menger, Jevons, Walras, Wicksteed, Marshall, Wicksell and Keynes, among others.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 387.3 — 2(1S/1T/3P)**
**Economics Career Internship**

Designed to provide students with an opportunity to study economic policy development, the application of economic theory and quantitative methods, and general economic analysis from the perspective of public, private, and non-profit organizations through a combination of on-site observations, directed readings, research and analysis.
**Prerequisite(s):** ECON 111, 211 (or 213), 214, a junior course in calculus when necessary and permission of the department

**ECON 388.3 — 1/2(3L)**
**Selected Topics in Economics**

Theoretical, empirical, and policy topics in microeconomics, macroeconomics, econometrics, or economics history/economic thought. Selected topics are those which are not dealt with or are covered only at an elementary level in other courses.
**Prerequisite(s):** ECON 111, 214, a junior course in calculus, and permission of the department.

**ECON 389.3 — 1/2(3S)**
**Research Project in Economics**

Research work on theoretical, empirical, and policy topics in microeconomics, macroeconomics, econometrics, or economics history/economic thought, under the supervision of members of the department.
**Prerequisite(s):** ECON 111, 214, a junior course in calculus, and permission of the department.

**ECON 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECON 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECON 404.6 — 1&2(3L-1P)**
**Econometrics**

An introduction to the application of econometric methods to the examination of economic problems. The necessary techniques will be examined in both their theoretical and empirical aspects.
**Prerequisite(s):** ECON 111, 204, 214, 305 and a junior course in calculus.
**Note:** Students may not take both ECON 404 and STAT 344 for credit. Students with credit for ECON 404 may count this course for half credit toward a Statistics major.

**ECON 410.3 — 1(3L)**
**Monetary and Fiscal Policy**

Considers the performance, effectiveness and limitation of the tools of macroeconomic policy.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 411.3 — 2(3L)**
**Monetary Theory**

An examination of recent developments in the field of monetary theory. Topics include market-clearing and non-market-clearing models of business cycle fluctuations, rational expectations, the policy ineffectiveness debate, and the time inconsistency of optimal policy.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 412.3 — 2(3L)**
**Welfare Economics and General Equilibrium**

Basic principles of constructing general equilibrium models and systematic review of the principles of welfare theory.
**Prerequisite(s):** ECON 111, 114, 211 (or 213) and a junior course in calculus.

**ECON 414.3 — 2(3L)**
**Economic Growth**

Looks at the fundamental principles and economic truths common to all countries which have set for themselves the objective of growth and development. This includes the economic obstacles to development and the economic means by which developing countries can raise their rates of growth of output and living standards.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 417.3**
**Development Economics**

Studies theories of economic development. Topics include human resources, financial institutions, sectoral composition, international trade, and income distribution.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 450.3 — 1(3L)**
**Strategic Choice**

A study of game theory - the analysis of choice in situations involving strategy, in which optimal behaviour depends explicitly on the behaviour of others. Covers the theories of bargaining games, both cooperative and non-cooperative games, both zero-sum and non-zero-sum games, and the analysis of uncertainty.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 470.3 — 1/2(3L)**
**Economics of Behaviour and Behavioural Economics**

The economics of behaviour and the importance of behavioural assumptions for the analytical predictions of economic theory. The economics of behaviour also has significant implications for public and private economic policy and decision making, which will be discussed in some detail in this course in the context of an analysis of the overlapping and competing theoretical frameworks for human agency used by economists.
**Prerequisite(s):** ECON 111, 214 and a junior course in calculus.

**ECON 473.3 — 1(3L)**
**Mathematical Introduction to Micro Theory**

Introduction to theories of consumer demand and of cost and production by means of the calculus and linear algebra. The necessary mathematical tools will be taught in the course. Recommended for potential honours and graduate students.
**Prerequisite(s):** ECON 111, 114, 211 (or 213), and a junior course in calculus.

**ECON 474.3 — 2(3L)**
**Mathematical Micro Theory**

Some modern theories of consumer demand to be followed by linear models of the firm: revealed preference, demand under risk and uncertainty, characteristics theory of demand, input/output analysis and linear programming. This course is an extension of ECON 473.
**Prerequisite(s):** ECON 111, 473 and a junior course in calculus.

**ECON 488.3 — 1/2(3L)**
**Selected Topics in Economics**

Theoretical, empirical questions, or policy topics in microeconomics, macroeconomics, econometrics, or economic history/economic thought. Selected topics are those which are not dealt with or are covered only at an elementary level in other courses.
**Prerequisite(s):** ECON 111, 214, a junior course in calculus and permission the department.

**ECON 489.3 — 1/2(3S)**
**Research Project in Economics**

Research work on theoretical, empirical, and policy topics in microeconomics, macroeconomics, econometrics, or economics history/economic thought, under the supervision of members of the department.
**Prerequisite(s):** ECON 111, 214, a junior course in calculus, and permission of the department.

**ECON 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECON 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ECUR — CURRICULUM STUDIES

Department of Curriculum Studies, College of Education

**ECUR 200.3 — 1&2(3L-1.5P)**
**Curriculum and Instruction**

Introduces students to the fundamental processes of curriculum development and teaching. Sets out a conceptual framework (the transmission, transaction and transformation modes of curriculum) and uses that structure to present and critique the K-12 core program of the province. The laboratory component provides students with experiences in learning how to teach, resource-based learning, and the preparation of pedagogical materials.
**Prerequisite(s):** EFDT 101 (or corequisite for Sequential Program students).
**Note:** Students with credit for ECUR 201 may not take this course for credit.

**ECUR 201.3 — 1/2(3L)**
**Curriculum and Instruction for Teacher Associates**

Introduces students in the Teacher Associate Certificate Program to the fundamental processes of curriculum development and teaching. Provides students with experiences in learning how to present material through a variety of teaching strategies.
**Prerequisite(s):** EFDT 101 (or corequisite for Sequential Program students).
**Note:** Students with credit for ECUR 200 may not take this course for credit.

**ECUR 203.3 — 1/2(3L)**
**Heritage Languages and Cultural Arts**

Focuses on the use of the arts of various cultures in order to deepen students' appreciation of the link between arts, language, and culture. It will encourage students to use the arts in the teaching of language. This course is only for students taking the Heritage Languages certificate, funded by the Saskatchewan Intercultural Association and arranged by the Division of Extension. This course cannot subsequently be used for degree credit.

**ECUR 273.3 — 1(3L)**
**Oracy and Literature Elementary**

An introduction to the methods available to elementary classroom instructors in the integrated language arts: reading, writing, listening and speaking. Focuses on the oracy, literature and educational drama aspects of the language arts.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and EFDT 101.
**Note:** Students with credit for ECUR 270 or 275 may not take this course for credit.

**ECUR 275.3 — 1(3L)**
**Introduction to Oracy and Literature Middle Years**

Introduction to the methods available to middle years classroom instructors in the integrated language arts: reading, writing, listening and speaking. Focuses on the oracy, literature and educational drama aspects of the language arts.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and EFDT 101.
**Note:** Students with credit for ECUR 270 or 273 may not take this course for credit.

**ECUR 279.3 — 1(3L)**
**Introduction to Literacy Secondary**

Provides students with an understanding of secondary education literacy issues in order to improve instruction in content areas through appropriate reading, writing, and oracy strategies. Topics include strategic reading, study skills, writing processes, technical and vocational reading and writing, vocabulary development, assessment, materials selection, computers and resource-based learning, and equity issues.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and EFDT 101.

**ECUR 291.3 — 1/2(3L)**
**Introduction to Teaching of English as Second Language**

Prepares elementary, secondary and community college teachers to teach English as a second language to non-English speaking children and adults. Students will have an opportunity to study and examine: background; socio-cultural considerations; theoretical considerations about language learning comparison of L1 and L2; analysis of the structure of English; issues and problems inherent in the acquisition of second language; and introduction to specific instructional techniques for teaching a second language.
**Prerequisite(s):** ENG 110 or equivalent.

**ECUR 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECUR 301.6 — 1&2(3L) or SP(10L)**
**Teaching Procedures Elementary**

An overview and critical assessment of existing practices and of new movements in elementary education. Students will be required to do a considerable amount of reading of the literature in selected journals. Topics include: Children, their needs and motives; Society's concern for education; The content of elementary education; Planning for instruction: Selecting objectives, Utilizing staff resources, Utilizing space and curriculum resources, Meeting individual differences, Methods in selected subjects of the curriculum, Measurement and evaluation, Reporting.

**ECUR 305.3 — 2(2L-1S)**
**Methods for Multi Grade Classrooms**

Introduces students to the Multi-grade Classroom as an organizational unit for instructional purposes in rural and urban school districts. Emphasis is on the instructional strategies utilized by multi-grade classroom teachers and on the management and organizational skills necessary for teaching in such classrooms.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 311.3 — 1(3L)**
**Methods in K to 9 Mathematics I**

Designed to prepare students for teaching K-9 provincial mathematics curriculum and to improve their knowledge of mathematics, especially in the areas of problem solving, data management, numeration, calculation, and fractions. Students will become familiar with the current curriculum and useful support materials including manipulatives, print resources and other useful media.
**Prerequisite(s) or Corequisite(s):** ECUR 200 or permission of the department.
**Note:** Only for students in the ITEP and SUNTEP programs. Completion of both ECUR 311 and ECUR 316 satisfy the math methods and External math requirements for the College of Education. Completion of only one of these courses will satisfy neither requirement.

**ECUR 312.3 — 1/2(3L)**
**Methods in Elementary Mathematics**

Helps prospective elementary school teachers develop instructional techniques that reflect current knowledge of mathematics, learning theories such as constructivism, and classroom practice. It includes the K-5 elementary mathematics curriculum and useful resource materials including manipulatives, textbooks and other print material, computer software, videos, calculators, and children's literature.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of ECUR 312, 313, 315 and 317.

**ECUR 316.3 — 2(3L)**
**Methods in K to 9 Mathematics II**

Designed to prepare students for teaching K-9 provincial mathematics curriculum and to improve their knowledge of mathematics, especially in the areas of measurement including the Pythagorean theorem, geometry, (polygon properties, symmetry, tessellations), ratio and proportion, integers, and number theory. Students will become familiar with the current curriculum and useful support materials including manipulatives, print resources and other useful media.
**Prerequisite(s) or Corequisite(s):** ECUR 200 or permission of the department.
**Note:** Only for students in the ITEP and SUNTEP programs. Completion of both ECUR 311 and ECUR 316 satisfy the math methods and External math requirements for the College of Education. Completion of only one of these courses will satisfy neither requirement.

**ECUR 317.3 — 1/2(3L)**
**Methods in Middle Years Mathematics**

Helps prospective middle years teachers develop instructional techniques that reflect current knowledge of mathematics, learning theories such as constructivism, and classroom practice. Students will become familiar with the Grade 6-9 mathematics curriculum and useful resource materials including manipulatives, textbooks and other print material, computer software, videos and calculators.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of ECUR 312, 313, 315 and 317.

**ECUR 318.3 — 1/2(3L)**
**Methods in Secondary Mathematics**

An introductory mathematics methods course for prospective secondary students. Topics include the current secondary mathematics curriculum, forces affecting the curriculum, and teaching methodology. Emphasis is on the development of problem solving skills, the use of manipulatives, and the use of computational technology to support instruction in mathematics.
**Prerequisite(s):** 12 credit units in mathematics.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 322.3 — 1/2(3L)**
**Methods in Elementary Science**

Students will be introduced to teaching children science and to the Saskatchewan Science Curriculum for the Elementary Level. Various methods and resources needed to teach the Curriculum at this level will be demonstrated. Specific issues related to Science Education will be explored.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**Note:** Students may receive credit for only one of ECUR 322, 323, 324 and 325.

**ECUR 324.3 — 1/2(3L)**
**Methods in Middle Years Science**

Students will be introduced to teaching middle level students science and the Saskatchewan Science Curriculum for the Middle Level. Various methods and resources needed to teach the Curriculum at this level will be demonstrated. Specific issues related to Science Education will be explored.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of ECUR 322, 323, 324 and 325.

**ECUR 327.3 — 2(3L)**
**Methods in Secondary Life Sciences**

Students will develop and demonstrate an informed and practical philosophy of teaching the life sciences by exploring the nature of science, reflecting on the pedagogical implications of provincial science curriculum intentions and examining how current research in science education informs planning, the development of resource materials, and teaching methodologies.
**Prerequisite(s):** BIOL 253 (or introductory university-level course in ecology) and 9 other credit units in biology.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 328.3 — 2(3L)**
**Methods in Physical Sciences**

Students will develop a series of conceptual frameworks that have practical implications for reflecting on classroom practice. Topics include: curriculum intentions, the nature of the scientific enterprise, concept development, assessment and evaluation, and pedagogical methods and strategies that support curriculum intentions.
**Prerequisite(s):** 12 credit units in chemistry, geology, physical geography or physics.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 337.3 — 2(2L-1P)**
**Methods in Secondary Home Economics**

Introduces students to home economics education for secondary schools. Provides opportunities for examining Saskatchewan home economics and related curricula, exploring various teaching strategies, developing resource files, integrating concepts with other subject areas, and identifying and analyzing current issues and trends in home economics education.
**Prerequisite(s):** ECUR 200 and HED 111 and HED 142 or permission of the department head.

**ECUR 349.3 — 2(3L)**
**Methods in Middle Years and Secondary Drama**

Designed for pre-service teachers of middle and secondary level drama programs. Students will both explore the theoretical bases of drama education and participate in dramatic activities for use both in and out of the classroom.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and the completion of at least 12 credit units in drama.

**ECUR 352.3 — 1/2(2L-1P)**
**Methods in Elementary Physical Education**

Familiarizes elementary students with theoretical and practical material in Physical Education at the elementary school level. Particular emphasis will be placed upon the selection of the movement activities and their progression as related to growth and development characteristics of the elementary school child.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and KIN 145 or KIN 121.
**Note:** Students may receive credit for only one of ECUR 352, 353, 355 and 356.

**ECUR 356.3 — 1/2(2L-1P)**
**Methods in Middle Years Physical Education**

Familiarizes middle years students with theoretical and practical material in Physical Education at the middle years school level. Particular emphasis will be placed upon the selection of the movement activities and their progression as related to growth and development characteristics of the adolescent child.
**Prerequisite(s) or Corequisite(s):** ECUR 200 and KIN 145 or KIN 121.
**Note:** Students may receive credit for only one of ECUR 352, 353, 355 and 356.

**ECUR 357.3 — 2(3L)**
**Methods in Secondary Physical Education**

For prospective secondary teachers of physical education. The philosophy, objectives, teaching methods, and evaluation of secondary school physical education programs are emphasized. Students are given opportunities to gain experience in planning, implementing and evaluating physical education classes and programs.
**Prerequisite(s) or Corequisite(s):** ECUR 200 or permission of the department head.

**ECUR 362.3 — 1/2(3L)**
**Introduction to Principles and Practices of Second Language Teaching**

For prospective teachers of any second language offered in elementary and secondary schools. Involves a study of major theories of second language acquisition and use in various contexts, and their relevance to language teaching approaches. Emphasis is on communicative/experiential and content-based approaches.
**Prerequisite(s):** Excepting ESL students, at least 12 credit units in a modern language, other than English.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 370.3 — 2(3L)**
**Introduction to Elementary Literacy Education**

Introduction to elementary classroom instruction in the integrated language arts: reading, writing, listening and speaking. Highlights reading and writing. Emphasizes instructional principles and strategies through the integration of theory and practice.
**Prerequisite(s):** ECUR 200 and 273 or 275.
**Note:** Students with credit for ECUR 376 may not take this course for credit.

**ECUR 371.3 — 1/2(3L)**
**Developing Writing Abilities**

Develops English writing skills and abilities. Some sections make use of computers and other technologies exclusively for instruction.
**Prerequisite(s):** ECUR 200.
**Note:** Students in the secondary option with English as Teaching Area I or II must take either ECUR 371 or ECUR 472.

**ECUR 373.3 — 2(3L)**
**Childrens Literature Elementary**

For students preparing to teach reading and language arts to children in grades K-4. An integral part will be to establish a basis for evaluating and selecting books for classrooms. Students will be expected to read at least thirty books chosen from folk literature, poetry, fantasy, and fiction.
**Prerequisite(s):** ECUR 200 and 370.

**ECUR 376.3 — 2(3L)**
**Introduction to Literacy Education Middle Grades**

Compulsory for students in the middle years program. An introduction to middle years classroom instruction in the integrated language arts: reading, writing, listening and speaking. Highlights reading and writing. Emphasizes instructional principles and strategies through the integration of theory and practice.
**Prerequisite(s):** ECUR 200, 273 or 275.
**Note:** Students with credit for ECUR 370 may not take this course for credit.

**ECUR 378.3 — 2(3L)**
**Creative Activities in Elementary and Middle Years Language Arts**

Deals with the philosophy, materials and methods for introducing creative activities including dramatization of literature and dance. The significance and function of drama in the language arts and other subject areas will be explored.
**Prerequisite(s):** ECUR 200 and Student Teaching.

**ECUR 379.3 — 2(3L)**
**Introductory Methods in Secondary English Language Arts**

Introduction to classroom instruction in English language arts, with a special focus on preparation for Extended Practicum. Topics include provincial curriculum, materials selection and preparation; instructional strategies for English language arts, integration of literature, language, reading, writing, speaking, and listening and student assessment.
**Prerequisite(s):** ECUR 200 and 12 credit units in English.

**ECUR 382.3 — 1/2(3L)**
**Methods in Elementary Social Studies**

Focuses on teaching Social Studies in primary and elementary schools. It is an activity-oriented course which provides students with opportunities to participate in instructional methods and approaches for children.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of ECUR 382, 383, 385 and 387.

**ECUR 386.3 — 1/2(3L)**
**Methods in Secondary Social Studies**

Identifies major concepts selected from history, geography and other social sciences. Emphasis is placed upon the learner's ability to demonstrate skill in selecting methods, strategies, materials and forms of evaluation in social studies. In turn, there will be an in-depth examination of the Saskatchewan secondary social studies curriculum.

**Prerequisite(s):** 12 credit units in history, human geography, economics, or native studies.
**Prerequisite(s) or Corequisite(s):** ECUR 200.

**ECUR 387.3 — 1/2(3L)**
**Methods in Middle Years Social Studies**

Introduces students to Social Studies education at the middle years level including examination of its disciplinary foundations and issues central to recent developments in the field. Emphasis will be on instructional methods and classroom approaches congruent with the goal of developing reflective and responsible citizens for a multicultural society.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of ECUR 382, 383, 385 and 387.

**ECUR 391.3 — 1/2(3L)**
**Theory of Second Language Learning and Methods of Skills Development**

The second of a 3-course sequence designed to prepare elementary, secondary, and community college teachers to teach English as a second language to non-English speaking children and adults. Includes second language learning theories, the psychology of second language learning, ESL Materials, analysis of written language, materials of teaching, and oral language in the ESL program and the evaluation of oral language.
**Prerequisite(s):** ECUR 291 or equivalent and permission of the department.

**ECUR 392.3 — 2(3L)**
**Methods in Elementary and Middle Years Religion**

Reviews the methods of teaching religious education in the elementary and middle school. The curriculum requirements of the Department of Education will be examined, and the appropriate methods for teaching these requirements will be reviewed in the context of the child's faith development and the specific school situations in which the teaching will occur.
**Prerequisite(s):** 12 credit units in Religious Studies or permission of the department head.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students with credit for ECUR 394 may not take this course for credit.

**ECUR 393.3 — 1/2(3L)**
**Advanced Methods in Teaching English as Second Language**

Provides for intensive training in the theories and techniques of English as a second language; the extensive development of learning materials; the development of techniques of assessing students' problems in speaking and writing English; developing techniques for solving existing problems and for providing the opportunity to study more intensively the structure of the English language.
**Prerequisite(s):** ECUR 391 or equivalent and permission of the department.

**ECUR 394.3 — 2(3L)**
**Methods in Secondary Religion**

Reviews the methods of teaching religious education in the secondary school. The curriculum requirements of the Department of Education will be examined, and the appropriate methods for teaching these requirements will be reviewed in the context of adolescent faith development and the specific school context and situation in which the teaching will occur.
**Prerequisite(s):** 12 credit units in Religious Studies.
**Corequisite(s):** ECUR 200.
**Note:** Students with credit for ECUR 392 may not take this course for credit.

**ECUR 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ECUR 400.3**
**Curriculum and Instruction for Saskatchewan Secondary Schools**

Enables students with a teaching certificate or an education degree from another jurisdiction to plan for instruction in their minor teaching area. Plans will demonstrate an understanding of Saskatchewan curricula, include the use of generic and subject-specific instructional methods, and be designed to accommodate cultural diversity (particularly the needs of Metis and First Nations students).
**Prerequisite(s):** Teaching Certificate or a B.Ed. degree and permission of the department.

**ECUR 401.3 — 2(2L-1P)**
**Teaching and Learning in Community Education**

Provides students who have completed their Extended Practicum with additional practical experience in community education in the Saskatchewan context. Students study issues of intercultural education in urban settings, and are expected to spend at least twenty hours working in community schools and other organizational settings.
**Prerequisite(s):** Completion of the Extended Practicum.

**ECUR 402.3 — 1/2(3L)**
**Language Schools Society**

Provides students with a solid understanding of the nature of language, language and learning, language in schools and society, and language as a human construct.
**Prerequisite(s) or Corequisite(s):** EFDT 101.

**ECUR 405.3 — 2(2L-1S)**
**Seminar on Learning and Teaching in Middle Years**

Seminar on trends and issues in middle years education. Involves directed readings, seminar discussions, preparation of written work, field trips, and other experiences to aid students in integrating knowledge and abilities acquired from other courses and the extended practicum.
**Prerequisite(s):** EXPR 402.

**ECUR 406.3 — 2(3L)**
**Curriculum Development Post Internship**

Students learn the fundamentals of curriculum development within a transactional tradition, critique curricula in their teaching areas, and undertake a curriculum development project in their teaching areas.
**Prerequisite(s):** EXPR 402.
**Note:** For students in areas where no advanced methods courses are available, this course is the preferred alternative.

**ECUR 410.3 — 2(2L-1P)**
**Diagnostic Prescriptive Mathematics**

Acquaints students with the diagnostic-prescriptive model of instruction. Students learn to use a variety of formal and informal diagnostic approaches to design appropriate corrective instruction for all students but particularly for special needs students. A weekly practicum with at least one student experiencing difficulties with mathematics is required.
**Prerequisite(s):** One of: ECUR 312, 317, 318, or 311 and 316; and EXPR 402.

**ECUR 418.3 — 2(3L)**
**Advanced Methods in Secondary Mathematics**

Provides opportunities for secondary program students to reflect on previous courses, to research and report on topics related to their Extended Practicum experiences, and to investigate available technologies for teaching mathematics.
**Prerequisite(s):** ECUR 318 and EXPR 402.

**ECUR 421.3 — 2(3L)**
**Epistemology and Sociology of Science**

Students examine how scientists know what they know, what kind of knowledge this is, how the social and technological milieu interacts with scientists and their knowledge, and implications for teaching science. Emphasis is given to analyzing scientific events from a number of different perspectives: historical, philosophical, sociological, and pedagogical.
**Prerequisite(s):** ECUR 200 and 18 credit units in the natural sciences.

**ECUR 423.3 — 2(3L)**
**Advanced Methods in Science**

Provides beginning teachers the opportunity through seminars, reflection on their internship experience, research, and critical exploration of curriculum materials to extend and develop from previous studies of science education the knowledge, leadership skills and expertise for excellence in teaching science
**Prerequisite(s):** One of ECUR 322, 324, 327 or 328; and EXPR 402; and 12 credit units in the natural sciences.

**ECUR 442.3 — 2(3L)**
**Emergent Literacy in Elementary English Language Arts**

Develops an understanding of literacy as social-cultural practice. Emphasis is on the relationship between talk, reading and writing and the young child's own environment in varying cultural and cross-cultural contexts. Students will explore instructional and assessment strategies to support young children's emerging literacy in primary classrooms.
**Prerequisite(s):** ECUR 370.

**ECUR 444.3 — 2(3L)**
**Assessment and Instruction of Children Experiencing Reading Difficulties**

Examines procedures and materials for assessing and teaching children who experience difficulty acquiring reading proficiency. The use of daily classroom data and the making of appropriate interventions to foster inner control will be emphasized within the context of the regular classroom.
**Prerequisite(s):** ECUR 370 or 376 and EXPR 402.

**ECUR 457.3 — 2(3L)**

**Advanced Methods in Teaching Physical Education in Secondary Schools**

Provides an opportunity for post-internship students to reflect on the practical experience of teaching physical education within the school system. The challenges of professional practice will be explored from the teacher's perspective, in conjunction with trends and issues observed in the field.
**Prerequisite(s):** EXPR 402 and ECUR 357.

**ECUR 462.3 — 2(3L)**
**Advanced Methods in Elementary and Middle Years French as Second Language**

Allows students to apply the major principles of second language teaching to practical situations in the elementary and middle years. Emphasizes practicing appropriate elementary and middle years language teaching methods, designing communicative activities, communicative lesson planning and implementation, experiential unit planning, examining and using elementary and middle years curriculum guides and commercial programs, and using communicative assessment techniques.
**Prerequisite(s):** EXPR 402 and intermediate-level proficiency in French.
**Note:** Students with credit for ECUR 463 may not take this course for credit.

**ECUR 463.3 — 2(3L)**
**Advanced Methods in Secondary French as Second Language**

Allows students to apply the major principles of second language teaching to practical situations in the secondary school. Emphasizes practicing appropriate language teaching methods and designing communicative activities appropriate to the secondary school, communicative lesson planning and implementation, experiential unit planning, examining and using curriculum guides and commercial programs for the secondary school, and using communicative assessment techniques.
**Prerequisite(s):** EXPR 402 and intermediate-level proficiency in French.
**Note:** Students with credit for ECUR 462 may not take this course for credit.

**ECUR 472.3 — 2(3L)**
**Methods in Middle Years and Secondary Writing**

For middle, secondary, and post-secondary teachers of any discipline. Topics include writing process, development of students' writing abilities, evaluation, remediation, grammar and usage, ESL writers, and equity issues. Some sections of this course will use computers and email.
**Prerequisite(s):** ECUR 200.
**Note:** Students in the secondary option with English as Teaching Area I or II must take either ECUR 371 or ECUR 472.

**ECUR 475.3 — 2(3L)**
**Study of Language for Secondary Teachers**

Studies aspects of structural linguistics, traditional grammar, transformational/generative grammar, systemic/functional grammar, and language content, usage, and conventions to enable teachers to develop and evaluate language programs.
**Prerequisite(s):** ECUR 200 and 370 or 376 or 379.
**Note:** Students in the secondary option with English as Teaching Area I or II must take this course.

**ECUR 476.3 — 2(2L-1S)**
**Canadian Literature for Children K to 8**

Introduction to Canadian children's literature followed by an exploration of ways to use this literature in teaching several subject-specific pedagogies in the curriculum (K-8). Topics include history of Canadian children's literature, genres, trends and issues, program development, and available forms of assessment.
**Prerequisite(s):** ECUR 370 or 376 or 379.

**ECUR 479.3 — 2(3L)**
**Advanced Methods in Secondary English Language Arts**

Students reflect on their previous methods courses and Extended Practicum experience and extend their awareness of the teaching of English language arts. Combination of lectures and student seminar presentations which will be in direct response to the students' experiences in the Extended Practicum.
**Prerequisite(s):** ECUR 376 or 379 and EXPR 402.

**ECUR 482.3 — 2(3L)**
**Advanced Methods in Elementary and Middle Years Social Studies**

Focuses on a critical analysis and comparison of a variety of methods and techniques. Topics include values education, inquiry, gender equality, aboriginal issues, multiculturalism, global studies and futurism.
**Prerequisite(s):** ECUR 382 or 387 and EXPR 402.

**ECUR 488.3 — 2(3L)**
**Advanced Methods in Secondary Social Studies**

A critical analysis of the methodological approaches for teaching secondary school social studies. New programs, curricula and materials will be examined (and developed) in light of the compelling need to include the historical contributions of women, aboriginal peoples, and other groups, in social studies curricula.
**Prerequisite(s):** ECUR 386 and EXPR 402.

**ECUR 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EDST — EDUCATION STUDENT TEACHING

College of Education

**EDST 103.0**
**Student Teaching Sequential Program Elementary Middle Years Secondary Year 3**

Involves directed observation and participation in a school classroom under the guidance of a cooperating teacher. It takes place in the second term of the third year of the Sequential program. The course carries no credit, but is a program requirement.
**Prerequisite(s):** Admission to the Sequential Program.

**EDST 130.0**
**Student Teaching BEd BMusMusEd Elementary Middle Years Year 1**

Involves one week of directed observation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Admission to the B.Ed./B.Mus.(Mus.Ed.) Program.

**EDST 137.0**
**Student Teaching BEd BMusMusEd Secondary Year 1**

Involves one week of directed observation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Admission to the B.Ed./B.Mus.(Mus.Ed.) Program.

**EDST 200.0**
**Student Teaching**

Involves demonstrations of teaching competence in a second-language classroom setting. The course carries no credit but is a requirement for the Certificate in Methods of Teaching Heritage Languages program.

**EDST 213.0**
**Student Teaching Concurrent Program Elementary Middle Years Secondary Year 2**

Involves directed observation and participation in a school classroom. It consists of a two-week experience in rural Saskatchewan after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Education courses in Years 1 & 2.

**EDST 230.0**
**Student Teaching BEd BMusMusEd Elementary Middle Years Year 2**

Involves three weeks of directed observation and participation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1 & 2 Education courses and EDST 130.

**EDST 237.0**
**Student Teaching BEd BMusMusEd Secondary Year 2**

Involves three weeks of directed observation and participation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1 & 2 Education courses and EDST 137.

**EDST 303.0**
**Student Teaching Concurrent Program Elementary Middle Years Year 3**

Involves directed observation and participation in a school classroom and consists of a two-week experience in rural Saskatchewan after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2 & 3 Education courses and EDST 213.

**EDST 304.0**
**Student Teaching Concurrent Program Secondary Year 3**

Involves directed observation and participation in a school classroom and consists of a two-week experience in rural Saskatchewan after the conclusion of final

examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2 & 3 Education courses and EDST 213.

**EDST 330.0**
**Student Teaching BEd BMusMusEd Elementary Middle Years Year 3**

Involves three weeks of directed observation and participation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2 & 3 Education courses and EDST 230.

**EDST 337.0**
**Student Teaching BEd BMusMusEd Secondary Year 3**

Involves three weeks of directed observation and participation in a music classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2 & 3 Education courses and EDST 237.

**EDST 420.0**
**Student Teaching BEd BMusMusEd Elementary Middle Years Year 4**

Involves three weeks of directed observation and participation in a regular classroom after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2, 3, & 4 Education courses and EDST 330.

**EDST 427.0**
**Student Teaching BEd BMusMusEd Secondary Year 4**

Involves three weeks of directed observation and participation in a Teaching Area II after the conclusion of final examinations. The course carries no credit but is a program requirement.
**Prerequisite(s):** Completion of Years 1, 2, 3, & 4 Education courses and EDST 337.

**EDST 497.3**
**Advanced Student Teaching**

This elective course is intended to provide a Saskatchewan-based school experience, supplemental to required school experiences. It is open to students who have completed at least one school experience previously. Approval of the Administrative Coordinator of the Centre for School Based Experiences is required.
**Prerequisite(s):** EDST 103, 213, 420 or 427.

**EDST 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EDUC — EDUCATION

College of Education

**EDUC 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EE — ELECTRICAL ENGINEERING

Department of Electrical Engineering, College of Engineering

**EE 201.3 — 1(3L-3P alt weeks)**
**Electric and Magnetic Circuits II**

Topics include magnetic fields, series and parallel magnetic circuits; electromagnetic induction, self and mutual inductances, transients in R-L circuits; generator and motor actions; waveform and frequency, average and rms values; voltage drops in R, L and C circuits; phasor representations of sinusoidal quantities; single phase series and parallel ac circuits; apparent, real and reactive powers, complex power, power factor; ammeters, voltmeters, wattmeters, and multimeters, impedance and frequency measurements.
**Prerequisite(s):** MATH 124 and PHYS 155 (or EP 155).

**EE 212.3 — 2(3L)**
**Passive AC Circuits**

Basic concepts in AC circuits, power factor, real, reactive and complex power. Loop and nodal analysis, circuit theorems and their application in AC circuits. Wye-delta transformation, series and parallel resonance, circuit response to variable frequencies. Circuit representation of transformers, utilization of the per unit system, Polyphase system, three phase 3-wire and 4-wire systems, star and wye connections, balanced and unbalanced three phase systems, power measurement in three phase systems.
**Prerequisite(s):** MATH 124 and EE 201.

**EE 214.3 — 2(3L)**
**System Modelling and Network Analysis**

Deriving differential equations for electrical and mechanical systems, solving differential equations for initial conditions and a step input, the Laplace transform, Second Order Systems, solving transient response by the Laplace transform, Simulation with Matlab/Simulink, Frequency Response, Passive Filters, Network Synthesis, Two-Port Networks.
**Prerequisite(s):** MATH 124 and EE 201.

**EE 216.3 — 1(3L)**
**Probability Statistics and Numerical Methods**

Tabular and graphical representation of data, Probability, Random variables and discrete probability distributions, Continuous probability distributions, expectation, confidence interval, Testing of hypotheses, Method of least squares, Software packages for statistical analyses. Numerical Methods: Random numbers and random sampling, Interpolation and spline functions, Solutions of equations in one variable, solutions of systems of linear equations, Numerical differentiation and numerical integration, Solutions of differential equations, Fast Fourier Transform, Optimization.
**Prerequisite(s):** MATH 124.

**EE 221.3 — 1(3L-.5P)**
**Analog Electronics**

Introduction to solid state electronics. Emphasis is on circuit design concepts with extensive discussion on diodes and diode circuits and on bipolar junction transistors (BJT) and field effect transistors (FET) as amplifiers and as switches.
**Corequisite(s):** EE 201.

**EE 232.3 — 2(3L)**
**Digital Electronics**

An introduction to digital logic including combinational and sequential logic devices and circuits. Covers the range from the fundamentals of Boolean algebra and the binary number systems to combinational and sequential circuit functional blocks such as adders, multiplexers, counters and state machines. Some coverage is also given to electronic characteristics of real logic devices and field programmable gate arrays (FPGA).
**Prerequisite(s):** EE 221.

**EE 271.3 — 1(3L-.5P)**
**Materials and Heat Transport in Electrical Engineering**

Basic concepts in materials science, crystals, kinetic theory, heat capacity, thermal fluctuations, Boltzmann equation, x-ray diffraction, crystal imperfections, solid solutions, alloys, mechanical properties, electrical properties, thermal properties, heat transport by thermal conduction, radiation and convection; and applications of these concepts in electrical engineering. Practicum and design based on these topics.
**Prerequisite(s):** CHEM 114 and PHYS 155 (or EP 155).

**EE 290.1 — 1(1L-2P)**
**Computer Tools for Engineering Analysis**

An introduction to computer tools useful in analyzing and solving engineering problems. A data flow based tool (MATLAB) and a time flow based tool (SIMULINK) are covered at an introductory level. Practical use of the tool is obtained by solving a variety of engineering problems arising from first year classes.
**Prerequisite(s):** PHYS 155 (EP155), GE 120, GE 125 and MATH 124.

**EE 292.2 — 2(3P)**
**Electrical Engineering Laboratory I**

Experiments related to Passive AC circuits, Analog Electronics and Digital Electronics. Introduction to Electrical Engineering laboratory equipment and experimental methods.
**Corequisite(s):** EE 212 and 232.

**EE 301.3 — 1(3L)**
**Electricity Magnetism and Fields**

Review of vector calculus, static electric and magnetic field theory and its extension into time varying E and M fields, interaction between fields and materials, transmission line, wave guide and antenna fields.
**Prerequisite(s):** PHYS 227 or (EE 201 and EE 212), and MATH 223.

**EE 311.3 — 1(3L-1.5P)**
**Electronics**

An introductory service course in electronics. Topics include Thevenin's theorem, Norton's theorem, operational amplifiers, filters, an introduction to diodes, BJT, FET, diode circuits, and electronic amplifiers. Digital electronics, Boolean algebra, shift registers, and memory devices.
**Prerequisite(s):** EE 201.
**Note:** Electrical Engineering students may not take this course for credit.

**EE 314.3 — 1(3L-1.5P)**
**Electrical Power Systems**

An introduction to three-phase power circuits and fundamentals to dc, ac induction type and synchronous machines.
**Prerequisite(s):** EE 201 and MATH 224.
**Note:** Electrical Engineering students may not take this course for credit.

**EE 323.3 — 1(3L)**
**Electronic Instrumentation**

Topics include: operational amplifier circuits, such as instrumentation amplifier, active filters, and precision rectifers; noise sources and noise reduction techniques; transducers; virtual instrumentation; analog and digital interfacing such as A/D converters, D/A converters, sample and hold circuits, and digital instrumentation buses.
**Prerequisite(s):** EE 221 and EE 232.

**EE 331.3 — 1(3L)**
**Microprocessor Hardware and Software**

Covers the architecture and operation of microprocessors and memory devices, linking together of logic devices. The assembler language is introduced to program low level functionality of microprocessors.
**Prerequisite(s):** EE 232.

**EE 332.3 — 2(3L)**
**Real Time Computing**

Provides an introduction to real-time systems. In addition, the course covers embedded processor systems (micro-controller) and application specific I/O interfacing techniques. This course also covers the linking together of logic devices and interfacing digital logic with analog inputs and outputs.
**Prerequisite(s):** EE 232 and 331.

**EE 341.3 — 2(3L)**
**Electric Machines I**

Basic concepts of transformers: transformer on no-load, equivalent circuit, transformer tests, transformer performance, three-phase transformers. Direct current machines: field excitation, commutation, armature windings, armature reaction, saturation curve, voltage buildup in a dc generator, steady-state operating characteristics of dc generators, dc motors, speed regulation of dc motors, steady-state operating characteristics of dc motors, torque-speed characteristics of dc motors, starting of dc motors, losses and efficiency of dc machines. Three-phase induction motors: synchronous speed and slip, rotating magnetic field, equivalent circuit of an induction motor, no load and locked rotor tests, torque-slip curve of an induction motor, losses and efficiency, starting of induction motors, speed control of induction motors, single-phase induction motors.
**Prerequisite(s):** EE 212.

**EE 342.3 — 1(3L)**
**Power Systems I**

This course covers generation of energy, components of a modern power system, three-phase systems; voltage, current and power calculations, per-unit system, modelling of transformers, single-line diagrams, Inductance and capacitance calculations of single- and three-phase lines, transmission lines; modeling, steady-state operation and compensation, power system controls; local and central controls.
**Prerequisite(s):** EE 212.

**EE 344.3 — 2(3L)**
**Power Electronics**

Introduction to switching devices: volt-ampere characteristics of BJTs, thyristors, GTOs, IGBT and MOSFETS, switching losses. Average, rms and peak current and voltage ratings of power electronic devices. Commutation of power electronic devices; analyses of uncontrolled and controlled converter circuits, single-phase and three-phase AC-DC converters, DC drives. Principle of DC to DC conversion: analyses of boost and buck choppers. Principle of DC to AC conversion, application of inverters, analysis of inverter circuits, voltage control in inverter circuits, reduction of output harmonics in inverters. Snubber circuits. Emphasis will be placed, throughout the course, on the utilization of software application packages.
**Prerequisite(s):** EE 323.
**Corequisite(s):** EE 341.

**EE 351.3 — 1(3L)**
**Spectrum Analysis and Discrete Time Systems**

This course reviews input/output relationship from the perspective of linear differential equations and introduces convolution integrals as a general solution. Mathematical concepts of spectrum, the Fourier series for periodic signals and the Fourier transform for aperiodic signals, are covered to understand the spectrum of signals based on continuous time. Then, starting from sampling and related phenomena, discrete time base is introduced leading toward difference equations and the z-transform. Following the full discussion of the z-transform, basic concepts of DSP and the use of FFT are briefly covered.
**Prerequisite(s):** MATH 223, 224 and EE 214.

**EE 352.3 — 2(3L)**
**Communication Systems**

The course provides an introduction to communication systems beginning with digital signal representation and digital transmission. Frequency translation and amplitude modulation are discussed including the variants of DSB, SSB, VSB and QAM.
**Prerequisite(s):** EE 351.

**EE 362.3 — 2(3L)**
**Digital Signal Processing I**

Representation of signals and systems in discrete time functions and in z-transform, digital system response by difference equations, digital filters, convolution and correlation, frequency analysis, discrete time Fourier transform (DFT).
**Prerequisite(s):** EE 351.

**EE 372.3 — 1(3L)**
**Electronic Devices**

Quantum physics, Schrödinger equation, quantized energy levels, quantum numbers, photons, bonding, energy bands, electron statistics, semiconductor basics, extrinsic semiconductors, pn junction, pn junction characteristics and models, bipolar junction transistor (BJT), junction field effect transistor (JFET), metal-oxide-semiconductor transistor (MOST), enhancement and depletion MOSFETs, BJT, JFET and MOS transistor equations, biasing, amplifier circuits and small signal parameters and models.
**Prerequisite(s):** EE 201 and 271.

**EE 391.3 — 1(6P)**
**Electrical Engineering Laboratory II**

Laboratory experiments and exercises of design software packages for the corequisite courses.
**Prerequisite(s):** EE 292.
**Corequisite(s):** EE 323, 331, and 351.

**EE 392.3 — 2(6P)**
**Electrical Engineering Laboratory III**

Laboratory experiments and exercises of design software packages for the corequisite courses.
**Prerequisite(s):** EE 331, 342, 372, 391.
**Corequisite(s):** EE 352; 341 or 362.

**EE 395.3 — 2(1.5L-1.5P)**
**Electrical Engineering Design**

Covers the top down approach applied to engineering design. The students will exercise the approach by designing, building and testing one or two projects. The course also includes aspects of manufacturing engineering and, project organization and control.
**Prerequisite(s):** EE 323.
**Corequisite(s):** GE 300.

**EE 402.3 — 2(3L)**
**Microwave Engineering**

Review of EM field theory, transmission line theory, Smith chart, impedance matching, microwave transmission lines, coaxial and wave guide components, resonators, microwave antennas.
**Prerequisite(s):** EE 301.

**EE 431.3 — 2(3L)**
**Digital Synthesis with Verilog HDL**

This course investigates techniques for designing large digital circuits with the Verilog Hardware Description Language (Verilog HDL). The course focuses on FPGAs; however, the techniques discussed are also applicable to the design of ASICs. The architectures of FPGAs are discussed in general with certain aspects of their internal operation discussed in detail. Emphasis is placed on connecting the Verilog HDL code to the hardware circuit that is constructed by the Verilog compiler and router.
**Prerequisite(s):** EE 232 or EP 321; CMPT 116.

**EE 432.3 — 2(3L)**
**VLSI Circuit Design**

A general introduction to VLSI design, simulation and testing. This includes CMOS cell design, logic simulation, circuit simulation and system design.
**Prerequisite(s):** EE 232; 372 or EP 311; 321.

**EE 441.3 — 1(3L)**
**Power Systems II**

This course covers network calculations; loop and nodal equations; bus impedance and admittance matrices; network equations in matrix form; computer storage; load flow studies; analysis of faulted power systems; symmetrical components; sequence networks; balanced and unbalanced faults; power system stability; swing equation; equal area criterion; and numerical solution of swing equation.
**Prerequisite(s):** EE 342.

**EE 442.3 — 2(3L)**
**Power Systems Operation and Control**

This course looks at economic dispatch; the lossless case; inequality constraints;

consideration of transmission losses; unit commitment; system control; control loops; the automatic voltage regulator; automatic load frequency control of a single-area system; implementation using computers; system protection; subsystems and attributes; zones of protection; transducers; relay design; protection of lines; transformers; generators and busbars; and microprocessor-based relays.
**Prerequisite(s):** EE 342.
**Corequisite(s):** EE 341.

**EE 444.3 — 1(3L)**
**Electric Machines II**

This course deals with magnetic and magnetically coupled circuits, principles of electromechanical energy conversion, synchronous machines, brushless dc machines, Stepper motors, Reluctance motors, Permanent magnet machines, and Dynamic simulation of electric machines.
**Prerequisite(s):** EE 341.

**EE 445.3 — 2(3L)**
**Reliability Engineering**

This course covers basic reliability concepts; elements of probability and statistics; application of important distributions in reliability evaluation; reliability and availability assessment of series; parallel and complex systems; utilization of Monte Carlo simulation in system reliability evaluation; and Markov modelling in discrete and continuous systems.
**Prerequisite(s):** EE 216.

**EE 456.3 — 1(3L)**
**Digital Communication**

Topics include: digital modulation methods; receiver synchronization; noise and bit error ratio in receivers; wireless and satellite communication systems; and spread spectrum communication.
**Prerequisite(s):** EE 216.

**EE 458.3 — 2(3L)**
**Communication Electronics**

An introduction to devices and circuits commonly used in communications systems. Emphasis is on circuits extending into the radio frequency (RF) range, where familiar devices require a new understanding. Topics include resonant circuits, transformers, impedance matching concepts, transmission line hybrids, power amplifiers, frequency multipliers, phase locked loops, oscillators, and frequency synthesizers. This course is intended for students concentrating in the communications area.
**Prerequisite(s):** EE 301.
**Corequisite(s):** EE 352.

**EE 461.3 — 1(3L)**
**Digital Signal Processing II**

This course covers Finite impulse response linear phase filters, infinite impulse response filters, architecture of digital filters, DSP processors and special instruction sets, discrete Fourier transform DFT and fast Fourier transform FFT, and Finite register length effects.
**Prerequisite(s):** EE 362.

**EE 472.3 — 2(3L)**
**Optoelectronics and Photonics**

Topics include: physical optics, dielectric planar waveguides, optical fibers in optical communications, dispersion, bit-rate and bandwidth, semiconductor device principles, degenerate semiconductors, heterojunctions, light emitting devices, stimulated emission, Einstein coefficients for lasing devices, gas lasers, semiconductor lasers, new solid state lasers, emitters for optical communications, photodetectors, photodetectors for optical communications, photovoltaics, light modulation.
**Prerequisite(s):** EE 372.

**EE 480.3 — 2(3L)**
**Digital Control Systems**

This course deals with specialized topics in feedback control. Topics include state-space modeling of control systems, digital computer simulation of control systems and digital computer stability analysis of multi-variable processes; controller synthesis using Nyquist criterion; direct digital control, z-transform methods for assessing stability of sampled data systems, and introduction to other topics in modern control theory.
**Prerequisite(s):** EE 481 (or 410).

**EE 481.3 — 1(3L)**
**Control Systems**

Topics include mathematical modeling of control elements and systems, performance analysis, stability assessment and system compensation. Both time domain and frequency domain techniques are used. Multi-variable processes are discussed using state space models. Discussion extends to the basic concepts of controller design, root locus method and frequency response method. Controller design methods specific to phase lead/lang compensator and PID controller are presented. MatLab control tools are used in computer simulation and in various analyses of control systems.
**Prerequisite(s):** EE 351 or (EP 320 and Math 338).

**EE 495.6 — 1&2(6P)**
**Design Project**

The emphasis in this course is on the application of a formal design process. Students will be formed into working groups of two or three to design, in a top down fashion, a product or system. The students start from a layman's statement of what is needed and produce a requirement specification, block level design and a working unit. Under special circumstances, feasibility studies may qualify as design projects. The students are also required to give a formal oral presentation of their year's work to a group of their peers.
**Prerequisite(s):** EE 395.
**Corequisite(s):** In graduating year or permission of the Department Head.

**EE 498.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.
**Prerequisite(s):** EE 271 or ME 214, or EP 378, or equivalent for other disciplines.

**EE 831.3 — 2(3L-1P)**
**Advanced Logic Design Using Hardware Description Languages**

Theory and practice of designing large digital circuits with Hardware description languages Verilog and VHDL. This course focuses on FPGAs as the target implementation techology. The architectures of selected FPGAs are compared and some details of some of the internal operation of the FPGA are covered.
**Prerequisite(s):** Undergraduate Degree.
**Note:** Offered in the academic year 2006/2007 and alternate years thereafter.

# EFDT — EDUCATIONAL FOUNDATIONS

Department of Educational Foundations, College of Education

**EFDT 101.3 — 1(2L-1S)**
**Introduction to Education**

Lays foundations for the study of education and pedagogy. The equity component presents a moral basis for questioning personal attitudes and public practices concerning race, gender, exceptionalities, and class. The epistemological component provides a context for understanding the learning process and curriculum development.
**Prerequisite(s):** Admission to the College of Education.

**EFDT 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**EFDT 335.3 — 1&2(3L)**
**Introduction to First Nations and Cross Cultural Education**

Analyzes educational issues of a politically, economically, and culturally diverse society. Theory and practice of cross-cultural, multicultural and anti-racist education from the perspectives of First Nations/Metis, immigrant and ethnic minorities are evaluated. The ideological and philosophical premises of these approaches are considered. The role and responsibility of educators in ensuring equity and promoting cross-cultural understanding are examined.
**Prerequisite(s) or Corequisite(s):** EFDT 101 and 3 credit units in Native Studies or permission of the department.

**EFDT 435.3 — 2(3L)**
**Critical Perspectives in Educational Thought and Values**

Explores the normative dimensions of teaching including the purposes of schooling, the capacities of an educated person, the scope of moral education, the valued characteristics of good teachers, and value issues related to different kinds of teaching and the content of what is to be learned.
**Prerequisite(s):** EFDT 101and EXPR 402 or permission of the department.

**EFDT 436.3 — 1/2(3L)**
**Rationale Theory and Practice of Cooperative Learning**

Examines current school practices and foundations of co-operative learning. Focuses on philosophical, historical, cultural and sociological analysis of competition, individualism, and co-operation in schools and examines societal implications of these notions, with particular reference to the workplace.
**Prerequisite(s) or Corequisite(s):** EFDT 101 and 335 or permission of the department.
**Note:** Offered yearly in Spring and Summer Session.

**EFDT 440.3 — 1/2(3L)**
**Introduction to Sociology of Education**

Examines schooling and the education system from the perspective of sociological

theories. Social factors will be discussed critically in light of gender, race, class and sexuality. Emphasis is on the role of the teacher in today's society.
**Prerequisite(s):** EFDT 101 or permission of the department.

**EFDT 454.3**
**International Education Study Tour**

Students are introduced to the culture of the designated country and the history and structure of its education system through pre-departure readings and seminars. While on tour, students will analyze the relationships between cultural tradition, economic and political structures, and education through visits, attending seminars, and recording observations in journals.
**Prerequisite(s):** EFDT 101, completion of 60 credit units at the university level, or permission of the department.

**EFDT 480.3 — 2(3L)**
**Educating for Global Society**

Focuses on intercultural and international relationships in education with an emphasis on the growing independence brought about by a global culture. Topics include development education, ecological education, human rights education and peace education, globalization and education.
**Prerequisite(s):** EFDT 101 and EXPR 402, or permission of the department.

**EFDT 481.3 — 2(3L)**
**Education and Environment**

Prepares students to integrate environmental concerns into their teaching. Environmental education's history is traced and its theories explored. Issues involved in providing environmental education in schools are discussed.
**Prerequisite(s):** EFDT 101 or permission of the department.

**EFDT 482.3 — 2(3L)**
**Women and Education**

Using an interdisciplinary approach, explores the social institutions and practices which contribute to and reinforce gendered identities: family, church, state, schools and popular culture. A limited historical overview of the education of females in the Canadian context is provided. Feminist critiques of formal education are studied.
**Prerequisite(s):** EFDT 101 or permission of the department.

**EFDT 483.3 — 2(3L)**
**Women and Teaching Profession**

Traces women's relation to the occupation of teaching in Canada as it developed and changed over time, and as it is currently. Topics include the historical evolution of teaching, feminization and professionalization, unionization, and women teacher's entry into administrative positions and institutions of higher education.
**Prerequisite(s):** EFDT 101 or permission of the department.

**EFDT 486.3 — 1/2(3L)**
**Gay and Lesbian Issues in Education**

Focuses on the political, psychological, and ethical issues surrounding gay and lesbian students and teachers, inclusiveness of the curriculum, resource-centre policy, homophobia in the school setting and dilemmas faced by school counsellors.
**Prerequisite(s):** EFDT 101and completion of 60 credit units at the university, or permission of the department.

**EFDT 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**EFDT 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EIND — INDIAN AND NORTHERN EDUCATION

Department of Educational Foundations, College of Education

**EIND 220.6 — 1&2(3L)**
**Advanced Oral and Written Cree**

Presents the development of oral and written Cree language. Standard Roman Orthography will be used to compose original writings such as poetry, verse, changes, legends and stories. Elders and traditional storytellers will be a main resource.
**Prerequisite(s):** CREE 120 or permission of the Department of Curriculum Studies.
**Note:** Students who are non-Cree speakers who have completed CREE 101 and 120 will have acquired the appropriate oral and written proficiency for this class. This is an External course offered by the Department of Curriculum Studies.

**EIND 360.3 — 1/2(3L)**
**Aboriginal Education in Cross Cultural Context**

Offers a cross-cultural contextual framework for addressing the education of Aboriginal students within school system. It focuses on the ideological foundations of traditional Aboriginality and modern schooling, the educational implications for meeting the needs of Aboriginal students, and the creation and adaptation of cross-cultural appropriate pedagogy and curriculum.
**Prerequisite(s) or Corequisite(s):** EFDT 335.

**EIND 375.3 — 1/2(2L-1P)**
**Teaching English as Second Language or Dialect I**

Designed for teachers who are employed to teach English as second language/dialect to Indian and native students. Emphasis is on methods appropriate for coping with the linguistic difficulties encountered in school by children whose first language is one spoken by Aboriginal peoples.
**Note:** Offered by the Department of Curriculum Studies.

**EIND 380.3 — 1/2(3L)**
**Incorporating Cultural Arts of Indian Metis and Inuit People into School Programs**

Informs students about the rich and varied cultural arts of the Indian, Metis and Inuit people of North America. Emphasizes understanding and aesthetic appreciation as well as on practical aspects of cultural arts inclusion in school programs.
**Note:** Offered by the Department of Curriculum Studies.

**EIND 450.3 — 1/2(3L)**
**Aboriginal Epistemology and Pedagogy**

This course features salient Aboriginal learning styles and teaching strategies which underpin the survival and resiliency of Aboriginal people. It provides an opportunity through seminar, collaborative investigations and critical exploration to analyse Aboriginal ways of knowing and an art of teaching respecting Aboriginal protocols and knowledge.
**Prerequisite(s) or Corequisite(s):** EFDT 335.

**EIND 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EMUS — MUSIC EDUCATION

Department of Music, College of Education

**EMUS 270.3 — 1/2(3L)**
**Classroom Guitar Techniques**

Designed for teachers who plan to use the guitar as a vehicle for teaching music concepts and skills at the elementary or secondary level. Teaching methods and materials include a review of audiovisual and other materials, teaching and motivational strategies, classroom routines and evaluation strategies.

**EMUS 303.3 — 1/2(3L)**
**Methods in Elementary and Middle Years Music**

Introduces students to elementary/middle years music methods and develops many of the basic skills required to teach music in the elementary/middle years school. Is intended for elementary/middle years students without a background in music.
**Prerequisite(s) or Corequisite(s):** ECUR 200.
**Note:** Students may receive credit for only one of EMUS 300 and 303.

**EMUS 327.3 — (3L)**
**European Methods in Music Education**

A first course in European approaches to music education such as Kod-ly or Orff with special emphasis on music reading techniques. Laboratory participation constitutes an important phase of the course.
**Formerly:** EMUS 240.
**Prerequisite(s):** MUS 101 or 113 and 114; or permission of the department.

**EMUS 328.3 — 1/2(3L)**
**Pre School and Primary Music Methods**

Focuses on music programs for nursery school, kindergarten, and primary grades. Designed to offer classroom teachers and music specialists an understanding of the methods, materials, and techniques for teaching music at the primary level.
**Prerequisite(s):** MUS 101 or permission of the department.

**EMUS 331.3 — 1/2(3L)**
**Methods in Elementary Music Introduction**

An Introduction to the study of school music methods and materials essential for the sequential development of the musical learning process of elementary school students. Studies include psychological principles of child growth and development as applied to the music learning process.

This course is intended for Elementary/Middle Years Music Specialists in the combined B.Ed./B.Mus.(Mus.Ed.) program and College of Education students electing music as a Teaching Area.
**Prerequisite(s):** MUS 113 and 119, and ECUR 200; or equivalent study of harmony, or permission of the department.
**Note:** A background in music (a 30-level high school music credit, Grade VIII Royal Conservatory or permission of the department) is required.

**EMUS 332.3 — 1/2(3L)**
**Methods in Elementary Music Advanced**

A study of advanced school music methods and materials essential for the sequential development of the musical learning process of elementary school students. The course will explore in greater depth the methodology of Orff, Kodaly and others. The development and design of instructional programs with respect to the teaching process, including other materials of music education will be studied.
**Prerequisite(s):** EMUS 331 or permission of the department.

**EMUS 337.3 — 1/2(3L)**
**Jazz Pedagogy**

An introduction to the study and application of techniques in reading jazz, teaching, improvisation, jazz ensemble rehearsal, and the management of the successful school jazz ensemble program. Other areas of study include: the rhythm section, literature selection, score analysis and preparation, basic jazz theory, and the use of technology in jazz education.
**Prerequisite(s):** MUS 113, 114 and 184, or permission of the department.

**EMUS 338.3 — 1/2(3L)**
**Classroom Instruments**

Deals with methods and techniques involved in playing and teaching classroom instruments including ukulele, guitar, recorder and mallet percussion.
**Prerequisite(s):** MUS 113 and 114 or equivalent study of harmony or MUS 101 or permission of the department.

**EMUS 340.3 — 2(3L)**
**Methods in Secondary Instrumental Music**

A study of instrumental methods and materials, including exemplary curricula, curriculum and administration standards, lesson and unit planning, repertoire selection and analysis, teaching strategies, materials and resources, evaluation, and an understanding of the characteristics of successful school band programs.
**Prerequisite(s):** MUS 213 and 214 and EDST 237.

**EMUS 342.3 — 1(3L)**
**Philosophical Basis of Music Education**

An introduction to the philosophical, psychological and curricular foundations of music education.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 411.3 — 1/2(3L)**
**String Techniques I**

An intensive study of playing and teaching techniques of the violin and cello. Special topics in elementary and secondary school string pedagogy are included.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 413.3 — 1/2(3L)**
**String Techniques II**

An intensive study of playing and teaching techniques of the viola and string bass. Special topics in elementary and secondary school string pedagogy are included.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 427.3 — (3L)**
**Advanced European Methods in Music Education**

An advanced course in European methods such as Kodály and Orff. The coordinated vocal/instrumental approach to music education will be stressed. Laboratory participation constitutes an important phase of the course.
**Formerly:** EMUS 328.
**Prerequisite(s):** EMUS 327 or permission of the department.

**EMUS 428.3 — 1/2(3L)**
**Choral Techniques**

A course dealing with the fundamentals of leading a choir. Topics include: review of conducting skills, vocal technique, text and enunciation, choral tone, selection of repertoire and rehearsal skills, style and performance practice.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 430.6 — 1&2(3L)**
**Woodwind Techniques**

An intensive study of playing and teaching techniques of woodwind instruments, including equipment and materials. Special topics in elementary and secondary school woodwind pedagogy are also included.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 433.3 — 1/2(3L)**
**Brass Techniques I**

An intensive study of playing and teaching techniques of the horn, trombone, and tuba. Special topics in elementary and secondary brass pedagogy are included
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 435.3 — 1&2(3L)**
**Advanced Instrumental Conducting**

An analysis and discussion of orchestral and band scores and their preparation with respect to baton technique and rehearsal procedure.
**Prerequisite(s):** EMUS 335, 336 and 6 credit units in music history.

**EMUS 436.3 — 1/2(3L)**
**Percussion Techniques**

An intensive study of playing and teaching techniques of percussion instruments including equipment and materials. Special topics in elementary and secondary school percussion pedagogy are included.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 438.3 — 1/2(3L)**
**Methods in Secondary Choral Music**

A methods course dealing with a study of examples of choral curricula, repertoire selection and analysis, lesson planning, programming, teaching of musical literacy, and evaluation. Also included is an examination of materials and resources, and a review of the characteristics of successful secondary school choral music programs.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**EMUS 439.3 — 1(3L)**
**Methods in Secondary Music in Context of Arts Education**

A survey and critical examination of secondary school courses in general music and arts education. Methods and materials for effective secondary courses will be developed.
**Prerequisite(s):** EMUS 342 (or 341) or permission of the department.

**EMUS 442.3 — 1/2(3L)**
**Organization and Administration of School Music Program**

Besides topics in organization and administration, studies include music and arts education curricula. Leadership and managerial styles pertaining to the music educator will be explored. Students will gain first hand experience in planning, coordinating and managing a major music festival.
**Prerequisite(s):** MUS 213 and 214 and at least 12 credit units in music education or permission of the department.

**EMUS 443.3 — 1/2(3L)**
**Brass Techniques II**

An intensive study of playing and teaching techniques of the trumpet and euphonium. Special topics in elementary and secondary brass pedagogy are included.
**Prerequisite(s):** Music 113 and 114, EMUS 433 or permission of the department.

**EMUS 479.3 — 1/2(3S)**
**Advanced Methods in Teaching Music**

A course requiring intensive study of a selected topic in Music Education.
**Prerequisite(s):** Advanced standing in the College of Education and permission of the department.

**EMUS 490.3 — 1/2(3L)**
**Seminar in Music Education**

A senior seminar for students who have completed the Extended Practicum in Music. It involves directed readings, seminar discussions, written assignments, classroom and rehearsal observation, and other experiences to assist students in integrating knowledge and abilities acquired from courses in Music and Music Education, and the Practicum.
**Prerequisite(s):** EXPR 402.

**EMUS 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ENG — ENGLISH

Department of English, College of Arts and Science

**ENG 110.6 — 1&2(3L)**

**Literature and Composition**

An introduction to the main kinds of literature. In addition to learning the tools of critical analysis, students will study and practise composition.
**Note:** Only 6 credit units of 100-level English may be taken for credit.

**ENG 111.3 — 1/2(3L)**
**Literature and Composition Reading Poetry**

An introduction to the major forms of poetry in English. In addition to learning the tools of critical analysis, students will study and practise composition.
**Note:** Only 6 credit units of 100-level English may be taken for credit.

**ENG 112.3 — 1/2(3L)**
**Literature and Composition Reading Drama**

An introduction to major forms of dramatic activity in English. In addition to learning the tools of critical analysis, students will study and practise composition.
**Note:** Only 6 credit units of 100-level English may be taken for credit.

**ENG 113.3 — 1/2(3L)**
**Literature and Composition Reading Narrative**

An introduction to the major forms of narrative literature in English. In addition to learning the tools of critical analysis, students will study and practise composition.
**Note:** Only 6 credit units of 100-level English may be taken for credit.

**ENG 114.3 — 1/2(3L)**
**Literature and Composition Reading Culture**

An introduction to historical and contemporary cultural forms in English. In addition to learning the tools of critical analysis, students will study and practise composition.
**Note:** Only 6 credit units of 100-Level English may be taken for credit.

**ENG 202.6 — 1&2(3L)**
**Reading Canon Texts and Contexts**

A survey of English literature with primary emphasis on the historical development of the British canon (including Chaucer, Shakespeare, Milton, Wordsworth, and Austen, for example), with some attention to the critical issues raised by the concept of canon itself, to non-canonical writers, and to other literatures in English.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 200 may not take this course for credit.

**ENG 203.6 — 1&2(3L)**
**Reading English Critical Approaches**

An introduction to the major critical perspectives on reading literature, with particular emphasis on the 20th century. The course will typically explore a number of critical approaches to reading and test them on a selection of literary works.
**Prerequisite(s):** 6 credit units 100-level English.
**Note:** Students with credit for ENG 282 may not take this course for credit.

**ENG 204.6 — 1&2(3L)**
**History and Future of the Book**

An introductory history of the concept and technology of the book. The course focuses on the development of the book as a vehicle of communication and on its ideological and political impact, with some attention to the emergence and consequences of digital platforms such as e-mail, the web, and electronic books.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 277.3 — 1/2(3L)**
**Literary Uses of Mythology**

An introduction to the theory of myth and selected examples of the classical and other myths most frequently adapted and reinterpreted in literature in English. Emphasizes the ways in which different writers can find quite different kinds of significance in the same myth.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 281.6 — 1&2(3L)**
**Feminist Critical Theory and Literature by Women**

Several contemporary feminist critical approaches will be used to analyze writings by women from various parts of the English-speaking world.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 283.6 — 1&2(3L)**
**Literature and Colonialism**

An introduction to reading and research in literature and its colonialist contexts.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 294.3 — 1/2(3L)**
**Techniques of English Poetry**

An introduction to poetic technique, primarily metre, form, sound, and diction.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ENG 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ENG 301.3 — 1/2(3L)**
**Anglo Saxon Language and Culture**

Discussion of the importance of Old English language and literature for the Anglo-Saxon culture of early medieval England. Investigation of this language as foundation for the development of English. Introductory study of texts such as Beowulf and writers such as King Alfred.
**Prerequisite(s):** 6 credit units 100-level English.
**Note:** Students with credit for ENG 208 may not take this course for credit.

**ENG 306.3 — 1/2(3L)**
**Old Icelandic Language and Culture**

The impact of the Old Norse language and literature on the language and cultural identity of the Anglo-Saxons. Study of Old Norse language to approach the literature and culture of these North Germanic people. Examination of texts pertinent to the Viking attacks on and settlement in Anglo-Saxon England.
**Prerequisite(s):** 6 credit units 100-level English.
**Note:** Students with credit for ENG 207 may not take this course for credit.

**ENG 310.3 — 1/2(3L)**
**Old English Literature**

A study of several poems and some prose passages in Old English, including elegies, battle narratives, and a more extensive consideration of Beowulf than in English 201, including its backgrounds and analogues.
**Prerequisite(s):** ENG 301.
**Note:** Students with credit for ENG 208 may not take this course for credit.

**ENG 311.3 — 1/2(3L)**
**Chaucer and Medieval Makers**

Study of late medieval literature in English. Attention to writings by Chaucer, Langland, and the Gawain-poet, as well as those by fifteenth-century writers such as Margery Kempe, Sir Thomas Malory, and Robert Henryson.
**Prerequisite(s):** 6 credit units 100-level English.
**Note:** Students with credit for ENG 212 may not take this course for credit.

**ENG 313.3 — 1/2(3L)**
**Middle English Dialect to Standard**

Study of the Middle English period, 1100-1500. Attention to the features, development, and status of regional dialects in a multilingual context. Emphasis on literary texts (such as Ancrene Wisse, Patience, and The Paston Letters) as witnesses to the varieties of English during the later middle ages.
**Prerequisite(s):** 6 credit units 100-level English.
**Note:** Students with credit for ENG 212 may not take course for credit.

**ENG 314.3 — 1/2(3L)**
**Medieval Drama**

A survey of the variety of drama performed in the British Isles before 1550. A study of the plays in their historical context. It also examines their relation to custom and ritual; their social function; their performance and production; and the responses to them of medieval and modern audiences.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 315.3 — 1/2(3L)**
**Old Icelandic Literature**

A study of several Old Icelandic sagas and passages of Eddaic and of skaldic poetry. Critical approaches to Old Icelandic literature. Cultural backgrounds, as well as theories of saga composition, and continental influences.
**Prerequisite(s):** ENG 306.
**Note:** Students with credit for ENG 207 may not take this course for credit.

**ENG 316.3 — 1/2(3L)**

**Literature in Scotland at Close of Middle Ages**

A study of representative literary texts in late-mediaeval Scotland, with attention to their contexts, affiliations, and reception.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 317.3 — 1/2(3L)**
**Introduction to Old Norse Mythology**

A study of the mythology of medieval Scandinavia, including a survey of the sources, an examination of several chief deities and myths associated with them, and a consideration of some old Icelandic literary evidence.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** As of January 1, 2000 this course no longer fulfills a Category 1 requirement.

**ENG 318.3 — 1/2(3L)**
**Renaissance and Reformation**

Renaissance literature flourished in the Tudor court and the Thomas More circle until the Reformation made books a battlefield for public opinion. After the Elizabethan Settlement, English writers laid the foundations for the age of Shakespeare. This course surveys poetry and prose in its historical contexts from 1485 to 1578.
**Formerly:** ENG 320.
**Prerequisite(s):** 6 credit units of 100-level English, History or Classics.
**Note:** Students with credit for ENG 320 may not take this course for credit.

**ENG 319.3 — 1/2(3L)**
**The Elizabethan Age**

The Elizabethan younger generation, including Sidney and Spenser, experimented with courtly and popular traditions to create Renaissance literature that defined England in relation to its neighbors and the New World. This course surveys poetry and prose in its historical contexts from 1579 to 1603.
**Formerly:** ENG 320.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 320 may not take this course for credit.

**ENG 321.6 — 1&2(3L)**
**Shakespeare**

A general course in Shakespeare's plays.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 324.3 — 1/2(3L)**
**Early Modern Drama**

A study of English drama, 1580-1640, including such playwrights as Marlowe, Kyd, Shakespeare, Jonson, Dekker, Middleton, and Ford. The course will investigate the philosophies, techniques, power and popularity associated with Tudor, Stuart, and Caroline plays.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 325.6 — 1&2(3L)**
**17th Century Literature**

A study of English literature of the 17th century, including the poetry of Donne, Jonson, Herbert, Marvell, and especially the works of Milton.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 327.3 — 1/2(3L)**
**English Drama 1660 to 1737**

A study of the drama of the Restoration and the 18th Century, emphasizing the comedy of manners, but also dealing with dramatic genres particular to the period.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 328.6 — 1&2(3L)**
**Literature of Restoration and 18th Century**

A study of the literature of England from 1660 to 1800, with emphasis upon major writers such as Dryden, Swift, Pope, Gray, Fielding, Johnson, Boswell, and Burke.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 329.3 — 1/2(3L)**
**Life Writing by British Authors 1780 to 1900**

An introduction to the variety of life writing produced by English-speaking countries between 1780 and 1900. Life Writing is an inclusive term that includes many different kinds of writing about the self: not only autobiography but also the diary, the confession, the travel narrative, the fictionalized life, the personal letter, and the slave narrative.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 331.6 — 1&2(3L)**
**Poetry and Prose of Romantic Period**

A study of British literature from 1780 to 1830, examining the nature of romanticism and the usefulness of the term romantic, and emphasizing the works of such writers as William Wordsworth, Mary Shelley, and William Hazlitt.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 332.3 — 1/2(3L)**
**Gothic Narrative**

This course will trace the Gothic mode, in its various forms, from its origins in Britain in the 1760s through its assimilation into mainstream literature in the nineteenth century and beyond.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 333.3 — 1/2(3L)**
**Page and Stage**

Will examine English drama in performance and will be offered in conjunction with the offerings of one of Saskatoon's theatre companies. It will focus on dramaturgy, staging, and interpretation through performance and will involve live performances, film adaptations, lecture and class discussion, seminar reports, and guest lectures from theatre professionals and drama scholars.
**Prerequisite(s):** 6 credit units of 100-level English or permission of department head.

**ENG 334.6 — 1&2(3L)**
**Prose and Poetry of Victorian Period**

A study of the period 1830-1890, with emphasis on such prose writers as Carlyle, J. S. Mill, Newman, Huxley, Arnold and Pater, and such poets as Tennyson, the Brownings, Arnold, the Pre-Raphaelites, and Hopkins.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 335.3 — 1/2(3L)**
**The Emergence of Aboriginal Literature in Canada**

Examines the emergence of written literature among Aboriginal people in Canada from first contact to the 1970s. Attention will be paid to how and why Aboriginal people took up literacy and literature and to the distinctive forms of writing that emerged.
**Prerequisite(s):** 6 credit units 100-level English.

**ENG 339.6 — 1&2(3L)**
**Modern Irish Literature**

A study of 20th-century Anglo-Irish prose, poetry, and drama, usually including such writers as James Joyce, Frank O'Connor, W. B. Yeats, Seamus Heaney, John Synge, and Sean O'Casey.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 342.6 — 1/2(3L)**
**Indigenous Storytelling of the Prairies**

A study of the aboriginal storytelling traditions in the prairie region, including oral traditions and written literature.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 346.3 — 1/2(3L)**
**Short Fiction in English from Origins to First World War**

Examines the development of short fiction from its origins in myth, fable and folktale to the beginning of the First World War. While some attention will be paid to continental influences, the emphasis will be on writing in English.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 348.3 — 1/2(3L)**
**Modern Drama 1870 to 1950**

A study of modern dramatic works and movements from 1870 to 1950, primarily British and American. Among the dramatists whose work may be examined are Wilde, Ibsen, Shaw, Synge, O'Neill, and Glaspell.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 380 may not take this course for credit.

**ENG 349.3 — 1/2(3L)**
**Contemporary Drama 1950 to Present**

A study of dramatic works and movements since 1950, primarily British and American. Among the playwrights whose work may be examined are Beckett, Pinter, Williams, Stoppard, and Churchill.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 350.6 — 1&2(3L)**
**Commonwealth Literature**

A study of selected colonial and post-colonial literatures in English from Africa, south-east Asia, the West Indies, and the Antipodes.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 351.6 — 1&2(3L)**
**Canadian Poetry in English**

A survey of the development of Canadian poetry in English from the end of the 18th century to the present, with emphasis on the 20th century. Typically the class would study such poets as Isabella Valancy Crawford, D. C. Scott, E. J. Pratt, Dorothy Livesay, Earle Birney, and Michael Ondaatje.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 353 may not take this course for credit.

**ENG 352.6 — 1&2(3L)**
**Canadian Fiction in English**

A survey of the development of Canadian fiction in English from the end of the 18th century to the present, with emphasis on the 20th century. Some non-fictional prose will also be considered.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 353 may not take this course for credit.

**ENG 353.6 — 1&2(3L)**
**Canadian Literature in English**

A survey of English-Canadian literature (principally poetry and fiction), with emphasis on the 20th century.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 351 or 352 may not take this course for credit.

**ENG 354.6 — 1&2(3L)**
**American Literature to Civil War**

While earlier writers will be studied in sufficient depth to provide necessary background and continuity, the course will concentrate on the works of such writers as Irving, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Whitman, and Dickinson.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 355.6 — 1&2(3L)**
**American Poetry and Prose from Civil War to Great Depression**

A survey of such prose writers as Samuel Clemens, W. D. Howells, Henry James, and Ernest Hemingway, and such poets as Robert Frost, Wallace Stevens, W. C. Williams, Ezra Pound, and E. E. Cummings.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 356.6 — 1&2(3L)**
**American Poetry and Prose during and since Great Depression**

A study of prose and poetry from 1930 to today by such writers as William Faulkner, John Steinbeck, Bernard Malamud, and Robinson Jeffers.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 357.3 — 1/2(3L)**
**A Survey of Modern Science Fiction Literature in English from H.G. Wells to the Present**

Studies the development of Science Fiction literature throughout the 20th Centruy, from the time of H.G. Wells to the present. Beginning with a brief overview of pre-modern speculative fiction, the emphasis will be on the seminal SF novels and short stories of the 20th Century.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 358.3 — 1/2(3L)**
**Canadian Drama in English**

The development of Canadian drama in English, with emphasis on the period since 1960.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 359.3 — 1/2(3L)**
**Western Canadian Literature**

A study of literature in English, especially fiction, poetry, and drama, produced on the Canadian prairies.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 361.3 — 1/2(3L)**
**Literary Cultures in Contemporary Britain**

A mixed genre course providing students with a sense of the increasingly complex cultures of contemporary Britain through the examination of three or more examples of literary cultures of the last two decades.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 365.6 — 1&2(2L)**
**Creative Writing**

Intended for students who are seriously interested in the practice of imaginative writing (fiction, poetry, etc.). Course work will include an assignment of writing each week. Enrolment will be limited. Interested students should (a) obtain an application form from the English Department general office, Arts 320, and (b) register in an alternate class until final selection of the class has been completed.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 366.3 — 1/2(3L)**
**Advanced Creative Writing Fiction**

Intended for students who have acquired some practice and skill in the writing of prose. Interested students should (a) obtain an application form from the English Department general office, Arts 320, and (b) register in an alternate class until final selection of the class has been completed.
**Prerequisite(s):** Evidence of practice and skill in the writing of creative prose as determined by the instructor.

**ENG 367.3 — 1/2(3L)**
**Advanced Creative Writing Poetry**

Intended for students who have acquired some practice and skill in the writing of poetry. Interested students should (a) obtain an application form from the English Department general office, Arts 320, and (b) register in an alternate class until final selection of the class has been completed.
**Prerequisite(s):** Evidence of practice and skill in the writing of creative poetry as determined by the instructor.

**ENG 370.6 — 1&2(3L)**
**English Biography and Autobiography**

A study of the development of the genre from its earliest appearance in the Middle Ages to the present.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 371.3 — 1/2(3L)**
**Modern British Poetry 1890 to 1950**

Examines the range of poetry and its preoccupations from the end of the 19th century to 1950 in Britain. Study will include English, Scottish, Welsh, emigre, and other writers who have contributed to the history and production of modern British poetry.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 340 may also take this course for credit.

**ENG 372.3 — 1/2(3L)**
**Utopian and Dystopian Speculative Fiction**

A literary and cultural survey of Utopian and Dystopian speculative fiction, with emphasis on 20th-century examples from British and American literature.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 373.6 — 1&2(3L)**
**English Fiction to 1800**

A study of various types of prose fiction from early romances, travel tales, rogue biographies, and so on, to Defoe and the rise and development of the novel in England. Particular emphasis will be given to the major novels and novelists of the 18th century.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 374.6 — 1&2(3L)**
**English Novel in 19th Century**

A study of the English novel from Jane Austen to Hardy, with particular concentration on the great Victorians - Dickens, Thackeray, the Bronte sisters, George Eliot, and Hardy.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 375.6 — 1&2(3L)**
**British Fiction since 1900**

A study of representative British writers of fiction (novels and short stories) since 1900.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 376.3 — 1/2(3L)**
**Modern British Poetry 1950 to Present**

Examines the range of poetry and its preoccupations from about 1950 to the present in Britain. The objective is to convey a sense of the complex literary culture of poetry in the period and some of its history and sources.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 340 may also take this course for credit.

**ENG 378.6 — 1&2(3L)**
**English Satire**

A study of selected satire in English.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 379.3 — 1/2(3L)**
**Modernist Writing and Contexts**

A study of selected Modernist works from the period 1900-1939, in their historical and cultural contexts. Authors may include Joyce, Lawrence, Woolf, Eliot, Yeats, H.D., Pound, Sitwell, Mansfield, and others.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 384.3 — 1/2(3L)**
**Beowulf and Tales of Northern Heroes**

A study of Beowulf in Modern English Translation, including extensive consideration of its cultural and literary backgrounds, and readings in related or pertinent heroic narratives, primarily of North Germanic origin.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 385.6 — 1&2(3L)**
**19th and 20th Century European Literature in Translation**

A study of 19th- and 20th-century European literature in translation with an emphasis upon major works that have influenced English and American literature.
**Prerequisite(s):** 6 credit units of junior English or LIT 100.

**ENG 386.3 — 1/2(3L)**
**Courtly Love and Family in Middle Ages**

An examination of romantic love, chivalry, and the family during the Middle Ages. The course will focus on a number of medieval romances, but will also cover many areas of women's cultural expression, including musical composition and mystical visions, and the tensions between the various forms of medieval women's experience and models of clerical authority.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 387.3 — 1/2(3L)**
**Fantasy**

A history of fantasy in English literature from early times to the present. Emphasis will be placed on modern works of fantasy.
**Prerequisite(s):** 6 credit units of 100-level English.

**ENG 388.3 — 1/2(2L-2P)**
**Introduction to Film**

A brief introduction to film aesthetics and history.
**Formerly:** ENG 298.
**Prerequisite(s):** 6 credit units of 100-level English.
**Note:** Students with credit for ENG 298 prior to 1999-2000 may not take this course for credit.

**ENG 389.3 — 1/2(3L)**
**Structures of English**

A survey of theoretical approaches to English grammar and rhetoric, with an emphasis on English in literary contexts.
**Prerequisite(s):** 6 credit units of junior English, or LING 111, or a senior course in a language.

**ENG 390.6 — 1&2(3L)**
**Introduction to English Linguistics and History of English Language**

An introduction to English linguistics with special attention to the history of the English language, its Germanic origins, and its development as a world language.
**Prerequisite(s):** ENG 110 or equivalent, or LING 111 or 112, or a senior course in a language.

**ENG 391.3 — 1/2(3L)**
**Varieties of English**

Introduces students to present-day varieties of English, especially as represented in literary texts.
**Prerequisite(s):** 6 credit units of 100-level English; or LING 111 or 112; or a senior language course.

**ENG 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ENG 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ENG 401.6 — 1&2(3S)**
**Studies in Anglo Saxon and Medieval Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 402.3 — 1/2(3S)**
**Topics in Anglo Saxon and Medieval Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 403.6 — 1&2(3S)**
**Studies in 16th Century Literature in English**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 404.3 — 1/2(3S)**
**Topics in 16th Century Literature in English**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 405.6 — 1&2(3S)**
**Studies in 17th Century Literature in English**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 406.3 — 1/2(3S)**
**Topics in 17th Century Literature in English**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 409.6 — 1&2(3S)**
**Studies in 18th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 410.3 — 1/2(3S)**
**Topics in 18th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 413.6 — 1&2(3S)**
**Studies in 19th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 414.3 — 1/2(3S)**
**Topics in 19th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 415.6 — 1&2(3S)**
**Studies in 19th Century American Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 416.3 — 1/2(3S)**
**Topics in 19th Century American Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 418.3 — 1/2(3S)**
**Topics in 19th Century Canadian Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 443.6 — 1&2(3S)**
**Studies in Commonwealth and Post Colonial Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 444.3 — 1/2(3S)**
**Topics in Commonwealth and Post Colonial Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 445.6 — 1&2(3S)**
**Studies in Genres and Contexts of Modern Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 446.3 — 1/2(3S)**
**Topics in Genres and Contexts of Modern Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 461.6 — 1&2(3S)**
**Studies in 20th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 462.3 — 1/2(3S)**
**Topics in 20th Century British Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 463.6 — 1&2(3S)**
**Studies in 20th Century American Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 464.3 — 1/2(3S)**
**Topics in 20th Century American Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 465.6 — 1&2(3S)**
**Studies in 20th Century Canadian Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 466.3 — 1/2(3S)**
**Topics in 20th Century Canadian Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 467.6 — 1&2(3S)**
**Studies in 20th Century Irish Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 468.3 — 1/2(3S)**
**Topics in 20th Century Irish Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 483.6 — 1&2(3S)**
**Studies in Womens Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 484.3 — 1/2(3S)**
**Topics in Womens Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 485.6 — 1&2(3S)**
**Studies in Critical Approaches to Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 486.3 — 1/2(3S)**
**Topics in Critical Approaches to Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 487.6 — 1&2(3S)**
**Studies in Genres and Contexts of Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 488.3 — 1/2(3S)**
**Topics in Genres and Contexts of Literature**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 493.6 — 1&2(3S)**
**Studies in Language and Linguistics**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 494.3 — 1/2(3S)**
**Topics in Language and Linguistics**

**Prerequisite(s):** Admission to an honours program or permission of the department.

**ENG 496.3 — 1&2(1L-3P)**
**Career Internship**

Practicum in publishing, journalism and business writing.
**Prerequisite(s):** Registration in Honours English or Double Honours with English and another subject.

**ENG 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ENG 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EP — ENGINEERING PHYSICS

Department of Physics & Engineering Physics, College of Arts and Science

**EP 225.3 — 2(3L-1.5P)**
**Waves Fields and Optics**

Offers an introduction to mechanical and electromagnetic wave phenomena including derivation of wave equations and wave velocities, energy and momentum carried by waves, wave reflection in terms of impedance mismatch, standing waves, and radiation of electromagnetic waves. This is followed by geometrical and physical optics.
**Prerequisite(s):** PHYS 111 or 121 or both GE 125 and PHYS 155 (EP 155); MATH 223 or 225 or 276; MATH 224 or 226 or 238 (may be taken concurrently).

**EP 228.3 — 2(3L-4P)**
**Computer Tools for Engineering Physics**

The emphasis is to investigate the practical engineering and scientific applications of mathematical techniques that were introduced in other classes. Goal is realized through the design and development of software systems to solve problems related to: electric circuit analysis; numerical differentiation, integration and interpolation of real world measurements; modelling of physical systems and Fourier decomposition. In the laboratory students write their own software to solve problems that are introduced in the formal lectures.
**Prerequisite(s):** CMPT 116; GE 120; MATH 238 (or corequisite MATH 224 or 226 ).

**EP 271.3 — 2(3L-1.5P)**
**Heat Kinetic Theory and Thermodynamics**

Calorimetry, thermal expansion, heat transfer and the empirical gas laws. Kinetic theory of gases: specific heats, Boltzmann distribution. Mean free path and transport phenomena. Zeroth, first and second laws of thermodynamics. Entropy and heat engines.
**Prerequisite(s):** MATH 238 (or corequisite MATH 224 or 226); PHYS 251.

**EP 311.3 — 1(3L-4P)**
**Electronics I**

Introduces analogue electronics. The course covers network analysis, AC circuits, the physics and operation of semiconductors, junction diodes, transistors, the design of amplifier circuits, small signal analysis, and operational amplifiers (op-amps).
**Prerequisite(s):** EP 228 or MATH 264 or MATH 266; PHYS 229 (or 227).
**Corequisite(s):** MATH 338.

**EP 317.3 — 2(3L)**
**Applied Physics of Materials**

Introduction to atomic structure, bonding, types of solids, crystalline states, and types of crystals. Solid solutions. Mechanical properties strain and thermal expansion. Thermal fluctuations, noise and thermally activated processes. Heat capacity of solids. Electrical conductivity of pure metals and solid solutions. Temperature dependence. Hall effect. Energy band structure in solids. Semiconductors. Classical and Fermi-Dirac statistics. Conduction in metals. Contact potential. Seeback effect, thermocouple. Thermionic emission and vacuum tube devices. Phonons. Debye heat capacity and heat conductivity. Extrinsic, p- and n-

semiconductors. Conductivity and temperature dependence. Optical absorption. Luminescence. Shottky diode. Ohmic contract and thermoelectric effect.
**Prerequisite(s):** PHYS 371 and 381.

**EP 320.3 — 2(3L-3P)**
**Discrete Linear Systems and Applied Information Theory**

An introduction to discrete linear systems and applied information theory with strong emphasis on both analytic and computer based solutions to practical physical problems in systems engineering and data analysis. In the laboratory portion of this class the students write their own software to solve problems that are introduced in the formal lectures. These problems include: discrete solutions to LCR circuits; discrete filtering of measurements collected in real experiments; the frequency responses of any linear system; and amplitude modulation of signals.
**Prerequisite(s):** EP 228; PHYS 229; and (MATH 224 or 226 or 238).

**EP 321.3 — 2(3L-4P)**
**Electronics II**

Introduces digital electronics and completes some analogue electronic topics not covered in EP 311. Analogue topics include transducers, feedback systems, modulators, frequency converters, amplifier configurations and design. The majority of the course covers digital electronics, including logic operation and implementation (AND, OR, NOT), binary numbers, Boolean algebra, memory elements, ROM, RAM, logic circuits (adders, counter, etc.), A/D and D/A converters, and simple microprocessors. Circuit design principles are emphasised and a major design project is undertaken.
**Prerequisite(s):** EP 311.

**EP 324.3 — 1(3L)**
**Mechanics IV**

Covers three-dimensional rigid body dynamics and introduces fluid mechanics concepts such as the control-volume approach, the continuity equation, derivation of Bernoulli's equation, and conservation of momentum and energy in a fluid system.
**Prerequisite(s):** GE 226 or PHYS 223.
**Corequisite(s):** MATH 338.

**EP 413.3 — 1(3L)**
**Instrumentation and Design**

A course in electronic instrumentation and in design of measuring equipment. Emphasis is placed on digital techniques for the measurement of physical parameters.
**Prerequisite(s):** EP 321.
**Corequisite(s):** EP 414.

**EP 414.3 — 1(4P)**
**Instrumentation Laboratory**

A number of laboratory exercises based on the material given in EP 413 are carried out. The aim of the laboratory is to introduce the student to the practical problems and challenges associated with microprocessor based instrumentation design.
**Prerequisite(s):** EP 321.
**Corequisite(s):** EP 413.

**EP 421.3 — 1(3L-4P)**
**Optical Systems and Materials I**

An advanced course in physical optics. The polarization state of electromagnetic waves, the Stokes parameters and Poincare sphere, and the matrix approach to polarizing systems. Detailed study of refractive index in materials, namely gases, dielectrics (particularly glass), plasmas and metals. Introduction to anisotropy in the refractive indices of materials - birefringent materials, and quarter-wave, half-wave plates, and Polaroid sheets. Ray tracing applied to the ionospheric plasma. Interference of light: two-source interference in the coherent and partially coherent cases. An introduction to statistical optics and the role of the detector response time. N-source interference applied to diffraction gratings and to antenna arrays with tapering and beam-steering. Multiple-beam interference and Fabry-Perot (F-P) interferometers. Resolving power of gratings and F-P interferometers.
**Prerequisite(s):** PHYS 356 (or EP 356); EP 225.

**EP 431.3 — 2(3L)**
**Optical Systems and Materials II**

Diffraction of light - Fraunhofer and Fresnel. Anisotropic effects on the polarization of electromagnetic waves, particularly by reflection and refraction, by birefringent materials (prisms, Fresnel rhombs), and by electro-optic and magneto-optic systems; application of these effects to modulation of light. Circular birefringence as the cause of Faraday rotation and optical activity. Dielectric waveguides and fiber optics. Light-emitting diodes. Fundamentals of stimulated emission and lasers; types of lasers. Optical amplifiers, optical detectors, and optical communication systems.
**Prerequisite(s):** EP 421.

**EP 464.3 — 1(3L)**
**Advanced Applied Electromagnetism**

Applied boundary value problems: basic theory, analytical and numerical methods, applications to high-voltage insulator and bushing design, magnetic pole-piece design. Theory of transmission lines, Smith chart. Launching and propagation of free and guided waves: antennas, waveguides, cutoff frequency, TE, TM, TEM modes, cavity resonators, directional couplers.
**Prerequisite(s):** PHYS 356 (or EP 356) and MATH 338.
**Note:** Students who have credit for PHYS 463 will not receive credit for this course.

**EP 495.6 — 1&2(1.5-3P)**
**Capstone Design Project**

This is a year-long design project incorporating all the steps and procedures used by professional engineers.
**Prerequisite(s):** EP 317 and PHYS 356 (or EP 356); .
**Corequisite(s):** EP 413, 414 and 421.

**EP 498.3 — 1/2(3L-1.5P)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the Dean's Office for further information.

## EPIP — ENGINEERING PROFESSIONAL INTERNSHIP PROGRAM

College of Engineering

**EPIP 401.0**
**Internship Placement I**

The Dean's Office, College of Engineering will register Internship students in this 0-credit unit course for the first 4-month installment of the 8 to 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** Completion of 84 credit units towards the BE degree and a sessional weighted average of 65% or better, approval of the Dean's Office and Professional Internship placement with a sponsoring employer.

**EPIP 402.0**
**Internship Placement II**

The Dean's Office, College of Engineering will register Internship students in this 0-credit unit course for the second 4-month installment of the 8 to 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** EPIP 401.

**EPIP 403.0**
**Internship Placement III**

The Dean's Office, College of Engineering will register Internship students in this 0-credit unit course for the third 4-month installment of the 12 to 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** EPIP 402.

**EPIP 404.0**
**Internship Placement IV**

The Dean's Office, College of Engineering will register Internship students in this 0-credit unit course for the fourth 4-month installment of the 16 month internship placement. This course is graded on a Pass/Fail basis.
**Prerequisite(s):** EPIP 403.

## EPRT — EDUCATION PRACTICUM

College of Education

**EPRT 200.0**
**Practicum for Post Secondary Teaching**

A six-week, supervised non-credit practicum for students in the Post Secondary Education Certificate program. This program is designed to assist individuals who are teaching or intend to teach at the post-secondary level in technical institutes, regional colleges, corrections institutes, business and industry. This program does not lead to a teaching degree.

## EPSE — EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION

Department of Educational Psychology & Special Education, College of Education

**EPSE 258.3 — 1/2(3L)**
**Learners and Learning**

Assists students to develop an understanding of the characteristics of learners and the learning process in childhood and adolescence, and provides a foundation for meeting the learning needs of students through a variety of teaching-learning models and instructional strategies.
**Formerly:** EDPSY 258.
**Prerequisite(s):** EFDT 101 (or corequisite for Sequential Program students).

**EPSE 337.3 — 1/2(3L-1.5S-1.5P)**
**Self Discipline or Developing Responsible Learners**

Teacher candidates will examine their beliefs about education, learning, their own behaviour, and that of students in their care. A variety of philosophical perspectives will be studied and students will be encouraged to develop their own unique and personal orientation for guiding the learning process and the development of students' self-discipline in a supportive classroom environment.
**Prerequisite(s) or Corequisite(s):** EPSE 258; EDST.

**EPSE 390.3 — 1/2(3L)**
**Exceptional Learners**

Introduces students to the concept of exceptionality as it reflects the special needs of individuals for whom they will be responsible in their classrooms, schools, and communities. The philosophy of inclusion will be emphasized. Students will learn how to identify and provide appropriate learning opportunities for children with special needs and ensure that they receive additional services to which they are entitled by the Saskatchewan Education Act and current Regulations. Students will become sensitive to cultural differences, the need to work with families and the importance of early intervention to prevent or ameliorate disability.
**Formerly:** EDEXC 390.
**Prerequisite(s) or Corequisite(s):** EPSE 258.

**EPSE 414.3 — 1&2(3L)**
**Exceptional Learners in Classroom**

Emphasizes strategies and techniques useful in accommodating children and youth with special learning needs in the regular classroom. Students will learn how to maximize potential for individualization through procedures such as adapting lesson plans, devising alternative evaluation procedures and modifying teaching techniques and materials.
**Formerly:** EDEXC 414.
**Prerequisite(s) or Corequisite(s):** EPSE 390.

**EPSE 416.3 — 1/2(3L)**
**Comprehensive Guidance and Counseling**

Introduction to comprehensive guidance and counselling in school, community, and agency settings. Examines the rationale for and best practices, as well as roles, functions, and ethical practices of personnel involved in guidance and counselling, career education, work education, career resource centres, academic advisement, and student recruitment centres.
**Formerly:** EPSY 411 and 425.
**Prerequisite(s):** 3 credit units in Educational Psychology or permission of the instructor.
**Note:** Students may not obtain credit for both this course and EPSY 411 or 425.

**EPSE 417.3 — 1/2(3L)**
**Introduction to Counseling**

Introduces students to major contemporary theories and practices of individual and group counselling. The primary focus is on preparing classroom teachers and school counsellors for conducting school counselling activities. This is a prerequisite class for the graduate program in counselling in the Department of Educational Psychology and Special Education.
**Formerly:** EDPSY 412.
**Prerequisite(s):** 3 credit units in Educational Psychology or permission of the instructor.
**Note:** Students may not receive credit for both this course and PSY 257 in a B.Ed. program.

**EPSE 418.3 — 1/2(3L)**
**Special Topics in Educational Psychology and Special Education**

Reviews the theoretical and practical bases of emerging trends in educational psychology and special education. Regular faculty with specific expertise or visiting scholars will offer the course periodically.
**Prerequisite(s):** Permission of the Instructor.

**EPSE 441.3 — 1/2(3L)**
**Introductory Statistics in Education**

Provides the student with an overview of descriptive statistics and basic psychometric concepts, with specific attention to problems of measurement and research in education and counselling. The emphasis is on application rather than derivation. No specific mathematical background is required.
**Formerly:** EPSY 441.
**Prerequisite(s):** 3 credit units in Educational Psychology or permission of the instructor.
**Note:** Especially recommended for students needing to fulfill the statistics requirement for admission to M.Ed. programs. Students with credit for COMM 104, PSY 233, STAT 244, 245 or GE 210 may not take this course for credit. Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**EPSE 448.3 — 1/2(3L)**
**Assessing Learning in Classroom**

Provides training in the skills involved in assessing student achievement. Students will learn how to construct various measuring devices such as paper and pencil tests, performance tests, assignments, portfolios, and observation schedules. Students will also learn how to summarize, interpret and report assessment results.
**Formerly:** EDPSY 448.
**Prerequisite(s):** 3 credit units in Educational Psychology or permission of the instructor.

**EPSE 498.3 — 1/2(3S)**
**Special Topics in Educational Psychology and Special Education**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**EPSE 500.3 — 1/2(3S)**
**History and Philosophy of Special Education**

Provides an understanding of foundational beliefs and practices that underpin modern special education. Models, theories, and philosophies that provide the basis for special education are examined. Includes an historical profile of special education legal mandates and service provision within Saskatchewan, across Canada, and internationally. Social, cultural, and familial contexts of exceptionality are examined.
**Prerequisite(s):** EPSE 390 and 414.

**EPSE 510.3 — 1/2(3S)**
**Supporting Students with Language and Communication Needs in Classroom**

Language and communication development and disorders will be studied with emphasis on the impact they have on students' academic, social, emotional and cognitive development. The teacher's role, including classroom identification and assistance for students having language and communication disorders, will be addressed. Classroom and instruction modifications will be presented.
**Prerequisite(s):** EPSE 390 and 414.

**EPSE 520.3 — 1/2(3S)**
**Supporting Students with Learning Disabilities in Classroom**

Designed to facilitate a broad understanding of issues in LD as well as research-based knowledge about several important elements in the field. Course topics will include definitional issues in LD, a language-oriented view to reading disability, memory processing problems, reading, writing, and arithmetic instruction, metacognition, social issues, inclusion, and assessment issues of LD.
**Prerequisite(s):** EPSE 390 and 414.

**EPSE 530.3 — 1/2(3S)**
**Supporting Students with Behavioral and Social Needs in Classroom**

The goal of this course is to provide the student with the best effective practices for assessment and educational intervention for children and youth that have behavioural and social problems. While relevant theory and research will be reviewed, major emphasis will be placed on exploring practical strategies for improving behaviour in the school setting.
**Prerequisite(s):** EPSE 390 and 414.

**EPSE 540.3 — 1/2(3S)**
**Collaboration Processes and Contexts**

Examines models of service delivery in special education. Emphasis is placed on collaborative processes and team contexts. Students learn the basic communication and decision-making skills for collaborative team planning and program implementation. Collaborative teamwork is considered in a variety of team contexts: families, school-based teams, and integrated services.
**Prerequisite(s):** EPSE 390, 414 and 500.

**EPSE 550.6 — 1&2(3S)**
**Designing Supports to meet Diverse Student Needs**

Builds applied skills in the professional practice of Special Education and prepares them to engage in the practicum course (EPSE 560). The central theme is use of effective practices to meet the individual needs of diverse learners. Emphasis is placed on authentic assessment, adaptive instruction, collaborative teamwork, and inclusive school practices.
**Prerequisite(s):** EPSE 390, 414, 500, 510, 520, 530 and 540.

**EPSE 560.3 — 2(3P)**
**Providing Supports to meet Diverse Student Needs**

Provides students with practical skills essential for delivery of appropriate educational programs for students with special needs. A central unifying theme is collaborative consultation. Involves a variety of practicum activities within school settings.
**Prerequisite(s):** EPSE 390, 414, 500, 510, 520, 530, 540 and 550.

**EPSE 570.3 — 1/2(3L)**
**Individual Project in Special Education**

Designed to assist students to integrate content and experiences from other courses through an individual project. Aim is to prepare reflective practitioners capable of conducting a critical review of the research literature, integrating this knowledge into their professional repertoire, and communicating the products of this research to colleagues and others.
**Prerequisite(s):** EPSE 390 and 500.

**EPSE 580.1**
**Trends and Issues in Special Education**

Reviews the theory, research, and practice related to emerging trends and issues in the education of students with diverse learning needs. The course is adaptable for intensive, short-term offerings by regular faculty or by instructors with specialized knowledge suited to the course content.

**EPSE 581.2**
**Trends and Issues in Special Education**

Reviews the theory, research, and practice related to emerging trends and issues in the education of students with diverse learning needs. The course is adaptable for intensive, short-term offerings by regular faculty or by instructors with specialized knowledge suited to the course content.

**EPSE 582.3**
**Trends and Issues in Special Education**

Reviews the theory, research, and practice related to emerging trends and issues in the education of students with diverse learning needs. The course is adaptable for intensive, short-term offerings by regular faculty or by instructors with specialized knowledge suited to the course content.

# ETEC — TECHNICAL EDUCATION

Department of Curriculum Studies, College of Education

**ETEC 272.3 — 1/2(3L)**
**Curriculum in Industrial Education**

Deals with the planning and organization of courses of study in both Vocational Education and Industrial Arts. Students in either of these specializations may pursue work that is pertinent to their fields. Emphasis is on systematic and methodical preparation of learning programs.
**Prerequisite(s):** ECUR 200 and completion of 30 credit units at the university or permission of the department head.

**ETEC 274.3 — 1/2(3L)**
**Organizations and Communications in Industrial Education**

Enables students to make an introductory examination of interpersonal communication and how it is applicable to educators. The work experiences of students will be used to assist in making the transition from workers in an organization to instructors in an organization. Skill development exercises will be provided.
**Prerequisite(s):** Restricted to Post-Secondary Vocational Certificate students or permission of the department head.

**ETEC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ETEC 373.3 — 1/2(3L)**
**Instructional Materials in Industrial Education**

Deals with preparing and selecting learning aids appropriate for Vocational Education and Industrial Arts. Emphasis is on the development of teacher-competence in designing, developing, and applying materials that can be used to facilitate individual as well as group learning.
**Formerly:** ETEC 273.
**Prerequisite(s):** ETEC 272 or permission of the department head. Restricted to 3rd and 4th year Industrial Arts and Vocational Education students.

**ETEC 374.3 — 1/2(3L-2P)**
**Methods in Industrial Education**

The teacher's role is regarded as being a manager of learning and the organizational, leadership, and control aspects of this role are examined. Experience will be gained in planning instructional activities and in delivering instruction through the use of micro-teaching.
**Formerly:** ETEC 276.
**Prerequisite(s):** ETEC 272 or permission of the department head. Restricted to 3rd and 4th year Practical and Applied Arts students.

**ETEC 375.3 — 1/2(3L)**
**Evaluation in Industrial Education**

Deals with evaluating Practical Arts students through testing, observation and project assessment. Item preparation will focus on practical or performance tests. The nature of most Practical Arts activities requires an emphasis on performance observation. Basic statistical concepts appropriate for Practical Arts teachers are studied.
**Formerly:** ETEC 275.
**Prerequisite(s):** ETEC 272 or permission of the department head. Restricted to 3rd and 4th year Industrial Arts and Vocational Education students.

**ETEC 476.3 — 2(3L)**
**Advanced Methods in Industrial Education**

Study of the basic principles, techniques, advantages, and limitations of individualized competency-based instruction. Applications to institutional settings, apprenticeship, cooperative work-experience programs, and on-the-job training are considered.
**Formerly:** ETEC 376.
**Prerequisite(s):** EXPR 402 or permission of the department head. Restricted to Practical and Applied Arts students.

# EVSC — ENVIRONMENTAL SCIENCE

Department of Soil Science, College of Agriculture

**EVSC 210.3 — 2(3L-3P)**
**Environmental Physics**

Essential physical concepts and processes (transport and storage of matter and energy) in the environment are introduced through applications and case-studies. Case studies include water cycles, natural and human-induced climate change, and the impact of human activity (industrial and agricultural) on the environment. Practicums are in the form of tutorials. Students will develop the essential ability to solve practical environmental problems through this course.
**Formerly:** AGRC 210.
**Note:** Students may receive credit for only one of AGRC 210 and EVSC 210.

**EVSC 220.3 — 1(3L)**
**Environmental Soil Science**

Focuses on soils as an integrator of a broad range of environmental processes and as a critical component inhuman-induced environmental change. Major topics include the influence of the environment on soil formation; local, regional and global scales of soil formation; and the physical, chemical, and microbial/biochemical soil processes of relevance to environmental science.
**Formerly:** SLSC 220.
**Prerequisite(s):** AGRC 111 or 6 credit units GEOG or GEOL.
**Note:** Students may receive credit for only one of EVSC 220, SLSC 220 or SLSC 240.

**EVSC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**EVSC 303.3 — 1(3L-3P)**
**Sampling and Laboratory Analysis**

An introduction to the principles and practice of sampling and analysis of soils and related environmental materials. This course involves hands-on exercises on field soil and sediment sampling, sample handling, basic laboratory techniques and safety, selected laboratory analyses relevant to environmental science, and basic statistical analysis of data. For this course there will be costs in addition to tuition fees.

**EVSC 320.3 — 2(1L)**
**Environmental Contaminant Sampling**

Involves a sequence of four field trips to sample snow, water, air and soil for environmental contaminants such as organochlorines and mercury along with a weekly lecture period. The focus will be on techniques necessary to collect field samples for analysis and to ensure sample integrity. Students will be required to collect, process and analyze samples of snow, water, air and soil for a suite of environmental contaminants. Students must be prepared to spend up to six hours outdoors sampling environmental media under cold conditions. For this course there will be costs in addition to tuition fees.

**EVSC 380.3 — 1(L-P)**
**Grassland Soils and Vegetation**

A five-day field course, plus tutorials early in the term, to study the landscape, soils and vegetation of the prairie ecozone. Emphasis will be on the environmental factors controlling plant distribution, classification and sampling of soil profiles, and characterizing vegetation and its relationships to soils and landscapes. Basic field skills will be taught, including soil and vegetation sampling, field measurements, and global positioning systems (GPS).
**Note:** This one-week field course is held the week preceding the start of fall Term One. There are costs in addition to tuition fees.

**EVSC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**EVSC 420.3 — 2(3L)**
**Environmental Fate and Transport of Toxic Substances**

Lectures will address the fate and transport of toxic substances in the atmosphere, the

hydrosphere, and the geosphere. Emphasis will be on actual transport processes (e.g. convection, advection, diffusion), losses to the environment (e.g. sorption, dry deposition, rain-out and degradation (e.g. photo-oxidation, radioactive decay, microbial transformation) over time. Specific studies on atmospheric/industrial pollutants such as mercury, and agricultural pollutants such as animal waste and pesticides, will be used to incorporate the processes in different environmental compartments into a comprehensive fate model.
**Formerly:** SLSC 420.
**Prerequisite(s):** 60 credit units in a science-based program (e.g. B.Sc., B.S.A., B.E.) including MATH 110 and PHYS 111 or AGRC 210 or EVSC 210; or permission of the instructor.

**EVSC 430.3 — 2(3L)**
**Agroforestry for Environmental Management**

An introduction to agroforestry systems and their benefits to sustainable environmental management. Growth factors such as soil type, water, light, nutrient availability and pest management are discussed for an array of agroforestry systems in both tropical and temperate settings. Case studies from around the world are used to demonstrate that agroforestry systems can successfully raise trees and crops for commercial harvesting while conserving land and biodiversity.
**Prerequisite(s):** One of BIOL 253, PLSC 213 or GEOG 280; SLSC 220, 240 or ABE 212 or permission of the instructor.

**EVSC 471.3 — 2(1.5L-3P)**
**Environmental Data Analysis**

Environmental management involves a range of data analysis and interpretation skills. Lectures and practical experiences in this course will give students experience in the use of soil and related natural resource information in hand copy and using geographical information system analysis techniques; in statistical and graphical summaries of field and laboratory data; and in interpolation of point data using geostatistical techniques and related spatial statistics.
**Prerequisite(s):** EVSC 210 or AGRC 210, EVSC 303, PLSC 314 or equivalent, MATH 101 or MATH 110.

**EVSC 485.3 — 2(1L-2P)**
**Environmental Science Capstone Course**

A project based course investigating global and local environmental issues. Students will investigate and synthesize information on topical environmental problems and present the results in class. The primary source of information will be the world-wide web so that skills involving the selection, acquisition, filtering and presentation of data together with critical thinking will be stressed. Concepts of system modeling will be introduced using Stella software.
**Formerly:** AGRC 485.
**Prerequisite(s):** Fourth year B.S.A. Environmental Science major.

**EVSC 492.3 — 1&2**
**Research and Term Paper**

A technical writing and communications course in which the student investigates a problem relevant to Environmental Science. The focus will be on literature research using electronic and library resources, but original data may be included. A term paper will be written under the guidance of a faculty advisor and results presented in a seminar or as a poster. Communication skills will be addressed in a series of lectures early in the course.
**Prerequisite(s):** Successful completion of 75 credit units towards the Environmental Science B.S.A. degree.

**EVSC 494.6 — 1&2**
**Research and Thesis**

Students will investigate a problem in Environmental Science using modern laboratory or field methods. An extensive literature review will be prepared utilizing electronic and library resources and a research question will be taken from the literature. Students will develop a hypothesis, design experiments to test the hypothesis, and analyze and interpret their experimental results. Finally, a comprehensive thesis will be written and findings will be presented in a formal seminar or poster. Communication skills will be addressed in a series of lectures at the beginning of the term.
**Prerequisite(s):** Successful completion of 75 credit units towards the Environmental Science B.S.A. degree or permission from the Head of the supervising department.

**EVSC 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# EXPR — EXTENDED PRACTICUM

College of Education

**EXPR 401.6**
**Practicum for Certification**

The practicum for certification involves eight weeks, full-time, of teaching experience.
**Prerequisite(s):** EDST 103 or 303 or 304, or EDST 420 or 427 in the B.Ed./B.Mus.(Mus.Ed.) program. Teacher candidates must have earned a C.W.A. of a least 60% in their External and in their Education courses. Teacher candidates in the secondary option must also have a minimum average of 60% in each of Teaching Areas I and II. Teacher candidates must have completed the first three years of the program.
**Note:** Permission to take this course is granted only by the Student Affairs and Academic Standards Committee. Students may receive credit for only one of EXPR 400, 401 and 402.

**EXPR 402.12**
**Extended Practicum**

The Extended Practicum involves one term, full-time, of teaching experience.
**Prerequisite(s):** EDST 103 or 303 or 304 or EDST 420 or 427 in the B.Ed./B.Mus.(Mus.Ed.) Program. Teacher candidates must have earned a C.W.A. of a least 60% in their External and in their Education courses. Teacher candidates in the secondary option must also have a minimum average of 60% in each of Teaching Areas I and II. Teacher candidates must have completed the first three years of the program.
**Note:** Students may receive credit for only one of EXPR 400, 401 and 402.

**EXPR 499.6**
**Special Topics**

A practicum offered on occasion for students who have completed EXPR 401 and require an additional 6 credit units to complete degree requirements.

# EXT — EXTENSION

Extension Division

**EXT 305.3 — 1(3L)**
**Developing Effective Extension Programs**

Provides an introduction to extension programming in which students will acquire the knowledge and develop the skills and abilities to plan and design effective extension programs, training programs, technology transfer programs, and marketing / information programs in both the public and private sectors.
**Prerequisite(s):** Completion of 60 credit units of university course work.

**EXT 405.3 — (3L)**
**Advanced Extension Techniques and Methods**

Addresses in detail the various methods, program designs, and instructional techniques and strategies that can be employed to deliver extension and training programs to meet the needs of a client group and the intended outcomes designed for the program.
**Prerequisite(s):** Completion of EXT 305 Developing Effective Extension Programs or permission of the instructor.

# FAMD — FAMILY PRACTICE MEDICINE

Department of Family Practice Medicine, College of Medicine

**FAMD 503.6 — PD&C**
**Family Medicine and Emergency**

Clerkship students will participate in a six-week primary outpatient-based experience. The students will do two weeks in one of the Family Medicine Teaching Units and four weeks in a rural or remote location. The four principles of Family Medicine will be stressed. The Family Medicine clerkship will provide exposure to the full spectrum of early undifferentiated health problems commonly encountered in the community setting. Clerkship students will also have a two-week rotation in an Emergency Department.
**Prerequisite(s):** Enrolment in the College of Medicine.
**Note:** Eight-week course.

# FAMS — FOOD AND APPLIED MICROBIOLOGICAL SCIENCES

Department of Applied Microbiology & Food Science, College of Agriculture

**FAMS 210.3 — 2(3L)**
**Dimensions of Food Science**

Provides a comprehensive introduction to the principles and practice of food science in contemporary society. Relationships between foods and bioproducts, chemistry, commodities, composition, fermentation, formulation, preservation, processing and interrelationships between foods and biotechnology, functionality governance, nutraceuticals, and safety are covered in the course.
**Formerly:** FDSC 210.
**Prerequisite(s):** CHEM 112; NUTR 120 recommended.

**FAMS 212.3 — 1(3L-2P)**
**Agrifood and Resources Microbiology**

An introduction to the general biology of microorganisms with emphasis on those of agri-food, economic and environmental importance. Microbial morphology, metabolism, growth and genetics; infectious disease and immunity; environmental microbiology and waste water treatment; agricultural microbiology; food and industrial microbiology.

Laboratory practice in basic microbiological techniques and their application to the study of microbial activities.
**Formerly:** APMC 212.
**Prerequisite(s):** BIOL 110; CHEM 112 and 250 (may be taken concurrently).
**Note:** Students with credit for MICR 214 or APMC 212 may not take this course for credit.

**FAMS 271.3 — 1(3L)**
**Food Biotechnology**

Presents principles, concepts, and application of methods and process design of biotechnology related to foods and ingredients for product quality and yield. New food development from plants, animals and microorganisms and related issues of governance, regulation, safety, health, consumer and market challenges will be presented.
**Prerequisite(s):** Completion of 60 credit units.

**FAMS 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FAMS 323.3 — 2(3L)**
**Food Additives and Toxicants**

Introduction to the types of food additives currently used in the food industry and the function of these chemical compounds in foods will be presented. The safety of these additives and toxicological information will be discussed. The question of the addition of additives to foods versus 'natural' foods will be discussed, emphasizing the types and concentrations of 'natural toxicants' in foods.
**Formerly:** FDSC 323.

**FAMS 345.3 — 2(3L-1P)**
**Unit Operations in Food Processing**

The fundamental principles of the common unit operations of food processing and preservation are discussed with emphasis on freezing, drying, evaporation and thermal processing operations. The operating principles of equipment utilized in these operations will be examined and selected processes of unit operations studied in detail.
**Formerly:** FDSC 345.

**FAMS 360.3 — 1(3L)**
**Water Microbiology and Safety**

An introduction to the principles, vocabulary and concepts associated with the provision of safe drinking water. Examination of the relationship between microbial health threats and water resources and governance, quality assessment, treatment, risk assessment and decision-making, and security and global issues. There will be in-class discussion, student presentations and lectures.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214 recommended, or permission of instructor.

**FAMS 362.3 — 2(3L)**
**Nutraceuticals and Functional Foods**

Explores aspects of nutraceuticals and functional foods derived from plant, animal and microbial origins. Global regulatory issues including efficacy and safety, health claims, value-added food production and the marketing challenges will be presented.
**Prerequisite(s):** Completion of 60 credit units.

**FAMS 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FAMS 412.3 — 1(3L-1P)**
**Fluid Food Products**

Introduction to the production and processing of milk, alcoholic beverages, carbonated and non-carbonated drinks, and other fluid food products.
**Formerly:** FDSC 412.

**FAMS 415.3 — 1(3L-4P)**
**Advanced Food Chemistry**

Advanced study of chemical components in foods and of chemical reactions involving these components. Topics include carbohydrates, lipids, pigments, emulsions/emulsifiers, enzymes and browning reactions.
**Formerly:** FDSC 415.
**Prerequisite(s):** BIOC 211.

**FAMS 417.3 — 1(3L-4P)**
**Food and Bioproducts Analysis**

Modern analytical techniques/instruments and their application to food analysis are presented and discussed. Basic principles, methodology, applications, sampling, accuracy and precision are discussed.
**Formerly:** FDSC 417.
**Prerequisite(s):** BIOC 211 or CHEM 250.

**FAMS 425.3 — 2(3L-2P)**
**Food Microbiology and Safety**

The relationship of microorganisms to the food supply and safety: food spoilage, food-borne illness, and production of fermented foods. Emphasis is placed on techniques for isolating, enumerating, and identifying important food-borne microbes.
**Formerly:** APMC 425.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214.

**FAMS 430.3 — 2(3L-3P)**
**Microbial Ecology**

Introduction to the diversity of microorganisms and the dynamics of microbial interactions. Microbial biogeochemistry of specific aquatic and terrestrial ecosystems. Use of microorganisms in bioremediation and waste treatment. Cultivation, analysis, and theory of microbial communities and consortia.
**Formerly:** APMC 430.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214; AGRC 290 or CMPT 100.

**FAMS 433.3 — 1(3L-1T)**
**Microbial Insecticides**

The use of microorganisms as biological insect pest control agents is a rapidly advancing area of biological, agricultural and environmental significance. Examines the microbiology and molecular biology of such pest control agents.
**Formerly:** APMC 433.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214 and permission of the instructor.

**FAMS 434.3 — 1(3L)**
**Industrial Microbiology I**

A study of the microbiology and biotechnology of single cell protein and bakers' yeast production from surplus carbohydrates and petroleum, biochemistry of cell growth, production and usage of industrial enzymes, immobilized cells and enzymes, and microbial insecticides.
**Formerly:** APMC 434.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214.

**FAMS 435.3 — 2(3L-2P)**
**Microbiological Techniques**

The theories and practical use of various microbiological techniques in industry and in quality control laboratories. Includes: media design and sterilization; enumeration and identification of bacteria; enzyme formation, extraction and usage for industrial purposes; filtration techniques; analysis of nutrient utilization, microbial cell components and fermentation parameters.
**Formerly:** APMC 435.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214 and permission of the instructor.

**FAMS 436.3 — 1(3L-4T)**
**Fuel Alcohol and Biofuels Production**

Students are provided with comprehensive theoretical and practical knowledge of the multi-disciplinary production steps leading to fuel and industrial alcohol.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214 or permission of the instructor.

**FAMS 437.3 — 2(3L-1P)**
**Industrial Microbiology II**

The principles of design and operation of fermentation equipment; aerobic and anaerobic fermentation processes leading to industrial chemicals, antibiotics, vitamins and amino acids with emphasis on biochemistry. Influence of biotechnology on the fermentation industry. Demonstrations, films, and field trips are included.
**Formerly:** APMC 437.
**Corequisite(s):** BIOC 211.
**Prerequisite(s) or Corequisite(s):** APMC 212, FAMS 212 or MICR 214.

**FAMS 450.3 — 1(3L)**
**Anaerobic and Rumen Microbiology**

A detailed study of the anaerobic microorganisms in the environment and those indigenous to the rumen and of the role of the rumen microbiota in nutrition of the host animal.
**Formerly:** APMC 450.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214; BIOC 211.

**FAMS 452.3 — 1(3L)**
**Quality Assurance and HACCP in Food Industry**

Principles of quality assurance as applied to the food industry. Topics include food regulations, analytical concerns, statistical quality control, sanitation, and the Hazard Analysis Critical Control Point (HACCP) quality assurance system.
**Formerly:** FDSC 452.

**FAMS 457.3 — 1(3L-3P)**
**Meat Science and Technology**

Fundamentals of Meat Science, including meat quality, chemistry, conversion and processing of muscle to meat and product storage will be presented. An overview of technologies used for further processing and value - addition of meats will also be discussed.
**Formerly:** FDSC 457.

**FAMS 474.3 — 1(3L-3P)**
**Food Enzymology**

Examines the principles of enzyme applications in foods, food processing and food analysis. Lectures and laboratories will present the fundamentals of enzymes from biochemical, chemical, biological and engineering aspects as well as their practical applications in food science.
**Prerequisite(s):** BIOC 200; and APMC 212, FAMS 212 or MICRO 214.

**FAMS 490.0 — 1&2(1S)**
**Honours Seminar**

Students in the Honours Arts and Science Food Science program are required to present one departmental seminar and attend all seminars.
**Formerly:** FDSC 490.

**FAMS 491.3 — 1/2(3P)**
**Research Project**

A research project is selected in consultation with a faculty supervisor in whose laboratory the work will be carried out. The student will: a) become familiar with scientific literature pertinent to the project, b) plan and set up procedures, and collect, record and analyze results, c) submit to the department a typed report incorporating a review of literature, procedures used, results obtained and a discussion of the results and their significance.
**Formerly:** FDSC 491.
**Prerequisite(s):** Registration in Honours Arts and Science Food Science program with a minimum cumulative percentage average of 70% in food science courses, and written permission of the Department of Applied Microbiology and Food Science.

**FAMS 492.3 — 1&2**
**Literature Thesis**

This is a technical writing and communications course in which the student will investigate a problem in food and/or applied microbiology. An extensive literature review will be prepared utilizing electronic and library resources and a comprehensive term paper will be written. A summation of this information will be presented as part of a departmental seminar series. Technical writing skills and seminar presentation will be addressed in a series of lectures at the beginning of the term.
**Prerequisite(s):** Successful completion of 75 credit units towards the B.S.A. in the FAMS major.

**FAMS 494.3 — 1&2**
**Research Thesis**

Restricted to students with a minimum cumulative 70% average as of January of year three. The student develops a question/hypothesis to be explored in depth in the major and in association with a faculty supervisor. The student prepares a thesis and delivers a presentation. Students considering graduate work are encouraged to enroll.
**Prerequisite(s):** Successful completion of 90 credit units towards the B.S.A. in the FAMS major and permission of the department head.

**FAMS 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# FIN — FINANCE

Department of Finance & Management Science, College of Commerce

**FIN 400.6 — 1&2(3S)**
**Honours Seminar in Finance**

Directed readings and individual research in the areas of finance. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# FREN — FRENCH

Department of Languages & Linguistics, College of Arts and Science

**FREN 103.3 — 1/2(3L-1T)**
**Beginning French I**

An introduction to the basic grammatical concepts of French. Instruction will be based on the communicative approach.
**Note:** Students with credit for French 20 (Grade 11 French) or French 30 (Grade 12 French) cannot take this course for credit. FREN 103 does not count towards a major in French but can be used towards the humanities or languages requirement.

**FREN 106.3 — 1/2(3L-1T)**
**Beginning French II**

A continuation of the basic grammatical concepts of French. The communicative approach will be used with greater emphasis on reading and writing.
**Prerequisite(s):** French 20 or FREN 103.
**Note:** Students who have completed French 30 cannot take this course for credit. FREN 106 does not count towards a major in French but can be used towards the humanities or languages requirement.

**FREN 122.3 — 1/2(3L-1T)**
**Intermediate French I**

For students who have an adequate mastery of the basic grammatical concepts of French. Practice in aural comprehension, speaking and writing, and an introduction to reading. The course meets three hours a week, and students also attend a laboratory/conversation tutorial for an additional hour per week.
**Formerly:** FREN 120.
**Prerequisite(s):** French 30 (Grade 12 Core French) or FREN 106.
**Note:** Students with French 30 or FREN 106 must register in FREN 122. Students having graduated from Grade 12 in an Immersion program, as well as students with an additional background in French beyond the Grade 12 level, will not be allowed to register in FREN 122 for credit.

**FREN 125.3 — 1/2(3L-1T)**
**Intermediate French II**

A continuation of the language study done in FREN 122, with more emphasis on reading. Students will attend a laboratory/conversation tutorial one hour a week in addition to three hours of classes.
**Formerly:** FREN 120.
**Prerequisite(s):** FREN 122.
**Note:** Students having graduated from Grade 12 in an Immersion program will not be allowed to register in FREN 125 for credit. Students with an additional background in French beyond the Grade 12 level should consult the Department before registering.

**FREN 128.3 — 1/2(3L-1T)**
**Intermediate French for Bilingual and Immersion Students**

Designed to help students with a well-developed pre-university training in oral French, strengthen and raise their overall, but especially written, performance, through grammar review, precis of short documentary videos, and a critique of a choice of articles.
**Formerly:** FREN 200.
**Prerequisite(s):** Ecole fransaskoise Grade 12, designated (or immersion) school Grade 12, out-of-province equivalent Grade 12. (If it has been more than five years since graduation from these programs, students may take 122 and 125).
**Note:** Students with credit for FREN 121 (or 122), or 125 may not take this course for credit.

**FREN 212.3 — 1/2(3L-1T)**
**Advanced French Expression I**

A French language course that builds on skills acquired in FREN 122, 125 or equivalent. Some oral work, but emphasis is placed on the practical application of grammar through reading and writing. A contemporary register of language, vocabulary and style is stressed through the study of magazines, journals and newspapers.
**Formerly:** FREN 202.
**Prerequisite(s):** FREN 125.

**FREN 218.3 — 1/2(3L)**
**Advanced French Expression II**

Completes the grammar review started in FREN 128 and FREN 212, and enhances writing skills through intensive vocabulary exercises, precis of and commentary on longer documentary videos and a critique of a Quebecois novel.
**Formerly:** FREN 200.
**Prerequisite(s):** FREN 128 or 212.
**Note:** Students with credit for FREN 215 may not take this course for credit.

**FREN 220.3 — 1/2(3L)**
**Masterpieces of French Literature**

An introduction to literary studies in French. The course will combine two elements: how to approach a French literary text, and a general introduction to French literature. It will study a selected number of French authors from the different genres and the various periods of French literature.
**Prerequisite(s):** FREN 125 or 218 (218 may be taken concurrently with FREN 220); or equivalent.

**FREN 230.3 — 1/2(3L)**
**Introduction to French Canadian Literature**

An introduction to the literature of 20th-century French Canada. A study of the main literary genres; short story, novel, plays, poetry and poetic prose; in their relationship to everyday life.
**Prerequisite(s):** FREN 125 or 218 (218 may be taken concurrently with FREN 230); or equivalent.

**FREN 252.3 — 1/2(3L)**
**Culture and Society in France**

A study of the cultural evolution in France (history, politics, religion, education, language, song, cinema, culinary arts, etc.) with emphasis on contemporary society.
**Prerequisite(s):** FREN 122 and 125; or equivalent.

**FREN 258.3 — 1/2(3L)**
**French for Business**

An intermediate course in business French, introducing topics such as big and small business, banks, international business as well as material on resumes, letters and job interviews and basic information on computers and the Internet, focussing on both Canada and France.
**Prerequisite(s):** FREN 125 or 218 (may be taken concurrently).

**FREN 261.0 — 1/2(1T)**
**Revolution and Dissidence in Protest Literature**

A tutorial accompanying LIT 261.
**Prerequisite(s):** FREN 125 or 218 (may be taken concurrently).

**FREN 262.0 — 1/2(1T)**
**Exiles and Emigres in Expatriation**

A tutorial accompanying LIT 262.
**Prerequisite(s):** FREN 125 or 218 (may be taken concurrently).

**FREN 263.0 — 1/2(1T)**
**Heroines Anti Heroines and Gender Definition in Literature**

A tutorial accompanying LIT 263.
**Prerequisite(s):** FREN 125 or 218 (may be taken concurrently).

**FREN 264.0 — 1/2(1T)**
**Mephisto and Faust Knowledge Power Damnation and Redemption**

A tutorial accompanying LIT 264.
**Prerequisite(s):** FREN 125 or 218 (may be taken concurrently).

**FREN 272.3 — 1/2(3L)**
**Quebec Society and Culture**

A study of the evolution of Quebec society (history, politics, religion, education, language, literature, song, women's and native rights, etc.) with emphasis on contemporary society.
**Prerequisite(s):** FREN 122 and 125; or equivalent.

**FREN 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FREN 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FREN 304.3 — 1/2(3L-1P)**
**French Phonetics Theory and Practice**

Conducted entirely in French, this course deals with the theory and practice of standard European and Canadian French pronunciation, corrective phonetics, phonetic transcription and the phenomena of elision, liaison, enchainement and syllabification.
**Prerequisite(s):** FREN 128, 212 and 218 .

**FREN 312.3 — 1/2(3L)**
**Perfecting French Style and Expression**

A study of French grammar at the advanced level based on grammatical analysis.
**Prerequisite(s):** FREN 218.

**FREN 314.3 — 1/2(3L)**
**Introduction to Translation**

An introduction to translation from French to English. A number of different kinds of texts (general, specialized, literary) will be translated, and various approaches to translation will be studied.
**Prerequisite(s):** 6 credit units in French at the 200-level. A grade of 70% or above is desirable.

**FREN 317.3 — 1/2(3L)**
**French Literature of 17th Century**

Representative authors, works, and literary movements will be studied.
**Prerequisite(s):** FREN 220 or 230.

**FREN 318.3 — 1/2(3L)**
**French Literature of 18th Century**

A study of the writers of 18th-century France who were most influential in the development of the philosophe movement, with particular emphasis on Montesquieu, Voltaire, Diderot and Rousseau.
**Prerequisite(s):** FREN 220 or 230.

**FREN 319.3 — 1/2(3L)**
**French Literature of 19th Century**

Representative authors, works, and literary movements will be studied.
**Prerequisite(s):** FREN 220 or 230.

**FREN 320.3 — 1/2(3L)**
**French Literature of 20th Century**

Beginning with Proust, the course will cover major writers and literary movements in the novel, the theatre and poetry, but will concentrate on the novel at the beginning of the century, the literature of the absurd, and the nouveau-roman.
**Prerequisite(s):** FREN 220 or 230.

**FREN 334.3 — 1/2(3L)**
**Poetry of Quebec**

A study of the development of poetry in Quebec: forms and main themes.
**Prerequisite(s):** FREN 220 or 230.

**FREN 343.3 — 1/2(3L)**
**Novel in Quebec**

Studies the development of the novel in Quebec with emphasis on contemporary works.
**Prerequisite(s):** FREN 220 or 230.

**FREN 345.3 — 1/2(3L)**
**Theatre in Quebec**

Studies the development of theatre in French Canada with emphasis on the contemporary period.
**Prerequisite(s):** FREN 220 or 230.

**FREN 350.3 — 1/2(3L)**
**Francophone Literature of Canadian West**

A study of the Francophone literature of the Canadian West from 1870 to today. Covers major writers in the novel, poetry and theatre. Students will be made aware of the representative authors and their works produced in French on the Canadian prairies.
**Prerequisite(s):** FREN 220 or 230.

**FREN 365.3 — 1/2(1L)**
**French Theatre in English Translation**

Representative French plays from the 17th century to the contemporary period, studied in their historical context as expressions of literary movements (e.g., Classicism, Romanticism, Theatre of the Absurd) and as types of theatre (e.g., farce, comedy, tragedy, historical drama). This will be offered as a guided reading course. The class will meet one hour every two weeks for a discussion session.
**Prerequisite(s):** A course in English or Literature; completion of 60 credit units at the university.
**Note:** May not be taken by students with credit for FREN 265 or 495. Cannot be used as part of a French major. It can be used by non-French majors towards the humanities requirements. French majors may use it under Requirement 7.

**FREN 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FREN 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FREN 400.0 — 1/2**
**Stay in French Speaking Milieu**

Students will participate in a French-speaking milieu. All students graduating with an Honours degree in French are required to have completed a stay in a French-speaking milieu. Students must contact the Department for further information regarding this requirement.
**Prerequisite(s):** Admission to the honours program in French and permission of the Department of Languages & Linguistics.
**Note:** Students will be provided with additional information once accepted into the French Honours program. Upon evaluation and successful completion of this stay, the student will be assigned a grade of a Pass, to indicate completion of this Honours requirement.

**FREN 418.3 — 1/2(3L)**
**Special Topics in 18th Century French Literature**

One of the following special topics will be studied: the novel and the theatre or the Encyclopedistes.
**Prerequisite(s):** FREN 220 or 230.

**FREN 419.3 — 1/2(3L)**
**Special Topics in 19th Century French Literature**

One of the following topics will be studied: French symbolist poetry (Baudelaire, Verlaine, Rimbaud and Mallarme): Victor Hugo cet Inconnu; the arriviste in Stendhal's, Balzac's and Maupassant's novels; the superfluous man in the 19th-century French novel (Constant, Adolphe, Chateaubriand, Rene, Flaubert, L'Education sentimentale).
**Prerequisite(s):** FREN 220 or 230.

**FREN 420.3 — 1/2(3L)**
**Special Topics in 20th Century French Literature**

One of the following topics will be studied: The Nouveau-roman; Dada and Surrealism in French literature; the literature of the absurd.
**Prerequisite(s):** FREN 220 or 230.

**FREN 423.3 — 1/2(3L)**
**Literature and Spirituality Catholic Novel in France**

A study of the three major Catholic novelists of 20th-century France: Francois Mauriac, Julien Green, and Georges Bernanos. Emphasis will be placed upon their religious and spiritual preoccupations.
**Prerequisite(s):** FREN 220 or 230.

**FREN 436.3 — 1/2(2 weekends)**
**Selected Topics in French**

Offered in collaboration with the University of Regina and taught jointly by faculty members from both campuses. It may, for example, be given over two weekends, one in Saskatoon and one in Regina, on two related topics in areas such as literature, civilization, cinema, and translation. Or distance technology could be used. The topics change every year.
**Prerequisite(s):** FREN 218 and 6 senior credit units in French or French Canadian literature.

**FREN 438.3 — 1/2(IS)**
**Special Studies in French**

Independent study, under the direction of a faculty member, of a topic in French or French Canadian literature or civilization or linguistics that is not covered in any of the existing courses in the department.
**Prerequisite(s):** FREN 218 and 6 senior credit units in French literature and/or civilization and/or linguistics.

**FREN 443.3 — 1/2(3L)**
**Special Topics in French Canadian Novel**

A special topic in the French Canadian novel will be studied, such as one of the women writers, the social novel or the nouveau-roman.
**Prerequisite(s):** FREN 220 or 230.

**FREN 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**FREN 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GBUS — GENERAL BUSINESS

Department of Management & Marketing, College of Commerce

**GBUS 400.6 — 1&2(3S)**
**Honours Seminar in General Business**

Directed readings and individual research in the areas of general business. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# GE — GENERAL ENGINEERING

College of Engineering

**GE 110.3 — 1(3L-3P)**
**Engineering I**

An introduction to engineering to develop various problem solving approaches, skills and competencies used by engineers, including common computer applications, charts and graphs, documentation, and drawing and sketching to develop visualization skills.

**GE 120.3 — 2(3L-3P)**
**Engineering II**

Further development of problem solving skills begun in GE 110. An introduction to modeling physical systems, with an emphasis on developing a relatively non-mathematical conceptual understanding of force, pressure, rates, flow, accumulation, etc. and their application in practical engineering situations. The fundamentals and application of linear algebra are the focus in the first half of the course. The types of activities included within the various engineering disciplines are discussed to illustrate the range of engineering activity. Examples of open-ended, discipline-specific problems are included in the lab component of the course.
**Prerequisite(s):** GE 110.

**GE 124.3 — 1(3L-1P-2T)**
**Engineering Mechanics I**

Introduction to statics. This course provides a basic introduction to forces as vectors, force equilibrium of particles, and force and moment equilibrium of rigid bodies. Problems involving friction and the analyses of simple trusses, frames and machines are also introduced. A series of problem laboratories and practical laboratories are designed to help the student apply the principles of statics to practical problems.
**Prerequisite(s):** Physics 30.

**GE 125.3 — 2(3L-1P-2T)**
**Engineering Mechanics II**

A continuation of Engineering Mechanics I. The equilibrium of bodies under distributed loads is presented as an introduction to centroids, centers of mass, and area moments of inertia. Particle dynamics is the subject of the majority of the course starting with the principles of particle translation under constant and non-constant acceleration. The kinetics of particles during translation, including force-acceleration, work-energy, and impulse-momentum are also applied to practical engineering applications. A series of problem laboratories and practical laboratories provide practical problems to assist in the assimilation of the principles covered.
**Prerequisite(s):** GE 124 and MATH 110.
**Corequisite(s):** MATH 124.

**GE 210.3 — 1(3L-1.5P)**
**Probability and Statistics**

Introduces the student to the concepts of probability and statistics using examples from various fields of engineering.
**Prerequisite(s):** MATH 124 (taken).
**Note:** Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**GE 213.3 — 1/2(3L-1.5P)**
**Mechanics of Materials**

Building upon the concepts introduced in the courses in statics and dynamics and the properties of engineering materials, this course extends equilibrium analysis to deformable bodies. Emphasis is placed on understanding and applying the three fundamental concepts of solid mechanics - equilibrium, constitutive relationships, and geometry of deformation (compatibility). The fundamentals are introduced and reinforced in the context of specific behaviors, including axial tension and compression, pure bending, bending in combination with shear, and torsion of circular shafts. Transformation of stress in two dimensions is introduced.
**Prerequisite(s):** GE 124 and GE 125 (taken).

**GE 226.3 — 2(3L-1.5P)**
**Mechanics III**

Studies the mechanics (kinematics and kinetics) of plane motion. Velocity and acceleration for translational and rotational motion are treated. The force-acceleration, impulse-momentum, and work-energy methods for systems undergoing two-dimensional dynamics are discussed in detail.
**Prerequisite(s):** GE 125 and MATH 223 (taken).

**GE 300.3 — 1/2(3L)**
**Oral and Written Communication**

Introduces the study and practice of pragmatic communication, with a focus on the rhetorical foundations of technical communication. It is designed to teach students to read analytically, to evaluate the demands of audience, context, and purpose, and to write and to present technical and other information clearly and comprehensively. It also deals with the role of communicative competence in establishing professional credibility with clients, co-workers, and superiors. Students prepare and present a variety of oral and written messages typical of those encountered in professional practice, including reports, resumes, and correspondence, and are involved in the evaluation and critical appraisal of each other's work.
**Prerequisite(s):** Completion of 24 credit units in first year Engineering.
**Note:** Students with credit for GE 390 cannot take GE 300 for credit.

**GE 348.3 — 1/2(3L-1.5P)**
**Engineering Economics**

An introduction to engineering economics and decision analysis. Topics include: fundamental economic concepts, cost concepts, time value of money operations, comparison of alternatives, depreciation and income tax, economic analysis of projects in the public and private sectors; break-even analysis, sensitivity and risk analysis, decision models.
**Prerequisite(s):** 45 credit units of university study towards the B.E. degree.

**GE 400.3 — 1/2(3L)**
**Rhetoric Theory and Practice of Persuasion**

A broad survey of the ancient discipline of rhetoric as it is currently understood and practised. Consideration of the nature, tradition, and theory of rhetoric, with an emphasis on developing skill in the use and detection of rhetorical devices and strategies in oral and written discourse.
**Prerequisite(s) or Corequisite(s):** A previous course in any humanities discipline.

**GE 401.3 — 1(3L)**
**Oral Rhetoric Theory and Practice**

Promotes and demands mastery of the skills of message construction, argument and analysis while concentrating on application to oral presentations. Strong performance and delivery aspect by application of theoretical understanding in four areas: understanding and adapting to audience; using rhetorical strategies to develop a well-structured, engaging, and convincing message; accommodating to situational constraints; and establishing speaker credibility through effective ethos, logos, and pathos appeals.
**Prerequisite(s):** For Engineering, GE 300 or equivalent or permission from the instructor; a previous humanities course is desirable. For Arts & Science, 12 humanities credit units of which 6 must be senior.

**GE 402.3 — 1(3L)**
**Interpersonal Communication**

A survey of foundational concepts in interpersonal communication. Topics include the nature of communication, self-concept, face and politeness, ethics, listening, context and situation, human motivation, identity formation, and persuasion. The course will incorporate rhetorical as well as social-scientific theories, and its goal will be to encourage students to think about the dynamic and shifting nature of human interaction, and to develop strategies for managing their own interactions in more effective and fulfilling ways.
**Prerequisite(s):** GE 300 or permission of the College.
**Note:** This course will be offered in the Fall term 2006.

**GE 403.3 — 2(3L)**
**Advanced Professional Writing Techniques**

An advanced course in the rhetorical, social, ethical, and political dimensions of professional writing. The course combines theoretical understanding with practical application through a series of position papers and realistic case studies. Through reading, discussion, and extensive writing exercises, students will be challenged to develop skill in analytical thinking, situational and task analysis, audience assessment, political and ethical discernment, and evaluation of rhetorical effects and effectiveness.
**Prerequisite(s):** GE 300 or permission of the College.
**Note:** This course will be offered in the Winter term 2007.

**GE 430.3 — 1(3L-3T)**
**Engineering Entrepreneurship Capstone**

Deals with all aspects of a successful entrepreneurship enterprise. The course content includes lectures, case studies, seminars and field trips. Students give oral and written presentations at the end of each case study. Lecture material covers topics such as finances, accounting, planning and management. Course material is augmented through seminars given by business people and specialists, based on their own experiences.
**Corequisite(s):** 12 credit units from Commerce and (COMM 447 or 449 or 493).

**GE 449.3 — 1/2(3L)**
**Engineering in Society**

Designed to create an awareness of the diverse and often-contradictory impacts of science and technology on society. The consequences of current technological changes and those of the recent past are explored from a professional ethics point of view to illustrate the complexities of technological-societal interrelationships.
**Prerequisite(s):** 90 credit units of university study towards the B.E. degree.
**Corequisite(s):** GE 300.

**GE 498.3 — 1/2(3L-1.5P)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GEOE — GEOLOGICAL ENGINEERING

Department of Civil & Geological Engineering, College of Engineering

**GEOE 218.3 — 1(3L-3P alt weeks)**
**Engineering Geology**

Introduction to engineering geology, hydrogeology and the engineering properties of geomaterials including strength, compressibility and permeability of soils and rocks. Labs, case studies and field trips emphasize slope stability, ground monitoring, instrumentation and the engineering significance of geological processes and geomaterials. Fundamentals of applied geomorphology, site investigation technology, geophysics and airphoto interpretation. Emphasis is placed on the surficial geology of the Canadian Prairies.

**GEOE 315.3 — 2(3L-3P alt weeks)**
**Rock Mechanics**

Physical properties of rock. Rock stress-deformation behaviour and failure. Laboratory and in situ testing.
**Prerequisite(s):** GE 213 (taken) and GEOE 218 (or PHYS 121 and GEOL 258).

**GEOE 378.3 — 3(P-2 weeks)**
**Engineering Geological Mapping**

Introduction to field methods in geological engineering: mapping, discontinuity surveys, analysis and design. A two-week field camp immediately preceding the first term in the final year of the GEOE program.
**Prerequisite(s):** GEOL 224, 245, 258, and GEOE 315.
**Note:** A two-week field camp immediately preceding the fall term in the final year of the GEOE program.

**GEOE 412.3 — 2(3L-3P alt weeks)**
**Reservoir Mechanics**

Fluid flow in hydrocarbon reservoirs; material balance equations; oil and gas well testing; waterflooding and EOR methods; fractional and segregated flow of immiscible fluids.
**Prerequisite(s):** CE 319 or ME 335.
**Corequisite(s):** GEOL 463.

**GEOE 414.3 — 1(3L-3P alt weeks)**
**Rock Mechanics Design**

Applications of rock mechanics to design in civil and mining engineering.
**Prerequisite(s):** GEOE 315.

**GEOE 466.3 — 1(3L-3P alt weeks)**
**Petroleum Geomechanics**

Geomechanical, geotechnical and petrophysical problems of interest to the petroleum industry: petroleum well drilling, borehole breakouts, wellbore stability, hydraulic fracturing, subsidence and compaction due to oil and gas withdrawal.
**Prerequisite(s):** GEOL 121 or 108 and 90 credit units towards the BE degree.

**GEOE 475.3 — 1(3L-1.5T)**
**Advanced Hydrogeology**

Contaminant transport; regional groundwater flow; petroleum hydrogeology; fluid migration in basins; surface-water groundwater interaction; introduction to groundwater modelling.
**Prerequisite(s):** CE 319 or CHE 320.

**GEOE 495.6 — 1&2(6P)**
**Capstone Design Project**

A final design course in which advanced principles of design are learned by application to a suitable geological engineering project. The course, which builds upon the foundation established in CE 295, focuses on approaches to be taken in defining complex problems (including the outlining of project objectives and scope), acquisition of suitable data resources, generation of alternative solutions, methods for selecting design alternatives and project implementation. Design philosophy and methods are discussed and explored in the context of the particular assignment given for the current year. The course requires that the students work in groups to achieve the desired outcome. Group interaction and performance is monitored throughout. Guest lectures from various industrial and other representatives will be provided to enhance the student's design experience.
**Prerequisite(s):** CE 295, GE 300, 348 and 90 credit units towards the B.E. degree.
**Corequisite(s):** CE 420.

**GEOE 498.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GEOG — GEOGRAPHY

Department of Geography, College of Arts and Science

**GEOG 120.3 — 1/2(3L-2P)**
**Introduction to Global Environmental Systems**

An introduction to principles, processes and interactions in the earth's physical environment with a particular emphasis on the flow of energy and matter within global environmental systems. Topics include global radiation and energy balances, atmospheric and oceanic processes, the hydrological cycle, earth surface processes and biogeochemical cycling. Case studies are introduced to illustrate the interaction between human activity and the natural environment.
**Prerequisite(s):** A background in high school sciences at the 30-level is recommended.

**Note:** Students with credit for GEOG 101, 102, 111, or 112 may not take this course for credit. Students may not take GEOG 120 and 125 concurrently. GEOG 120 is acceptable under requirement one of program type C.

**GEOG 125.3 — 1/2(3L)**
**Environmental Science and Society**

Studies the Earth's life-support systems and explores the consequences of human activity. Key themes include examining global ecosystem processes, human interconnections, as well as applications of information from the Earth Sciences.
**Prerequisite(s):** A background in high school sciences at the 30-level is recommended.
**Note:** Students with credit for GEOG 101, 102, 111, 112 or 120 may not take this course for credit. Students may not take GEOG 120 and 125 concurrently. GEOG 125 is intended for non-Geography majors. Students who have taken GEOG 125 for credit and would like to enter the geography program are required to take GEOG 120 and 130. Non-Geography majors may use GEOG 125 to satisfy the natural science requirement in program types A, B, and D.

**GEOG 130.3 — 1/2(3L)**
**Space Place and Society An Introduction to Human Geography**

Exposes students to human geography using a thematic approach. It is designed to stimulate a geographical imagination among students who are interested in understanding how the world turns by focusing on how nature, culture, and human actions shape places, regions, and the relationships and interactions among them.
**Note:** Students with credit for GEOG 113 or 114 may not take this course for credit.

**GEOG 202.3 — 1/2(3L)**
**Regional Geography of Canada**

Presents an analysis of the evolution of Canada and describes the physical, historical, economic and cultural bases of the various regions of Canada.
**Prerequisite(s):** GEOG 120 or 130; or 3 credit units in geography.

**GEOG 204.3 — 1/2(3L)**
**Geography of Prairie Region**

Presents an analysis of the physical, historical, economic and social geography of the three Prairie Provinces. The processes of settlement, resource development, and urban growth will be examined.
**Prerequisite(s):** GEOG 120 or 130; or 3 credit units in geography.

**GEOG 208.3 — 1/2(3L)**
**World Regional Development**

The regions of the world face a series of development problems. These problems are examined in terms of development theory and their spatial consequence. Their implications for global, national and regional planning are discussed.
**Prerequisite(s):** GEOG 120 or 130; or 3 credit units in social science.
**Note:** Students with credit for GEOG 281 may not take this course for credit.

**GEOG 222.3 — 1/2(3L-1P)**
**Introduction to Technical Geography**

Introduction to the skills for reading maps, air photos and satellite images is provided, along with introduction to computer-based cartography, image analysis and enhancement, and GIS.
**Prerequisite(s):** GEOG 120; and either 130 or permission of the instructor; or 6 credit units in geography.

**GEOG 225.3 — 1/2(3L-2P)**
**Hydrology of Canada**

The geographic distribution of hydrologic processes in Canada is outlined. The types of processes and their rates of operation are related to regional physical environments.
**Prerequisite(s):** GEOG 120 or GEOL 206 or 308 (GEOL 308 may be taken concurrently) or permission of the instructor.

**GEOG 233.3 — 1(3L-1T)**
**Introduction to Weather and Climate**

An examination of the elements of weather and climate including the composition and thermal structure of the atmosphere; radiation and energy balances; global circulation; air masses; fronts and atmospheric disturbances; and climates of the world.
**Prerequisite(s):** GEOG 120 or GEOL 206 or 308 (GEOL 308 may be taken concurrently) or permission of the instructor.

**GEOG 235.3 — 1(3L-2P)**
**Process Geomorphology**

The description and objective classification of landforms and the principles and processes involved in their origin and distribution. The role of weathering, mass movement, glacial, fluvial and aeolian processes in shaping Canadian landscapes will be emphasized in this course.
**Prerequisite(s):** GEOG 120 or GEOL 121 or permission of the instructor.

**GEOG 240.3 — 1/2(3L)**
**Urban Economic Geography**

An introduction to economic and urban geography as a social science. Survey of the spatial organization of activity in the city, as well as a study of spatial organization and globalization of economic activity at regional, national and international scales.
**Prerequisite(s):** GEOG 130 or permission of the instructor.
**Note:** Students with credit for GEOG 249 may not take this course for credit.

**GEOG 261.3 — 1/2(3L)**
**Foundations of Social Geography**

Explores the geographic dimensions of various facets of identity such as gender, race, class, ability, sexuality, and describes the theoretical frameworks which geographers have used to analyze them.
**Prerequisite(s):** GEOG 130 or permission of the instructor.

**GEOG 271.3 — 1/2(3L)**
**Regional Biogeography**

A regional treatment of world plant communities emphasizing vegetation types, environmental parameters, faunal assemblages, and modification by human activities.
**Prerequisite(s):** GEOG 120 or BIOL 253 or PLSC 213.

**GEOG 272.0**
**Work Experience I**

A 4-month cooperative work term for Co-operative education students.
**Prerequisite(s):** Completion of minimum 54 and maximum 84 credit units of course work. See also specific eligibility criteria for each of the participating programs in Geography, Land Use and Environmental Studies (LUES), and Regional and Urban Development (RUD) in the Arts and Science Programs section of the Calendar.

**GEOG 280.3 — 1/2(3L)**
**Environmental Geography**

An introduction to the geographic perspectives on resources and the environment. This course introduces environmental geography as an integrative science to explore the relationships between human and physical systems.
**Prerequisite(s):** 6 credit units from GEOG 120, 125, and GEOG 130; or 3 credit units from GEOG 120, 125, 130 and permission of the instructor.
**Note:** Geography majors are encouraged to take GEOG 120 and 130 before registering in this course. GEOG 280 satisfies the natural science requirement for Program Types A, B and D.

**GEOG 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOG 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**GEOG 301.3 — 1(3L)**
**Quantitative Methods in Geography I**

Content will focus on the use of statistics in geographical research and on their use in a spatial context in human and physical geography. Topics are covered in univariate and bivariate statistics. Weekly take-home labs and course content emphasize geographical subjects.
**Prerequisite(s):** 12 credit units in GEOG.
**Note:** Students with credit for an equivalent statistics course or GEOG 303 may not take this course for credit. Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**GEOG 302.3 — 1(3L)**
**Quantitative Methods in Geography II**

Content will focus on the use of statistics in geographical research and on their use in a spatial context in human and physical geography. Topics are covered in spatial and multivariate statistics. Weekly take-home labs and course content emphasize geographical subjects.
**Prerequisite(s):** GEOG 301.
**Note:** Students with credit for an equivalent statistics course or GEOG 303 may not take this course for credit. Students who wish to use this course toward an Arts & Science credit should first refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**GEOG 306.3 — 1/2(2L-1S)**
**Canadian Rural Geographies**

Designed to help students understand processes and outcomes of changing economic, social and environmental relations in Canadian rural areas. Changes will be examined in terms of different sectors of rural economies, characteristics of environmental and landscape features, as well as alterations in social relations.
**Prerequisite(s):** 3 credit units of senior Human Geography (GEOG 240 or 261 or 280); or 3 credit units of senior Regional Geography (GEOG 202 or 204); or permission of the instructor.
**Note:** Students with credit for GEOG 398 Canadian Rural Geographies may not take this course for credit.

**GEOG 308.3 — 1/2(3L)**
**Society Environment and Development in Africa**

A thematic survey of the geography of Africa south of the Sahara, providing an holistic overview of contemporary environmental, social, economic and political issues that challenge that region today.
**Prerequisite(s):** 6 credit units in Geography or permission of the instructor.

**GEOG 320.3 — 1/2(3L-3P)**
**Cartography**

History of map making, map projections; relief representation, graphics and statistical mapping, drafting, map design and map reproduction, analysis of map series and sources.
**Prerequisite(s):** GEOG 222, or equivalent background and permission of the department.

**GEOG 321.3 — 1/2(3L-3P)**
**Landscape Analysis**

Introduces students to the techniques of interpreting landscapes using aerial photographs. The class consists of three major components: lectures, fieldtrips and hands-on laboratory exercises. Photogrammetry and the recognition landforms and plant associations are the principal topics examined in this course. This will be a team-taught course.
**Prerequisite(s):** GEOG 222; GEOG 235 or GEOL 308 (GEOL 308 may be taken concurrently); or permission of the instructor.

**GEOG 322.3 — 1/2(3L-2P)**
**Introduction to Geographic Information Systems**

Introduces students to the use of computer-based Geographic Information Systems for the management and analysis of spatial data for map production. Topics include vector and raster data structures, spatial data acquisition, geo-referencing, spatial interpolation, overlay analysis, and modelling. Students obtain practical experience with Geographical Information Systems through a series of exercises.
**Formerly:** GEOG 412.
**Prerequisite(s):** GEOG 222 or equivalent background and permission of the department.
**Note:** Students with credit for GEOG 412 may not take this course for credit.

**GEOG 323.3 — 1/2(3L-2P)**
**Remote Sensing**

Advanced lectures, seminars and laboratories for those specializing in resource and environmental studies. It includes inductive and deductive evaluation and air photo patterns and the interpretation of multi-spectral imagery and remote sensing imagery.
**Prerequisite(s):** GEOG 222 or equivalent background and permission of the department.

**GEOG 325.3 — 1/2(3L)**
**Principles of Fluvial Systems**

Processes responsible for the spatial variability of available water resources are introduced and investigated analytically. Topics covered will provide an explanation of the pattern of precipitation, evaporation, infiltration, snowmelt and streamflow.
**Prerequisite(s):** GEOG 225.

**GEOG 328.3 — 2(3L)**
**Groundwater Hydrology**

Groundwater is the largest source of readily accessible freshwater. This course provides a rigorous understanding of subsurface hydrological processes and covers fundamentals of subsurface flow and transport, emphasizing the role of groundwater and soil water in the hydrological cycle, and groundwater-surface water interactions.
**Prerequisite(s):** GEOG 225.

**GEOG 332.3 — 1/2(3L)**
**Microclimatology**

The study of natural and modified microclimates near the Earth's surface; energy budgets of forests, lakes, tundra, grasslands, and agricultural crops with an emphasis on Canadian environments; transport of mass and heat. Familiarization with some instruments for microclimatic measurements.
**Prerequisite(s):** GEOG 233 and MATH 110; or EVSC 210.

**GEOG 335.3 — 2(3L-2P)**
**Glacial Geomorphology**

Examines the role of continental and alpine glaciation in shaping Canadian landscapes throughout the Quaternary period. Topics include glaciology and glacier flow, glacial processes and landforms, Milankovitch cycles and Quaternary ice sheet dynamics in North America, and glacio-eustasy and glacio-isostasy.
**Prerequisite(s):** GEOG 235.
**Note:** Students with credit for GEOL 312 may not take this course for credit.

**GEOG 340.3**
**European Heritage of our Built Environment**

A field study on urban design and city-form in Central Europe, providing a historical review of architectural styles preserved at Prague and elsewhere in Bohemia. Gothic and Baroque styles are emphasized, particularly as they relate to street and square design.
**Prerequisite(s):** GEOG 342 or 346 or permission of the department.

**GEOG 341.3 — 1/2(3L)**
**Urban Community Planning**

Introduces the theory and methods of urban and regional planning. Three major topical areas are emphasized: the land use and social organization problems faced by urban places and planners; planning concepts, and their evolution and application; and the interrelationship between the role of the state, and urban or regional change.
**Formerly:** GEOG 246.
**Prerequisite(s):** GEOG 240.
**Note:** Students with credit for GEOG 246 may not take this course for credit.

**GEOG 342.3 — 1/2(3L)**
**Community Planning in Canada**

Detailed investigation of community planning methodology and applications, with emphasis on population and housing analysis. The causes, impacts and proposed planning solutions for major community planning problems in Canadian urban or rural areas are discussed. Computer applications and the use of statistical information in addressing problems of inner-city neighbourhoods in Saskatoon are stressed.
**Formerly:** GEOG 247.
**Prerequisite(s):** GEOG 240.
**Note:** Students with credit for GEOG 247 may not take this course for credit.

**GEOG 343.3 — 1/2(3L)**
**Legal Issues for Urban Studies and Planning**

Designed for students interested in urban studies and planning, this course reviews legal concepts and issues associated with the functions of municipalities, and especially with their powers for controlling and planning land use. The focus wherever possible, is on Saskatchewan urban and rural areas, and on Saskatchewan legislation and case law.
**Prerequisite(s):** 12 credit units in GEOG.

**GEOG 346.3 — 1/2(3L)**
**Introduction to Urban Design**

A lecture/seminar on the history, context and elements of the built urban environment. Function and form, and aspects of urban aesthetics are discussed in relation to streetscapes, open spaces and heritage conservation. The relationship of urban design with trends in social thought and with cultural patterns is addressed. The studio consists of design exercises including graphic presentations and elementary applications in computer-aided drafting.
**Prerequisite(s):** GEOG 341(246).

**GEOG 348.3 — 1/2(3L)**
**Population Geography**

Examines the demography of human populations and their spatial patterns. Central themes are the evolving patterns of fertility, mortality, and migration, the processes that fashion these geographical distributions, and their impact upon population growth, demographic change and regional development.
**Prerequisite(s):** 12 credit units in GEOG.
**Note:** Students with credit for GEOG 241 may not take this course for credit.

**GEOG 350.3 — 1/2(3L)**
**Geography of Transportation**

Introduces the geographical aspects of transportation theory and planning. Major topical areas that are emphasized are: travel, behaviour, network design, and planning and policy for the future.
**Formerly:** GEOG 265.
**Prerequisite(s):** GEOG 240.
**Note:** Students with credit for GEOG 265 may not take this course for credit.

**GEOG 351.3 — 1/2(3L)**
**Northern Environments**

A multidisciplinary study of the physical environment of the circumpolar region. Examines the processes operating at the Earth's surface and within the atmosphere and oceans and their role in structuring northern ecosystems. Case studies will permit students with background preparation in the humanities, social

sciences and natural sciences to assess the impact of human activity on northern environments.
**Prerequisite(s):** 6 credit units in the natural sciences (GEOG 120); or permission of the instructor.

**GEOG 364.3 — 1/2(3L)**
**Geographies of Health and Healing**

The healing or therapeutic effects of environment - an increasingly important determinant of health - are explored in this course from multiple perspectives. Through revealing the healing aspects of place, as framed by the therapeutic landscape concept, this course emphasizes the importance of place as a dynamic element in health and wellness.
**Formerly:** GEOG 314.
**Prerequisite(s):** GEOG 240.
**Note:** Students with credit for GEOG 314 may not take this course for credit.

**GEOG 367.3 — 1/2(3L)**
**Gender and the City**

Explores issues relating to gender and contemporary cities in Europe and North America. It introduces feminist geography and explores the relationship between space and gendered social identities. The course then considers sites of gendered social practice - home, neighbourhood and the spatial organization of the city.
**Formerly:** GEOG 347.
**Prerequisite(s):** 6 credit units in human geography at the 200-level or above, or permission of the department.
**Note:** Students with credit for GEOG 347 may not take this course for credit.

**GEOG 371.3 — 1(3L-2P)**
**Principles of Biogeography**

Focuses on the geography of plants including the environmental control of plant distributions; the collection, analysis and presentation of vegetation data; and the functional and historical aspects of plant communities.
**Prerequisite(s):** GEOG 271 or permission of the instructor.
**Note:** Students with credit for GEOG 270 may not take this course for credit.

**GEOG 372.0**
**Work Experience II**

A 4-month cooperative work term for Co-operative education students. See also the participating programs in Geography, Land Use and Environmental Studies (LUES), and Regional and Urban Development (RUD) in the Arts and Science Programs section of the Calendar.
**Prerequisite(s):** GEOG 272.

**GEOG 373.0**
**Work Experience III**

A 4-month cooperative work term for Co-operative education students. See also the participating programs in Geography, Land Use and Environmental Studies (LUES), and Regional and Urban Development (RUD) in the Arts and Science Programs section of the Calendar.
**Prerequisite(s):** GEOG 372.

**GEOG 381.3 — 1/2(3L)**
**Geography of Northern Development**

Explores the question of development in northern Canada. The framework for this geographical analysis is provided by the Core/Hinterland Theory. Within this theoretical framework, major resource development will be examined and the regional impact analyzed. Special attention will be placed upon resource development conflicts.
**Prerequisite(s):** GEOG 280 or NS 365; or permission of the instructor.

**GEOG 385.3 — 1/2(3L)**
**Analysis of Environmental Management and Policy Making**

An examination of various approaches to environmental management. Emphasis is placed on environmental policy making and management strategies pertinent in a western context. Analytical frameworks used to understand how policies are developed and implemented are also introduced.
**Prerequisite(s):** GEOG 280 or permission of the instructor.

**GEOG 386.3 — 1/2(3L)**
**Environmental Impact Assessment**

A practical and theoretical introduction to environmental and socioeconomic impact assessment. Emphasis is placed on the principles and characteristics of impact assessment as set out under Canadian and Saskatchewan guidelines and legislation, and on the lessons learned from selected case studies.
**Prerequisite(s):** GEOG 280 or equivalent or permission of the department.

**GEOG 390.3 — 1(L-P)**
**Field Methods in Physical Geography**

Introduces a variety of field and laboratory approaches, methodologies and techniques that find frequent application in physical geography. Field projects will be undertaken to collect data for analysis, evaluation and presentation.
**Note:** This one-week field camp is required for all four-year majors and honours students in physical geography. It is held in the week preceding the start of fall Term One. Permission of the instructor is required before June 30. Application forms are available from the Department in March. A preliminary meeting is held in March. There are costs in addition to tuition fees. Details available from the Department.

**GEOG 391.3 — 1(L-P)**
**Field Methods in Human Geography**

Geography students are introduced to field methods used in human geography. Students will undertake a series of data gathering exercises in the field and then analyze their results.
**Prerequisite(s):** GEOG 130, 6 credit units at the 200-level in human geography and permission of the department.
**Note:** This one-week field camp is required for all four-year majors and honours students in human geography. It is held the week preceding the start of the fall (first) term. There are costs in addition to tuition fees.

**GEOG 393.3 — SP/SU(20L-6S-40P)**
**Physical Environments of the Indian Himalayas**

The physical landscapes of northern India are examined through intensive field investigations at selected sites in the diverse ecozones of the region.
**Prerequisite(s):** 6 senior credit units Geography, including at least one senior class in Physical Geography. Equivalent credit units in related subject areas, such as Environmental Studies, Biology, and Anthropology, will be accepted with the permission of the Instructor.
**Note:** This is a field study course only, offered concurrently with GEOG 394 in Spring and Summer Session. Significant additional costs are involved beyond normal tuition fees, for example airfare, local travel and accommodation in India.

**GEOG 394.3 — SP/SU(30L-5S-30P)**
**Society and Environmental Management in the Indian Himalayas**

The economies and cultures of the Indian Himalayas are examined, with particular emphasis on society-environment interactions and natural resource utilization. Themes such as indigenous knowledge, farming systems, environmental degradation, and conservation are examined through a combination of field studies, lectures and assignments.
**Prerequisite(s):** 6 senior credit units Geography, including at least one senior class in Physical Geography. Equivalent credits in related subject areas, such as Environmental Studies, Biology, and Anthropology, will be accepted with the permission of the Instructor.
**Note:** This is a field study course only, offered concurrently with GEOG 393 in Spring and Summer Session. Significant additional costs are involved beyond normal tuition fees e.g. airfare, local travel and accommodation in India.

**GEOG 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOG 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOG 401.3 — 1/2(3L)**
**Qualitative Methods in Geography**

An overview of issues in qualitative methods in Geography, with an exploration of approaches to interviewing and analyzing texts.
**Formerly:** GEOG 416.
**Prerequisite(s):** 6 credit units in human geography at the 200-level or above, or permission of the department.
**Note:** Students with credit for GEOG 416 may not take this course for credit.

**GEOG 423.3 — 1/2(2L-1S-2P)**
**Advanced Remote Sensing**

Deals with advanced remote sensing techniques including satellite imagery calibration, spectral data transformation and land use cover classification, and detection of environmental change. The course consists of three interrelated components: lectures, laboratory exercises and group projects.
**Prerequisite(s):** GEOG 323.

**GEOG 427.3 — 1(3L-2T)**
**Advanced Hydrology**

Examines the physical principles governing hydrological processes. Topics covered will be precipitation, interception, snow accumulation, snowmelt, evaporation, infiltration, groundwater movement, flood and drought frequency analysis and streamflow. Lectures and tutorials with hydrology instrumentation will be supplemented by problem solving assignments and an essay.
**Prerequisite(s):** GEOG 301 or equivalent statistics course.

**Note:** Students with credit for GEOG 498.3 Special Topics Advanced Hydrology may not take GEOG 427 for credit.

**GEOG 435.3 — 1/2(3L)**
**Problems in Geomorphology**

Recent developments in research will be selected from the following topics: weathering, fluvial geomorphology, mass movement and slope processes, karst landforms, glacial and periglacial geomorphology.
**Prerequisite(s):** GEOG 335 or permission of the instructor.

**GEOG 442.3 — 1/2(3L/3S)**
**Advanced Land Use Planning**

A lecture/seminar on analytical methods in land use planning. Input-output relationships affecting land use change are introduced. Information system structure for urban transportation within the context of planning for residential, commercial and industrial land uses is discussed. The land development process, demographic indicators, and computer procedures identifying geographic target areas for policy intervention throughout a city are also reviewed.
**Prerequisite(s):** GEOG 240.

**GEOG 446.3 — 1/2(3L)**
**Advanced Urban Design**

A lecture/seminar on analytical methods in urban design with an emphasis on energy-efficient subdivision design. Design for sustainable development and for pedestrian traffic in open space networks is discussed and analyzed. Issues in the spatial syntax of artificial environments are introduced, with an analysis of artificial object configuration in urban space. The workshop consists of design and discussion exercises and the use of CAD.
**Prerequisite(s):** GEOG 346.

**GEOG 448.3 — 1/2(3S)**
**Senior Seminar in Population Migration**

This seminar class will focus on some of the major, contemporary themes and problems in Population Geography and the Geography of Migration. Students will analyze and discuss selected readings. Each student will prepare a major project on a topic discussed with the instructor.
**Prerequisite(s):** GEOG 348 and 12 additional credit units in geography.

**GEOG 462.3 — 1/2(2L/1S)**
**Geographical Perspectives on Aboriginal Peoples**

Employs contemporary theoretical frameworks in geography to examine the relationships between non-Aboriginal representations of spaces and places in Canada, and the definition of Aboriginal identities, the geographies of Aboriginal rights, and the movements and settlement patterns of Aboriginal peoples.
**Formerly:** GEOG 452.
**Prerequisite(s):** 9 credit units 200-level human geography or permission of the department.
**Note:** Students with credit for GEOG 452 may not take this course for credit.

**GEOG 472.0**
**Work Experience IV**

A 4-month cooperative work term for Co-operative education students. See also the participating programs in Geography, Land Use and Environmental Studies (LUE), and Regional and Urban Development (RUD) in the Arts and Science Programs section of the Calendar.
**Prerequisite(s):** GEOG 373.

**GEOG 473.0**
**Work Experience V**

A 4-month cooperative work term for Co-operative education students. See also the participating programs in Geography, Land Use and Environmental Studies (LUE), and Regional and Urban Development (RUD) in the Arts and Science Programs section of the Calendar.
**Prerequisite(s):** GEOG 472.

**GEOG 485.3 — 1/2(3S)**
**Critical Issues in Environmental Management**

Focuses on the institutional and social aspects of environmental management. Emphasis is placed on the challenges of public policy making and the influence of stakeholders in shaping the purposes and outcomes of management efforts. Each year may feature specific concepts and issues. Critical assessment of research is also undertaken.
**Formerly:** GEOG 480.
**Prerequisite(s):** GEOG 280 and 3 credit units of a field methods course; or permission of the instructor.
**Note:** Students with credit for GEOG 480 may not take this course for credit.

**GEOG 486.3 — 1/2(3S)**
**Research Seminar in Environmental Impact Assessment**

A project-based course focusing on emerging concepts and broader applications of environmental assessment principles and practices. Course topics varying from year to year following developments in the field, and may include such topics as cumulative effects assessment, strategic environmental assessment, project scoping, assessment methods and techniques, monitoring and follow-up.
**Prerequisite(s):** GEOG 386 or permission of the instructor.

**GEOG 490.3 — 1/2(2L-2T)**
**Special Topics in Physical Geography**

Students will work on theoretical or practical research projects under the supervision of a faculty member. An outline of the project must be submitted to the course co-ordinator in the term preceding registration and be approved before Departmental permission will be granted. An oral presentation and written report submitted at the end of the project will be evaluated by a faculty committee.
**Prerequisite(s):** 6 credit units in physical geography at the 300 level or above, and permission of the department.

**GEOG 491.3 — 1/2(3L)**
**Research Topics in Human Geography**

Recent research problems and methods in geography. Each student is required to undertake a major research project.
**Prerequisite(s):** GEOG 391 and 301 and 302 (may be taken concurrently) and permission of the department.

**GEOG 495.3 — 1/2(3S)**
**History of Geographic Thought**

A seminar designed to acquaint the major or honours student with the development of geographic thought, emphasizing major themes and people who have been significant in this development.
**Formerly:** GEOG 405.
**Prerequisite(s):** 24 credit units in geography.
**Note:** Students with credit for GEOG 405 may not take this course for credit.

**GEOG 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOG 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GEOL — GEOLOGY

Department of Geological Sciences, College of Arts and Science

**GEOL 108.3 — 1/2(3L)**
**The Earth and How It Works**

Exploration of the global and local-scale physical processes that have shaped our planet. Strong emphasis is on interrelationships of geological processes and humans. Topics for discussion include volcanoes, earthquakes, pollution, and the origin and exploitation of energy, mineral and water resources.
**Note:** May be used toward the Natural Science requirement for Programs Type A, B, and D (B.A. programs). Students with credit for GEOL 103, 105, 110 or 121 may not take this course for credit.

**GEOL 109.3 — 2(3L)**
**The Earth and Life through Time**

A consideration of the evolution of our earth, from its origin to the present. Emphasis is placed on the evolution of life, and on the interpretation of the rock and fossil record. Special consideration is given to major events in the history of our planet and of animals and plants.
**Note:** May be used toward the Natural Science requirement for Programs Type A, B, and D (B.A. programs). Students with credit for GEOL 103, 105, 110 or 122 may not take this course for credit.

**GEOL 121.3 — 1/2(3L-3P)**
**Earth Processes**

Follows the same lectures as GEOL 108. The laboratory component satisfies the requirements of students in Program Type C (B.Sc. programs). Students in the College of Education who wish to take a course in Earth Science and require a laboratory component are advised take this course.
**Note:** Students with credit for GEOL 103, 105, 108, 110 or GEOE 118 may not take this course for credit.

**GEOL 122.3 — 2(3L-3P)**
**Earth History**

Follows the same lectures as GEOL 109. The laboratory component satisfies the requirements of students in Program Type C (B.Sc. programs). Students in the College of Education who wish to take a course in Earth Science and require a laboratory component are advised to take this course.
**Note:** Students with credit for GEOL 103, 105, 110 or 109 may not take this course for credit.

**GEOL 206.3 — 1/2(3L)**
**Earth Systems**

An introduction to Earth System Science, a concept that demonstrates the interrelationships between the Earth's landmasses, atmosphere, oceans and biosphere, and the role of humans in their interaction. Topics discussed will include geochemical cycles and environmental change, both natural and anthropogenic.
**Prerequisite(s):** One course from GEOL 121, 122, GEOG 120 (or 111 or 112), BIOL 108, 110, ARCH 112, CHEM 112, or PHYS 111, or permission of the department.

**GEOL 224.3 — 1(3L-3P)**
**Mineralogy**

Crystalline materials and their properties; crystal chemistry and chemical equilibria in natural systems; mineral properties and classification, and particularly rock-forming mineral groups; mineral genesis. .
**Prerequisite(s):** GEOL 121; CHEM 112 or 114. Students with GEOG 112 or 120 may take this course with permission of the department.
**Note:** Students with credit for GEOL 221 may not take this course for credit.

**GEOL 226.3 — 2(3L-3P)**
**Introductory Petrology**

Provides the basics of optical mineralogy, with specific reference to mineral assemblages in igneous and metamorphic rocks. The classification, field relationships, textures, geochemistry, and tectonic setting of igneous and metamorphic rocks will be introduced.
**Prerequisite(s):** GEOL 224.
**Note:** Students with credit for GEOL 225 may not take this course for credit.

**GEOL 229.3 — 2(3L)**
**Introductory Geochemistry**

An overview of geochemical theory and problem-solving techniques used by Earth Scientists to elucidate Earth system processes. Topics of discussion will include the origin of elements, stable and radiogenic isotopes, geochronology, thermodynamics, trace element partitioning in mineral fluid systems, weathering and aqueous geochemistry.
**Prerequisite(s):** GEOL 121; MATH 110 (may be taken concurrently); CHEM 112. Students with GEOG 120 (or 112) may take this course with permission of the department.
**Note:** Students with credit for GEOL 428 may not take this course for credit.

**GEOL 245.3 — 1(3L-2P)**
**Introduction to Sedimentary Rocks**

Provides a general introduction to sedimentary rocks, sedimentary processes, and the depositional environments in which these rocks form. Stratigraphic concepts are introduced with specific reference to the relationship between sedimentary rock units. Laboratories focus on the identification of sedimentary rocks and structures in hand specimen.
**Prerequisite(s):** GEOL 121. Students with GEOG 120 (or 112) may take this course with permission of the department.
**Note:** Students with credit for GEOL 243 may not take this course for credit.

**GEOL 247.3 — 2(3L-3P)**
**Palaeontology**

Ancient life on earth will be explored via the principles and concepts of invertebrate paleontology, paleoecology, paleobiology and evolution. The basic morphology and systematics of the main fossil invertebrate groups will be covered in the laboratory session, when fossil specimens will be studied.
**Prerequisite(s):** GEOL 245 (or 243).
**Note:** Students with credit for GEOL 246 and 332 may not take this course for credit.

**GEOL 258.3 — 1(3L-3P)**
**Structural Geology**

An introduction to the structural features of rocks; including discussions of their origin and use. The description of folds, faults, and joints are emphasized, along with outcrop relationships of intrusive bodies. Other topics will include tectonics, orogeny, stratigraphic facing, and non-orogenic process, such as salt doming and glacial thrusting. Laboratories will introduce mapping techniques and the analysis of geological maps.
**Prerequisite(s):** GEOL 121. Students with GEOG 120 (or 112) may take this course with permission of the department.

**GEOL 282.3 — 1(3L)**
**Earth Physics**

Physical processes in the origin of the Earth and Moon, and in the subsequent development of internal structure. The generation of the geomagnetic field by dynamo action, and the use of magnetics and gravity in geophysics. Earthquakes and global seismology. The use of satellite data in geophysics.
**Prerequisite(s):** MATH 112 or 116 or 124; PHYS 111 or 121 or EP 155.
**Note:** Students with credit for GEOL 382 may not take course for credit.

**GEOL 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information

**GEOL 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**GEOL 308.3 — 1/2(P)**
**Geological Mapping I Fall or Spring Camp**

A field course held at the Little Rocky Mountains, Montana. Emphasis will be placed on interpreting and mapping sedimentary rocks, although igneous rocks will also be studied.
**Prerequisite(s):** GEOL 226 (or 225), 247 (or 246), and 258 or permission of the department.
**Note:** There will be costs in addition to tuition fees. Normally held in early May or late August, two weeks prior to beginning of on-campus classes.

**GEOL 311.3 — 1(3L-3P)**
**Principles of Geomorphology**

The description and objective classification of landforms, their appearance on maps, and the processes and principles involved in their origin and distribution.
**Prerequisite(s):** GEOG 120 (or 112 or 210), GEOL 121.
**Note:** Students with credit for GEOG 235 may not take this course for credit.

**GEOL 312.3 — 2(3L)**
**Pleistocene Geomorphology**

Glacial and periglacial geomorphology, stressing Pleistocene glaciation in Canada and the present periglacial environment.
**Prerequisite(s):** GEOG 235 or GEOL 311.
**Note:** Students who have taken GEOG 236 or GEOG 335 may not take this course for credit.

**GEOL 324.3 — 1(3L-3P)**
**Igneous Petrology**

Mineralogy, phase relations, origin, and occurrence of igneous rocks. Geological processes that tend to produce and modify a magma, will be interpreted in the light of chemical equilibria and kinetics. The laboratory will involve the study of igneous rocks in thin section.
**Prerequisite(s):** GEOL 226 (or 225), 229, CHEM 115.

**GEOL 325.3 — 2(3L-3P)**
**Metamorphic Petrology**

The mineralogy, phase relations, possible equilibration temperatures and pressures, and occurrence of metamorphic rocks. Geological processes that tend to produce geothermal and geobarometric gradients and modify rocks will be interpreted using chemical equilibria and chemical-thermal kinetics. The laboratory will involve the study of metamorphic rocks in thin section.
**Prerequisite(s):** GEOL 226 (or 225), 229, CHEM 115.

**GEOL 329.3 — 1/2(3L)**
**Introductory Biogeochemistry**

An introduction to chemical processes operating at the interface between biotic and abiotic systems. Emphasis will be placed on the use of stable isotope tracer techniques in environmental, medical, pharmacological, and archaeological research, and on the fundamental principles of metal chemistry, speciation, bioavailability and toxicity in aqueous media.
**Prerequisite(s):** 6 credit units of chemistry; MATH 110; and one of BIOL 253, PLSC 213, GEOG 120 (or 111), GEOL 121.

**GEOL 330.3 — 1/2(3L)**
**Climate History**

Explores the record of climate variations preserved in recent earth materials, and the influence of these variations on contemporary societies. The focus will be on extreme periods, e.g., Pleistocene deglaciation, the Younger Dryas, 8.2ka event, Piorra Oscillation, Roman Warm Period, Dark Ages, Medieval Optimum, Little Ice Age, and 20th century warming.
**Prerequisite(s):** GEOL 206 or 229 or GEOG 233 or permission of the department.
**Note:** Students with credit for GEOL 398 may not take this course for credit.

**GEOL 334.3 — 1(3L-3P)**
**Gravity Magnetics Electromagnetic and Radiation Methods**

Basic theory of gravity, magnetic, electromagnetic and radiation methods and the application of these methods in exploration and environmental problems.
**Prerequisite(s):** CMPT 116* or 111 or 112; MATH 223 or 225 or 276; MATH 224 or 226 or 238; and EP 155 or PHYS 121 or 128.
**Note:** Students with credit for GEOE 333 or 334 may not take this course for credit.
*Geophysics students intending to take CMPT 116 must contact the geophysics program advisor before they will be allowed to register.

**GEOL 335.3 — 2(3L-3P)**
**Seismology and Ground Penetrating Radar Methods**

Introduction to seismological and ground penetrating radar methods; their integration with other geophysical techniques. Application of geophysical measurements to geological engineering, groundwater, and prospecting problems.
**Prerequisite(s):** CMPT 116* or 111 or 112; MATH 223 or 225 or 276; MATH 224 or 226 or 238; and EP 155 or PHYS 121 or 128.
**Note:** Students with credit for GEOE 333 or 335 may not take this course for credit.
*Geophysics students intending to take CMPT 116 must contact the geophysics program advisor before they will be allowed to register.

**GEOL 343.3 — 1(3L-3P)**
**Sedimentary Environments**

The history of the facies concept; sedimentary environments and facies; techniques of facies analysis; modern environments of deposition; interpretation of ancient sedimentary environments; sedimentary facies through geological time; sedimentary facies, sea level, and tectonics.
**Prerequisite(s):** GEOL 247 (or 246) and GEOL 308.

**GEOL 358.3 — 2(3L-3P)**
**Structural Geology II**

The geometry, character, and origin of folds, faults and rock cleavage: their inter-relationships and analysis. The analysis of complex geological maps. Ductile strain, strain analysis, deformation fabrics, ductile faulting, shear-sense indicators and the brittle/ductile transition will be discussed. The analysis of polyphase deformation, interference structures, and sequential deformation fabrics.
**Prerequisite(s):** GEOL 258.

**GEOL 384.3 — 2(3L-3P)**
**Introduction to Applied Geophysics**

Principles and methods of geophysics; their use in the interpretation of crustal structures of both tectonic and stratigraphic origin; their role in locating probable centres of mineral concentration; their application to problems in engineering geology.
**Prerequisite(s):** GEOL 258; MATH 110, and 112 or 116. (Students other than geology students are accepted without prerequisite on written approval of the Geology Department).
**Note:** Students with credit for GEOE 333, 334 or 335 or GEOL 334 or 335 may not take this course for credit.

**GEOL 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOL 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOL 405.3 — 1/2(5L-60P)**
**International Field Studies**

A field course involving the observation, analysis and interpretation of geological relationships and processes in international locations. The geographic site of the course will vary, but will be chosen to highlight features that will assist the student in understanding the earth system, and the international character of geology.
**Prerequisite(s):** GEOL 121, 122, and 6 credit units from the following: GEOL 224, 226 (or 225), 229, 245 (or 243), 247 (or 246), and 258.
**Note:** Offered in alternate years. There will be costs additional to tuition fees.

**GEOL 406.3 — 1(3L)**
**Global Considerations in Geology**

Origin of the universe and the solar system; the early earth and the origin and evolution of its core, mantle, crust, oceans, and atmosphere. The Archaean-Proterozoic contrasts; plate tectonics; geochemical cycles and budgets; climatic, atmospheric, hydrospheric and biospheric change; limits on resource exploitation; occurrence, distribution and retardation of radionuclides.
**Prerequisite(s):** GEOL 226 (or 225), 229, 247 (or 246), and 258.
**Note:** Students with credit for GEOL 409 may not take this course for credit.

**GEOL 408.3 — 1(P)**
**Geological Mapping II**

Methods of geological mapping based on a field course in the Precambrian Shield which will examine deformed and metamorphosed volcanic, sedimentary, and instrusive rocks. Mapping results will be presented as a report and in oral presentation.
**Prerequisite(s):** GEOL 308 and one of GEOL 324, 325 or 358.
**Note:** There will be costs additional to tuition fees. Normally held in late August.

**GEOL 411.3 — 1(3L)**
**Well Logging**

Discussion of the types of geophysical measurements that are made in boreholes with emphasis on the physical principles and problems involved in evaluation of geological formations.
**Prerequisite(s):** GEOL 121; MATH 223 and 224, or 225 and 226; PHYS 227.
**Note:** Students with credit for GEOE 411 may not take this course for credit.

**GEOL 413.3 — 2(3L)**
**Aqueous Geochemistry**

An overview of the controls on the quality of pristine and polluted subsurface waters. Topics will include sampling and analyses of water samples, biogeochemical processes controlling water quality and techniques to characterize and quantify the controlling processes.
**Prerequisite(s):** GEOL 229, CHEM 115, MATH 110; or permission of department. (GEOE 475 is highly recommended.)
**Note:** Students who completed GEOL 498 may not take this course for credit.

**GEOL 429.3 — 2(3L)**
**Isotope Geochemistry**

An overview of theory and applications of stable and radiogenic isotope geochemistry including the use of isotopes as geotracers, geochronometers and geothermometers.
**Prerequisite(s):** GEOL 224, 229.

**GEOL 433.3 — 2(3L)**
**Evolution of Vertebrates**

The geological history of the principal groups of vertebrates, with emphasis on palaeontological general morphology and evolutionary relationships.
**Prerequisite(s):** GEOL 247 (or 247) or permission of the department.

**GEOL 435.3 — 1/2(3L-3P)**
**Microfossils**

Introduction to the twin disciplines of micropalaeontology, concerned with mineralized microfossils, and palynology, concerned with organic-walled microfossils, techniques of extraction, study and classification of microfossils. Their use in stratigraphy, archaeology and the determination of past environments, climates and oceanic circulation patterns.
**Prerequisite(s):** GEOL 247 (or 246).

**GEOL 437.3 — 1/2(2L-2P)**
**Palaeoecology**

Study of the relationship between organisms and their environments during geological time; the use of fossils in reconstruction of the conditions of deposition of ancient sediments.
**Prerequisite(s):** GEOL 247 (or 246) or permission of the department.

**GEOL 439.3 — 1(3L-3P)**
**Palaeobotany**

An evolutionary survey of the principal groups of plants based on the fossil record. Consideration will be given to the origins of life and to the history of the algae and bryophytes, and emphasis will be placed on the vascular plants. The course will include discussion of modes of fossilization and of palaeobotanical techniques.
**Prerequisite(s):** GEOL 247 (or 246) or BIOL 205 or permission of the department.

**GEOL 444.3 — 1(3L-3P)**
**Tectonic Evolution of North America**

A review of the theory of plate tectonics and an outline of the Archean, Proterozoic and Phanerozoic tectonic history of the continent, with special attention to the tectonic controls on sedimentary basins and to the evolution of both continental margins.
**Prerequisite(s):** GEOL 226 (or 225) and 258.

**GEOL 445.3 — 2(3L-3P)**
**Phanerozoic History of North America**

Paleozoic, Mesozoic and Cenozoic history of North America and comparisons with select areas and events of other continents; emphasis on western Canada in laboratory exercises and tutorials.
**Prerequisite(s):** GEOL 247 (or 246).

**GEOL 446.3 — 1(3L-3P)**
**Advanced Sedimentology**

Chemical, biochemical and physical processes in the formation of sedimentary rocks; origin, diagenesis and petrography of carbonates, evaporites and cherts. Major topics of current sedimentological interest may also be discussed.
**Prerequisite(s):** GEOL 224, 229 and 343 (may be taken concurrently).

**GEOL 450.3 — 1(3L)**
**Limnogeology**

An introduction to the geology of lake basins and lacustrine rocks, emphasizing paleoenvironmental analysis of lacustrine

sediments and rocks from Precambrian to Recent.
**Prerequisite(s):** GEOL 229, 245, 343 (may be taken concurrently) (or permission of the Department).
**Note:** Students with credit for GEOL 498 Special Topics Limnogeology may not take GEOL 450 for credit. GEOL 450 will be offered biennially.

**GEOL 463.3 — 2(3L-3P)**
**Petroleum Geology**

The composition and physical properties of petroleum. Organic matter evolution, maturation, and migration of hydrocarbons from source rock to reservoir. Introduction to petroleum exploration, development and recovery methods, and the main types of reservoirs and traps.
**Prerequisite(s):** GEOL 224, 245 (or 243), 258.

**GEOL 465.3 — 1(3L-3P)**
**Mineral Deposits**

Examines the geology and genesis of the principal types of magmatic and hydrothermal mineral deposits, with an emphasis on the deposits of the Canadian Shield. The criteria used for exploring for these deposits and the analytical techniques used to unravel their origin will be emphasized.
**Prerequisite(s):** GEOL 226 (or 225), 245 (or 243), 258.

**GEOL 481.3 — 1(3L-3P)**
**Potential Field Methods**

The theory of interpretation of gravity and magnetic fields in geophysical exploration. Elements of potential theory, mathematical models, Fourier methods and interpretation procedure will be discussed.
**Prerequisite(s):** GEOL 334, 335 and CMPT 116 or equivalent.

**GEOL 482.3 — 2(3L-3P)**
**Electrical Methods in Geophysical Prospecting**

The fundamental principles underlying electrical methods; instrumentation, field procedures, and the computation and interpretation of data; application of the methods in geophysical exploration.
**Prerequisite(s):** GEOL 334, 335 and CMPT 116 or equivalent.

**GEOL 483.3 — 2(3L-3P)**
**Seismology**

Theory of elasticity; energy sources; refraction and reflection methods; instrumentation and interpretation, including the fundamentals of digital processing.
**Prerequisite(s):** GEOL 334, 335 and CMPT 116 or equivalent.

**GEOL 485.6 — 1/3(P)**
**Geophysics Field Camp**

Practical experience in conduct of geophysical surveys; operation of equipment, data manipulation, computer processing and interpretation, preparation of reports. Normally held in late August, two weeks prior to the beginning of on-campus classes.
**Prerequisite(s):** GEOL 334, 335.

**GEOL 487.3 — 1/3(P)**
**Geophysical Field Methods**

A course in geophysical field methods for students who are not geophysics majors but who require some experience with field techniques. Gravity, magnetic, electro-magnetic and seismic surveys will be performed over appropriate targets. The course is normally conducted in the two weeks immediately preceding the fall regular session. Interested students should contact the department for further details.
**Prerequisite(s):** GEOL 384; or GEOL 334 and 335.
**Note:** Students with credit for GEOL 485 or GEOE 473 may not take this course for credit.

**GEOL 490.3 — 1/2(3P)**
**Geological Sciences Research**

Students will work on theoretical or practical research projects under the guidance and supervision of a faculty member. An outline of the project must be submitted to the course co-ordinator in the term preceding registration and be approved before Departmental permission will be granted. An oral presentation and written report submitted at the end of the project will be evaluated by a faculty committee.
**Prerequisite(s):** 6 credit units in geological sciences at the 300- level or above and permission of the department.

**GEOL 492.6 — 1&2(3P)**
**Geological Sciences Research**

Students will work on theoretical or practical research projects under the guidance and supervision of a faculty member. An outline of the project must be submitted to the course co-ordinator in the term preceding registration and be approved before Departmental permission will be granted. An oral presentation and written report submitted at the end of the project will be evaluated by a faculty committee.
**Prerequisite(s):** 6 credit units in geological sciences at 300-level or above, and permission of the department.

**GEOL 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GEOL 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GERM — GERMAN

Department of Languages & Linguistics, College of Arts and Science

**GERM 114.3 — 1/2(3L-1T)**
**Elementary German I**

This beginner-level course will cover all four language skills (listening, speaking, reading and writing) in a communicative setting with emphasis on inter-cultural understanding. Basic grammar terminology and application will be introduced.
**Formerly:** GERM 115.
**Note:** Students with a background in German, such as High School German, will have to complete a placement test in the Department of Languages and Linguistics if they wish to take this course for credit. Students with credit for German 115 may not take this course for credit.

**GERM 117.3 — 1/2(3L-1T)**
**Elementary German II**

The subsequent course to GERM 114, this advanced beginner-level course will continue to cover all four language skills (listening, speaking, reading and writing) in a communicative setting with emphasis on inter-cultural understanding.
**Formerly:** GERM 115.
**Prerequisite(s):** GERM 114 or equivalent background.
**Note:** Students with a background in German, such as High School German, will have to complete a placement test in the Department of Languages and Linguistics if they wish to take this course for credit. Students with credit for German 115 may not take this course for credit.

**GERM 202.3 — 1/2(3L)**
**Intermediate German I Emphasis on Literature and Culture**

A continuation of exposure to contemporary culture and everyday life, and an introduction to contemporary literature. Designed to strengthen communicative competency stressing oral expression. Recommended as a course to be taken concurrently with GERM 214, 217, 314, and 317.
**Formerly:** GERM 200.
**Prerequisite(s):** GERM 114 and 117 or permission of the department.
**Note:** Native speakers of German are not allowed to register in this course. Students with credit for German 200 may not take this course for credit.

**GERM 204.3 — 1/2(3L)**
**Intermediate German II Emphasis on Literature and Culture**

Further exposure to contemporary German culture, literature and everyday life. Designed to enhance communicative competency both orally and in writing. Recommended as a course to be taken concurrently with GERM 214, 217, 314, and 317.
**Formerly:** GERM 200.
**Prerequisite(s):** GERM 202 or permission of the department.
**Note:** Native speakers of German are not allowed to register in this course. Students with credit for German 200 may not take this course for credit.

**GERM 212.6 — 1&2(3L)**
**German Culture and Thought**

An English-language survey of cultural events, emphasizing the important epochs in Central European Literature. Deals with major developments in philosophy, religion, art, architecture and music.
**Prerequisite(s):** Does not fulfill a language requirement. May be used to fulfill humanities requirements or as an elective under Requirement 7.

**GERM 214.3 — 1/2(3L-1T)**
**Intermediate German I Communicative and Grammatical Skills**

This intermediate-level course focuses on increased competency in oral and written communication and cultures. Students read and discuss a variety of texts, learn more about issues and problems of contemporary life in German-speaking countries and consolidate and expand their knowledge and mastery of grammar.
**Formerly:** GERM 215.
**Prerequisite(s):** GERM 114 and 117 or equivalent background.
**Note:** Native speakers of German are not allowed to register in this course. Students with credit for German 215 may not take this course for credit.

**GERM 217.3 — 1/2(3L-1T)**
**Intermediate German II Communicative and Grammatical Skills**

The subsequent course to GERM 214 concentrates on increased competency in oral and written communication. Students read and discuss a variety of texts, learn more about issues and problems of contemporary life in German-speaking countries and expand their knowledge and mastery of grammar.
**Formerly:** GERM 215.
**Prerequisite(s):** GERM 214.
**Note:** Native speakers of German are not allowed to register in this course. Students with credit for German 215 may not take this course for credit.

**GERM 261.0 — 1/2(1T)**
**Revolution and Dissidence in Protest Literature**

A tutorial accompanying LIT 261.
**Prerequisite(s):** GERM 214, 217 (may be taken concurrently).

**GERM 262.0 — 1/2(1T)**
**Exiles and Emigres in Expatriation**

A tutorial accompanying LIT 262.
**Prerequisite(s):** GERM 214, 217 (may be taken concurrently).

**GERM 263.0 — 1/2(1T)**
**Heroines Anti Heroines and Gender Definition in Literature**

A tutorial accompanying LIT 263.
**Prerequisite(s):** GERM 214 and 217 (may be taken concurrently).

**GERM 264.0 — 1/2(1T)**
**Mephisto and Faust Knowledge Power Damnation and Redemption**

A tutorial accompanying LIT 264.
**Prerequisite(s):** GERM 214, 217 (may be taken concurrently).

**GERM 265.3 — 3L**
**Women Writers in German Literature after 1945**

Study and discussion of Austrian, German and Swiss texts by women, published after 1945, to expand students' literary analytic abilities, cultural and socio-historical perspectives, critical thinking, communicative and writing abilities. Possible topics include: sexism, anti-Semitism, racism, generation conflicts, Germany's Nazi past, the divided country, religion, the economy, environment, gender and identity. Course language: English.
**Prerequisite(s):** A course in English or Literature; completion of 30 credit units at the university, or permission of the department.
**Note:** Students with credit for GERM 365, may not take this course for credit.

**GERM 266.3 — 3L**
**Holocaust in German Literature and Film**

An investigation of twentieth-century German language literary and film responses to the Holocaust. Possible topics included: victims and oppressors; gender; stereotypes; resistance by individuals and groups; the role and appropriateness of literature as a medium to response to the historical, cultural and psychological complexities of the Holocaust. Course language: English.
**Prerequisite(s):** A course in English or Literature; completion of 30 credit units as the university, or permission of the department.
**Note:** Students with credit for GERM 366, may not take this course for credit.

**GERM 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GERM 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GERM 314.3 — 1/2(3L-1T)**
**Advanced German I**

This advanced-level course aims at developing post-intermediate proficiency in oral and written communication and culture. Grammar review and expansion, and a wider vocabulary will be studied, interlinked with literary texts reflecting German culture.
**Formerly:** GERM 315.
**Prerequisite(s):** GERM 217 or permission of the department..
**Note:** Students with credit for GERM 315 may not take this course for credit.

**GERM 317.3 — 1/2(3L-1T)**
**Advanced German II**

The subsequent course to GERM 314 concentrates on broadening vocabulary and useful complex grammar structures while reading literary texts reflecting German culture.
**Formerly:** GERM 315.
**Prerequisite(s):** GERM 314 or permission of the department.
**Note:** Students with credit for GERM 315 may not take this course for credit.

**GERM 365.3 — 1/2(3L-1S)**
**Women Writers in German Literature after 1945**

Study and discussion of Austrian, German and Swiss texts by women, published after 1945, to expand students' literary analytic abilities, cultural and socio-historical perspectives, critical thinking, communicative and writing abilities. Possible topics include: sexism, anti-Semitism, racism, generation conflicts, Germany's Nazi past, the divided country, religion, the economy, environment, gender and identity. Course language: English; readings, seminars and student work in German.
**Prerequisite(s):** GERM 317 or permission of the department.
**Note:** Students with credit for GERM 265, may not take this course for credit.

**GERM 366.3 — 1/2(3L-1S)**
**Holocaust in German Literature and Film**

An investigation of twentieth-century German language literary and film responses to the Holocaust. Possible topics included: victims and oppressors; gender; stereotypes; resistance by individuals and groups; the role and appropriateness of literature as a medium to response to the historical, cultural and psychological complexities of the Holocaust. Course language: English; readings, seminars and student work in German.
**Prerequisite(s):** GERM 317 or permission of the department.
**Note:** Students with credit for GERM 266, may not take this course for credit.

**GERM 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GERM 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GERM 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GERM 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# GRK — GREEK

Department of History, College of Arts and Science

**GRK 112.3 — 1(5L)**
**Greek for Beginners I**

An introduction to the fundamentals of ancient Attic Greek, in which the student learns the basic forms of nouns and verbs and rudimentary syntax.

**GRK 113.3 — 2(5L)**
**Greek for Beginners II**

An introduction to the more advanced elements of accidence and syntax of ancient Attic Greek.
**Prerequisite(s):** GRK 112.

**GRK 202.3 — 1(3L)**
**Intermediate Greek I**

Grammar review and introduction to continuous prose texts. Prose composition.
**Prerequisite(s):** GRK 113.
**Note:** The department recommends a minimum grade of 75 per cent in GRK 113 for students enrolling in this course.

**GRK 203.3 — 2(3L)**
**Intermediate Greek II**

Readings in continuous prose texts. Introduction to poetry and Greek metrics. Prose composition.
**Prerequisite(s):** GRK 202.

**GRK 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GRK 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GRK 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GRK 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GRK 400.3 — 1/2(3L)**
**Senior Greek**

The study of a particular selection of ancient Greek texts, in the original Greek. Emphasis will be placed on the precise translation and analysis (grammatical, metrical, stylistic, historical, and/or literary) of the assigned works.
**Prerequisite(s):** GRK 203.

**GRK 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**GRK 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# HEB — HEBREW

Department of Religious Studies & Anthropology, College of Arts and Science

**HEB 111.6 — 1&2(3L)**
**Introductory Hebrew Grammar**

Hebrew grammar. Translation from Hebrew into English of selected Old Testament passages.

**HEB 201.6 — 1&2(3L)**
**Translation of Hebrew Prose**

Traslation from Hebrew into English of Judges 2-4, 6-9, 17-18; II Samuel 9-20.
**Prerequisite(s):** HEB 111.

**HEB 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HEB 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HEB 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HEB 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HEB 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HEB 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# HED — HOME ECONOMICS EDUCATION

Department of Curriculum Studies, College of Education

**HED 111.3 — 1(3L)**
**Family Ecosystem**

An introduction to the study of families from a family ecosystem perspective. This explores personal and familiar relationships, individual and collective relationships with the environment, decisions about developing and allocating resources, and the local, national and global impact of these decisions.

**HED 142.3 — 2(3L)**
**Consumer**

An introduction to the study of individual and family consumer decision making. Involves a study of: advertising and other factors which influence consumer decision making; consumer rights and responsibilities; the reciprocal influence between the consumer and the marketplace; and the impact of consumerism locally, nationally, and globally.

**HED 222.3 — 1(3L-3P)**
**Family Living Environments**

An introduction to family housing environments. Involves a study of: housing alternatives for Canadians; housing needs regarding basic shelter; safety; finances; handicaps; special needs; housing policies; aesthetics; culture; personal expression; and the relationship among housing, family, and the environment.

**HED 223.3 — 2(3L-3P)**
**Contemporary Clothing and Textile Consumption**

An introduction to the consumption of clothing and textiles. Involves a study of common textiles and finishes used in apparel and the home, fibers, yarns, and fabric construction, performance and care, factors affecting selection including economic, socio-psychological, cultural, aesthetic, wardrobe planning, apparel construction and fit, special needs and marketplace options.

**HED 232.3 — 1(3L)**
**Personal and Family Financial Management**

A study of the economic resources of individuals and families. Income, wealth, employee benefits, credit, mortgages, pensions and wills are examined along with issues related to financial security, income assistance and budgeting. Spending decisions of a family at the various stages of the family will also be examined.

**HED 313.3 — 1(3L-3P)**
**Family and Technology**

A sociotechnology model is used to examine household use and impact of technology from past to present, the relationship among family, technology and society, current issues/concerns regarding technology and the family; and strategies to enable individuals and families make more informed decisions regarding household technologies.

**HED 411.3 — 2(3L-3P)**
**Family Politics**

A study of families including family myths/biases/stereotypes, family formation, communication, changing roles, life stages/transition periods, resource management, medical/health issues, abuse, impact of home and marketplace work, reciprocal influence between social institutions and families, family policy needs, current issues and trends, and community resources and support networks.
**Prerequisite(s):** HED 111 and 142.

**HED 431.3 — 2(3L-3P)**
**Management of Family Time and Food Resources**

An exploration of the decisions that individuals and families make about developing and allocating time and food resources. Involves an understanding of concepts such as goals, resources, planning, decision-making, implementing; changing family resource management concerns over the life cycle; and specific management concerns for different family structures.
**Prerequisite(s):** HED 111, 222, 223, and 232 or permission of the department head for any deficiencies in the 200-level courses.

# HIST — HISTORY

Department of History, College of Arts and Science

**HIST 110.3 — 1/2(3L-1T)**
**Landmarks of Ancient History**

Themes of Near Eastern history; Greek and Hellenistic experiments in politics and thought; Rome from city-state to world-state; Christianity in a pagan world.
**Note:** Students with credit for HIST 114 may not take this course for credit.

**HIST 111.3 — 1/2(3L-1T)**
**Landmarks of Medieval History**

The heirs of Rome; Charlemagne; Vikings, Magyars and the rise of feudalism; peasant life; Islam and the Crusades; the rise of France; the twelfth century renaissance; the Holy Roman Empire; the age of Pope Innocent III; medieval women; castles and cathedrals; the late middle ages.
**Note:** Students with credit for HIST 114 may not take this course for credit.

**HIST 114.6 — 1&2(3L-1T)**
**Ancient and Medieval World**

Landmarks of Near Eastern history; Greek and Hellenistic experiments in politics, empire and thought; Rome from city-state to world state; Christianity in a pagan world; heirs of Rome; Charlemagne; Vikings, Magyars and the rise of feudalism; peasant life; Islam and the Crusades; the Holy Roman Empire and the Papacy; medieval women; chivalry, castles and cathedrals.

**HIST 120.6 — 1&2(3L-1T)**
**History of Europe from Renaissance to Present**

A survey of significant forces in modern Europe from the 15th century; the shaping of the modern world; the concentration of political power and the expansion of Europe in the 17th and 18th centuries; the liberal experiment in the 19th century; the 20th-century dilemma.

**Formerly:** HIST 112.
**Note:** Students with credit for HIST 121 or 122 may not take this course for credit.

**HIST 121.3 — 1/2(3L-1T)**
**Europe to Modern Age 1348 to 1789**

The Black Death; Renaissance and Reformation; the wars of the seventeenth century; the rise of modern science; the agricultural revolution; the Enlightenment.
**Note:** Students with credit for HIST 112 or 120 may not take this course for credit.

**HIST 122.3 — 1/2(3L-1T)**
**Europe in Age of Mass Culture 1789 to Present**

Population growth; the age of political revolutions; Romantics and Liberals; nationalism and socialism; the industrial revolution; towards gender equality; the two World Wars and the Cold War; towards economic and political integration.
**Note:** Students with credit for HIST 112 or 120 may not take this course for credit.

**HIST 140.6 — 1&2(3L-1T)**
**Survey of British History**

An introduction to history through the peoples of the British Isles from Roman to modern times. A broad political narrative of dynastic, constitutional, religious, economic, military, and imperial events, as well as social analyses of family and gender relations, work and industrial change, and cultural and intellectual developments.
**Formerly:** HIST 115.

**HIST 148.6 — 1&2(3L-1T)**
**East Asia in Modern Times**

The cultural and political developments of East Asia (mainly China and Japan) from the beginning of the 17th century to modern times; the European presence in this region and the interactions between European and East Asian traditions during this period.
**Formerly:** HIST 117.

**HIST 150.6 — 1&2(3L-1T)**
**Canadian History for Indian Students from Earliest Times to Present**

Special attention is given to the role of the Indian in this general survey of Canadian history that examines French and Loyalist political traditions, Confederation, the development of a national political life, the rise of staple trades, problems of transportation, economic diversification, and changes in society.
**Formerly:** HIST 116.
**Note:** Open only to students registered in the ITEP program. Students with credit for HIST 150 may not take HIST 151 or 152 for credit.

**HIST 151.3 — 1/2(3L-1T)**
**Canadian History from Pre Contact Period to 1867**

A survey of the history of Canada from the pre-contact period until 1867, emphasizing social, cultural, economic, political, constitutional, and external policy developments.
**Note:** Students with credit for HIST 150 and/or 206 may not take this course for credit.

**HIST 152.3 — 1/2(3L-1T)**
**Post Confederation Canada**

A survey of the history of Canada since Confederation, emphasizing social, cultural, economic, political, constitutional, and external policy developments.
**Note:** Students with credit for HIST 150 and/or 206 may not take this course for credit.

**HIST 170.6 — 1&2(3L-1T)**
**The Americas**

A comparative exploration of the history of Canada, the United States, and Latin America from Pre-Columbian societies to the present, focusing on ethnic and class conflict, gender roles, slavery, the role of religion and the struggle for democracy.
**Formerly:** HIST 113.

**HIST 200.6 — 1&2(3L)**
**History of Greece**

Minoans and Mycenaeans; the Dark Age; political and intellectual experiments of the Archaic Age; Persian Wars; the rise and fall of the Athenian empire; Athenian democracy; Greek thought, featuring historiography; the trials of city states and the rise of Macedon; Alexander and the Hellenistic world; Greece and Rome.
**Formerly:** HIST 203.
**Prerequisite(s):** 6 credit units HIST at the 100-level or 6 credit units from the Department of Classics.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 201.6 — 1&2(3L)**
**History of Rome**

Etruscan, Greek and Italian neighbours; society and politics in the Roman Republic; creation of an Italian federation and a Mediterranean empire; failure of the Republic; Augustus and the advent of monarchy; the Roman Empire, with emphasis on its constitutional, social, military and ideological fabric; paganism and Christianity; Rome's decline; historiography.
**Formerly:** HIST 204.
**Prerequisite(s):** 6 credit units HIST at the 100-level or 6 credit units from the Department of Classics.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 202.3 — 1/2(3L)**
**Formation of Europe 300 to 1000**

A history of the West from the Christianization of the Roman Empire in the fourth century to the foundation of the Holy Roman Empire in the tenth century. Themes include: the survival of Romanitas, monasticism and the western Church, the barbarian kingdoms, the Carolingian Renaissance, and the rise of feudalism.
**Prerequisite(s):** 6 credit units HIST at the 100-level or 6 credit units from the Department of Classics.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 205.3 — 1/2(3L)**
**Europe and World in High Middle Ages 1000 to 1300**

Cluny and the Gregorian reform; the rise of feudal monarchy; Byzantium, Islam and the Crusades; twelfth century renaissance; universities and scholasticism; new forms of religious life; the peasantry; medieval women; the Holy Roman Empire and the Papacy; castles and cathedrals; feudal monarchies.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain. Students with credit for HIST 212 may not take this course for credit.

**HIST 213.6 — 1&2(3L)**
**Medieval England 1000 to 1460**

Studies elements in the political and constitutional history of medieval England and considers the relevance for the 20th century of documents such as Magna Carta, and emphasizes the cultural achievements of the period and examines the ways of life of the common people.
**Formerly:** HIST 251.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 215.6 — 1&2(3L)**
**Byzantine Empire 330 to 1453**

An introduction to the empire, centred on Constantinople, which dominated much of Eastern Europe and the Near East for a thousand years after Rome. Themes include religious and cultural developments; the relations between the Byzantine, the Islamic world, and the Latin west; the Byzantine Commonwealth and the cultural development of Eastern Europe.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Other Regions. Students with credit for HIST 211 may not take this course for credit.

**HIST 220.6 — 1&2(3L)**
**Russian History from the 9th Century to Present**

The formative influences on Russian history; unification and expansion of the country; developments in the political, social and economic structure. Russia's relationship with the West; the connection between the Soviet period and earlier developments; the collapse of the Soviet Union in 1991 and post-Soviet Union Russia.
**Formerly:** HIST 210.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Europe and Great Britain.

**HIST 225.6 — 1&2(3L)**
**Age of Renaissance 1300 to 1555**

The waning Middle Ages - Renaissance and Reformation. Black Death, economic recovery and overseas expansion. The Hundred Years' War, the fall of Constantinople and the empire of Charles V. Renaissance thought and art; the impact of printing; social and religious protest. Outstanding individuals: Joan of Arc, Petrarch, Columbus, Copernicus, Machiavelli, Leonardo, Erasmus, Luther.
**Formerly:** HIST 214.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 226.6 — 1&2(3L)**
**Early Modern Europe 1555 to 1715**

Europe from the Peace of Augsburg to the death of Louis XIV; political, religious and social unrest and conflict in the age of power. Special attention will be paid to the development of French government, institutions and culture.
**Formerly:** HIST 216.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 227.6 — 1&2(3L)**
**Age of European Revolution 1715 to 1815**

A study of the Old Regime in Europe, the American Revolution and its relationship

to European history, the French Revolution, and the Napoleonic period. The changes in methods of warfare, the industrial revolution in England and Europe, and intellectual changes accompanying this period of crisis will be discussed.
**Formerly:** HIST 217.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 228.6 — 1&2(3L)**
**Europe in l9th Century 1815 to 1914**

The impact of the forces of nationalism, liberalism, democracy, industrialization and socialism; an analysis of the European balance of power, the rise of national states, the broadening of the base of government, the development of capitalism, extension of European control, and the causes of World War I.
**Formerly:** HIST 218.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; Europe and Great Britain.

**HIST 229.6 — 1&2(3L)**
**Europe in the 20th Century**

The legacies and problems of the late 19th century and the shaping of the 20th-century world. The First World War and the Russian Revolution; the rise of totalitarianism, the League of Nations, the Great Depression and the Second World War; post-war Europe, elements of the Cold War, Europe and the colonial world, international diplomacy of the great powers.
**Formerly:** HIST 219.
**Prerequisite(s):** 6 credit units in history at the 100-level.
**Note:** Post-1815; Europe and Great Britain.

**HIST 236.3 — 1/2(3L)**
**Italy in Age of Baroque 1550 to 1789**

A survey of Italian history in the early modern period, with emphasis on the states system and the foreign presence, economic developments, social foundations, religious reform, and the transition from the Renaissance to the Enlightenment.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 242.6 — 1&2(3L)**
**Early Modern Britain 1460 to 1760**

From Reformation through civil war in three kingdoms to the emergence of Great Britain as an imperial power, this course examines the intersections of social, economic, intellectual, cultural and political history through local and regional history, family and gender relations, and dynastic and parliamentary affairs.
**Formerly:** HIST 253
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 243.6 — 1&2(3L)**
**Modern British Social History 1760 to Present**

The history of the first modern industrial society; urbanization, democratization and class conflict; the rise of the labour movement, the triumph of middle-class values, the decline of the aristocracy; the changing religious and moral climate; the domestic consequences of world power; the social and economic impact of two world wars, the loss of world power.
**Formerly:** HIST 255
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Europe and Great Britain.

**HIST 244.6 — 1&2(3L)**
**British Imperialism in Asia Africa and South Pacific**

The slave trade; paramountcy in India; Afghan and Burmese wars; opium wars and the opening of China; missionaries, traders and convicts in the South Pacific; Boer and British in South Africa; New Imperialism and the partition of Africa; Sepoy Rebellion, nationalism, Gandhi, and independence for India; roots of African independence.
**Formerly:** HIST 256.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Other Regions.

**HIST 249.6 — 1&2(3L)**
**China and Japan in the 20th Century**

A study of the political, social, economic and cultural development of China and Japan in the twentieth century with substantial emphasis on the importance of these two nations in international politics.
**Formerly:** HIST 237.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; Other Regions.

**HIST 250.6 — 1&2(3L)**
**Canada and Colonial Neighbours before 1800**

Focuses on the colonies of Canada and Acadia in an imperial context and explores their relations with neighbouring colonies, especially the New England colonies, New York, Newfoundland, and the West Indies, as well as neighbouring Indian peoples.
**Formerly:** HIST 224.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Pre-1815; the Americas.

**HIST 252.3 — 1/2(3L)**
**Canadian Political History 1800 to 1900**

A survey of nineteenth-century Canadian political history, emphasizing the emergence and development of parties, political leadership, creation and evolution of a federal system, and the clash of ethnic, regional, class, and religious interests.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas. Students with credit for HIST 208 may not take this course for credit.

**HIST 257.3 — 1/2(3L)**
**Prairie History to 1905**

A study of Rupert's Land and the North-West to the early 20th century, including early contact between European and Aboriginal societies, the development, expansion, and decline of the fur trade, early western communities, environmental changes, Canadian expansionism and national development policies, regional responses, and developments leading to provincehood.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas. Students with credit for HIST 209 may not take this course for credit.

**HIST 258.3 — 1/2(3L)**
**Prairie History since 1905**

An examination of the three prairie provinces, including the impact of the two World Wars and the Depression, protest movements and parties, urban growth and the modernization of rural life, environmental disasters and new resource developments, Aboriginal renewal, and western alienation.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; the Americas. Students with credit for HIST 209 may not take this course for credit.

**HIST 259.3 — 1/2(3L)**
**Canadian Women from Pre Contact Period to 1918**

Examines the history of Canadian women from the pre-contact period until the end of World War I, emphasizing the complexities of women's experiences and the interplay of such factors as gender, class, race and ethnicity. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas.

**HIST 260.3 — 1/2(3L)**
**Canadian Women History from 1919 to Present**

Examines the history of Canadian women from the end of World War I to the present, emphasizing the complexities of women's experiences and the interplay of such factors as gender, class, race and ethnicity. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; the Americas.

**HIST 261.3 — 1/2(3L)**
**Canadian American Relations to 1900**

Examines political, economic, social, cultural and diplomatic aspects of Canadian-American relations from the pre-contact period until 1900. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas. Students with credit for HIST 221 may not take this course for credit.

**HIST 262.3 — 1/2(3L)**
**Canadian American Relations 1800 to Present**

Examines political, economic, social, cultural and diplomatic aspects of Canadian-American relations from 1900 to the present. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; the Americas. Students with credit for HIST 221 may not take this course for credit.

**HIST 263.6 — 1&2(3L)**
**The Canadian North**

A survey of the history of northern Canada (north of 60): the northern environment and aboriginal peoples; the search for the North-West passage; whaling and the fur trade; Klondike Gold Rush and northern sovereignty; police, missionaries and the Hudson's Bay Company; Diefenbaker's northern vision and the Cold War; northern

pipelines, territorial self-government and native land claims.
**Formerly:** HIST 222
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas.

**HIST 264.3 — 1/2(3L)**
**Introduction to History of Native Newcomer Relations to 1880**

A survey of relations between indigenous peoples and immigrants to Canada from the 15th century to 1880, emphasizing early fur trade, religious, military, and civil interactions.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas. Students with credit for HIST 223 may not take this course for credit.

**HIST 265.3 — 1/2(3L)**
**Introduction to History of Native Newcomer Relations 1880 to Present**

A survey of relations between Natives and newcomers to Canada from the creation of the modern Department of Indian Affairs to the present, emphasizing assimilative policies, political resistance and organization, land disputes, and Aboriginal involvement in constitutional discussions.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; the Americas. Students with credit for HIST 223 may not take this course for credit.

**HIST 270.6 — 1&2(3L)**
**The American Colonies and the United States**

European background of American history; the establishment of the colonies and development of an American nationality. The Revolution, the formation of the Union and the struggle to maintain it. The Civil War and the emergence of modern America; the 20th century and America's rise to world power.
**Formerly:** HIST 231
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** The Americas.

**HIST 271.6 — 1&2(3L)**
**Modern Latin American History**

A survey of Latin American history, briefly discussing colonial society and the struggle for independence, but concentrating on the modern period. The course focuses on the conflict between the elite and folk/native cultures; the reasons for continued poverty and unrest, militarism, repression, dependency, revolution, and debt.
**Formerly:** HIST 233
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; the Americas.

**HIST 281.6 — 1&2(3L)**
**Military History**

The evolution of modes of warfare from the Renaissance to the present. Military and naval strategy and tactics, civilian-military relations, weaponry, and military organization are included. Military history is interwoven with general history and particular attention is paid to the social and political aspects of militarism.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Europe and Great Britain.

**HIST 283.3 — 1/2(3L)**
**Society and Rise of Science from the Renaissance to Industrial Revolution**

A study of the development of science in the context of social, political and intellectual change between the Renaissance and the end of the l8th century. Special attention will be paid to the Copernican Revolution, Renaissance technology, the tension between science and religion, and the early Industrial Revolution.
**Prerequisite(s):** 6 credit units HIST at the 100-level or 6 credit units in any natural science.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 284.3 — 1/2(3L)**
**Society and Rise of Science from the Industrial Revolution to 20th Century**

A study of the development of science and its interaction with social, political and intellectual change from the Industrial Revolution to the present. The relationship between science and technology in the Industrial Revolution, the transition from alchemy to chemistry, the Darwinian achievement, and the impact of science on the modern world.
**Prerequisite(s):** 6 credit units HIST at the 100-level or 6 credit units in any natural science.
**Note:** Europe and Great Britain.

**HIST 285.6 — 1&2(3L)**
**Christianity in Europe from 1500 to 1965**

An examination of the development of Christian denominations in Europe from l500 to l965. Topics will include the Protestant Reformation, the Catholic or Counter-Reformation, the challenges of the English and French Revolutions, overseas missionary activity, major church councils, and the impact of scientific discoveries.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Europe and Great Britain.

**HIST 287.3 — 1/2(3L)**
**Origins and Development of Cooperatives in Europe**

The origins of co-operative enterprises in working-class, lower-middle-class, and farm communities in response to European industrialization in the nineteenth and twentieth centuries; the development of co-operative movements in Britain, France, Germany, Scandinavia, and eastern Europe to the present day; the history of co-operative ideas.
**Prerequisite(s):** 6 credit units HIST and/or social science at the 100-level.
**Note:** Post-1815; Europe and Great Britain. Students with credit for HIST 286 may not take this course for credit.

**HIST 288.3 — 1/2(3L)**
**Cooperatives in the World**

The spread of co-operative enterprises outside Europe; the development of co-operative movements in the United, States, Canada, Japan, India, China, Africa, and Latin America; the world co-operative movement; the challenges of co-operatives and development; co-operatives and new social movements in the world today.
**Prerequisite(s):** 6 credit units HIST and/or social science at the 100-level.
**Note:** Post-1815; Other Regions. Students with credit for HIST 286 may not take this course for credit.

**HIST 289.6 — 1&2(3L)**
**History of Development and Underdevelopment in the Third World**

Examines economic and social change in selected countries of Latin America, Africa, and Asia from the establishment of the European colonial system to the present. A comparative approach is employed to examine the possibilities and results of different economic policy choices in an historical context.
**Formerly:** HIST 234
**Prerequisite(s):** 6 credit units HIST at the 100-level or permission of the department.
**Note:** Other Regions.

**HIST 290.3 — 1/2(1.5L/1.5S)**
**Topics in Environmental History**

Explores various topics in environmental history. The focus of the course in any academic term will vary. Students may take more than one section of HIST 290 for credit, provided the subject matter of each course taken differs substantially. Topics covered might be as broad as an environmental history of the world or as specific as nuclear testing and environmental destruction. Students are encouraged to check with the department for more information.
**Prerequisite(s):** 6 credit units HIST at the 100-level or permission of the department.

**HIST 291.6 — 1&2(3L)**
**The World Wars**

An in-depth examination of World Wars I and II. Topics will include the underlying causes of both wars, the combat history of both wars, the role both wars played in transforming the world's societies and economic systems, and the fundamental realignment in global power brought about by the world wars.
**Prerequisite(s):** 6 credit units HIST at the 100-level.
**Note:** Post-1815; Europe and Great Britain.

**HIST 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HIST 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HIST 300.3 — 1/2(1.5L-1.5S)**
**Roman Senate from Tiberius to Nero**

Ancient evidence and modern scholarship are used in a study of the Roman Senate and senatorial class from the death of Augustus to the fall of Nero (14-68).
**Formerly:** HIST 398
**Prerequisite(s):** 6 credit units HIST or CLAS at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 302.3 — 1/2(1.5L-1.5S)**
**Life and Letters Roman Society and Culture through Epistolary Practice**

Ancient letters and letter writers, for example, Cicero and/or Pliny the Younger, are starting points for study of the political, social, and cultural history of ancient Rome and its empire. Classes will be based on lecture and discussion of selected letters, and assigned books and articles.
**Prerequisite(s):** 6 credit units 200-level HIST or CMRS.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 306.3 — 1/2(1.5L-1.5S)**
**Transitions in Late Antique City CE 284 to 602**

Studies the impact of social and political changes, including the rise of Christianity, on the use of urban space in Roman cities in the period CE 284-602.
**Prerequisite(s):** 6 credit units HIST or CLAS at 200-level or permission of the instructor.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 307.3 — 1/2(1.5L-1.5S)**
**Seminar in Ancient Medieval and Renaissance Biography**

A view of the historical period through the documents relating to a single individual. Students will have the opportunity to work on the topic from various perspectives, including social, institutional, intellectual, cultural, and gender history. Possible individuals to be studied include Peter Abelard, Elizabeth I, Erasmus, and Joan of Arc.
**Prerequisite(s):** 6 credit units HIST at the 200-level or permission of the instructor.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 309.3 — 1/2(1.5L-1.5S)**
**Crusades and Aftermath**

Examines the socio-economic pressures and spiritual goals basic to the Crusades, military encounters, the organization of the Latin Kingdom of Jerusalem (1099-1291), and ensuing contacts between Christians and Muslims to the eighteenth century.
**Formerly:** HIST 313
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 312.3 — 1/2(1.5L-1.5S)**
**Medieval Russia and Ukraine**

An in-depth examination of the Eastern Slavs' early history, from the sixth to the thirteenth century C.E. including the foundation of Kievan Rus; the adoption of Orthodox Christianity; the society, economics, and culture of the Kievan state; political fragmentation and Mongol invasion; the emergence of separate Russian and Ukrainian identities.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 325.3 — 1/2(1.5L-1.5S)**
**European Imperialism in Africa 1830 to 1936**

Selected topics in the history of European imperialism in Africa from the French invasion of Algeria in 1830 to the Italian invasion of Abyssinia in 1935.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Post-1815; Other Regions.

**HIST 326.3 — 1/2(1.5L-1.5S)**
**Imperialism in Asia 1840 to 1945**

Selected topics in the history of empire building in the Near East, Southern Asia, and the Far East, from the Opium War of 1840 to Japan's bid for empire in the 20th century.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Post-1815; Other Regions.

**HIST 327.3 — 1/2(3S)**
**Russian Revolution and Early Soviet State 1894 to 1924**

The Russian Revolution in broad perspective: includes revolutionary movements of the nineteenth century, the emergence of Marxism, political and socioeconomic crises of the late tsarist regime, World War I and the February Revolution, Bolshevik seizure of power in October 1917, the Russian Civil War, and Lenin's establishment of the Soviet state.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Post-1815; Europe and Great Britain.

**HIST 328.3 — 1/2(1.5L-1.5S)**
**Stalinism**

Examines Stalin's rise to power, collectivization and industrialization policy of 1928-1933, the 1934 Congress of Victors, the death of Kirov and the Purge Trials of 1936-1938, Stalin and World War II, Stalin and the Jews, Stalin and the arts, including literature and cinema, and the Stalinist legacy from 1953 to the present.
**Formerly:** HIST 311
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Post-1815; Europe and Great Britain.

**HIST 330.3 — 1/2(1.5L-1.5S)**
**Humanist Thought in Renaissance Italy 1300 to 1527**

A reading course in the development of Renaissance Humanism from Petrarch to Machiavelli. Topics will include the cult of the classics, the Greek revival, new trends in education, civic humanism, and Renaissance philosophy, history and political thought.
**Formerly:** HIST 315
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 331.3 — 1/2(1.5L-1.5S)**
**Magic Science and Religion before the Scientific Revolution**

Medieval magic was founded upon conventional scientific and religious presuppositions. It was also unconventional and illicit. Examines magical literature and traditions from third- to sixteenth-century Europe, the place of magic in early European history, and reflects on the theoretical issues surrounding the classification of magic.
**Formerly** HIST 382.
**Prerequisite(s):** 6 credit units HIST at 200-level or permission of the instructor.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 340.3 — 1/2(1.5L-1.5S)**
**Early Modern Towns in Britain and Europe 1500 to 1750**

What was it like to live in an early modern town? In exploring the social history of small and medium-sized towns in Britain and Europe, this course stresses both the particularity of selected urban communities, and a common urban culture that cut across national and religious bounds.
**Formerly:** HIST 352.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 343.3 — 1/2(1.5L-1.5S)**
**Living in London an Early Modern Metropolis 1500 to 1760**

The social history of early modern London through recent historiography and contemporary eye-witness accounts, from the aggregate analysis of historical demographers to the personal reflections of diarists. How did the size, expansion, and dynamism of London affect those who lived there? What was life like in early modern London?
**Formerly:** HIST 353.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 344.3 — 1/2(1.5L-1.5S)**
**Social and Cultural History of Early Modern Britain**

Selected topics in English and Scottish history, 1500-1750: i.e. religion and the state; rural society; civil war and revolution; family and household; consumerism; the union of England and Scotland; war and empire; women's lives.
**Formerly:** HIST 353.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 346.3 — 1/2(1.5L-1.5S)**
**English Women in the Workplace 1780 to 1920**

Women's participation in the Industrial Revolution and its implications. The home, the factory and other female workplaces. The effect of social and cultural differences among women. Changing views of femininity, masculinity and the gendered division of economic, social and psychological roles.
**Formerly:** HIST 356.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Europe and Great Britain.

**HIST 347.3 — 1/2(1.5L-1.5S)**
**Feminism and English Society 1790 to 1945**

The emergence of modern feminist ways of rethinking womanhood and manhood. The challenge of politics and the public sphere. Sexuality, morality, medicine, education, welfare and socialism as particular issues where feminism made a difference.
**Formerly:** HIST 357.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Europe and Great Britain.

**HIST 348.3 — 1/2(1.5L-1.5S)**
**History of China to CE 960**

A study of Chinese history from the beginning of Chinese civilization to the end of the Five Dynasties (CE 907-960), stressing the evolution of cultural and political institutions under various dynasties.
**Formerly:** HIST 337.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Other Regions.

**HIST 349.3 — 1/2(1.5L-1.5S)**
**History of China 960 to 1644**

A study of Chinese history during the second imperial age, from the Sung Dynasty (960-1279) to the end of the Ming Dynasty (1368-1644), stressing the evolution of the Chinese empire during this period.
**Formerly:** HIST 338.
**Prerequisite(s):** 6 credit units HIST at the 200-level.
**Note:** Pre-1815; Other Regions.

**HIST 350.3 — 1/2(1.5L-1.5S)**
**Conquest of Canada in Perspective 1715 to 1815**

The British conquest of 1759-1763 assessed primarily in terms of its effect

upon French Canadian society. Historical interpretations of this central event in Canadian history will form the core of study.
**Formerly:** HIST 302.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** Pre-1815; the Americas.

**HIST 351.3 — 1/2(1.5L-1.5S)**
**Canadian Social History from 1800 to 1914**

Examines the social history of Canada from 1800 to 1914, considering the impact of such factors as class, gender, ethnicity, race, and regionalism. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Formerly:** HIST 375.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** The Americas.

**HIST 355.3 — 1/2(1.5L-1.5S)**
**Canadian Social History from 1914 to Present**

Examines the social history of Canada from 1914 to the present, considering the impact of such factors as class, gender, ethnicity, race, and regionalism. Employs chronological and thematic approaches while also making reference to historical debates and historiographical developments.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** Post-1815; The Americas.

**HIST 358.3 — 1/2(1.5L-1.5S)**
**Nationalist Awakening of French Canada 1800 to 1850**

Examines the early development of French Canadian nationalism in a difficult period of social and economic change, its expression in political agitation and thwarted rebellion, and its eventual compromise with English Canada in the 1840s.
**Formerly:** HIST 303.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** The Americas.

**HIST 361.3 — 1/2(1.5L-1.5S)**
**Protest Movements in Canada 1921 to 1945**

An examination of political and socioeconomic protest in Canada between 1921 and 1945 with particular emphasis on the western Canadian experience. Studies protest movements and organizations, new political parties, and incidents of public unrest and violence.
**Formerly:** HIST 308.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** Post-1815; the Americas.

**HIST 362.3 — 1/2(1.5L-1.5S)**
**Doing Canadian History**

An examination of how Canadian history has been presented and interpreted outside the usual academic precincts. Examples include popular history, historic sites and parks, film/video, museums, political rhetoric, and architecture.
**Prerequisite(s):** 6 credit units 200-level HIST.
**Note:** The Americas.

**HIST 363.3 — 1/2(1.5L-1.5S)**
**Canada in Age of Affluence Post 1945**

Canadians emerged from World War II confident, optimistic and well-positioned to play a leading role in world events. What happened? Seminar topics devoted to political, social, cultural and economic developments allow students to study the central dichotomy of modern Canadian life-angst in an era of affluence.
**Prerequisite(s):** 6 credit units in Canadian history at the 200-level.
**Note:** Post-1815; the Americas.

**HIST 364.3 — 1/2(1.5L-1.5S)**
**Imagining American and Canadian Wests**

Violence on the American frontier(s) did as much or more to create a distinctive American character as the peaceful settling of the Canadian west did to mold national identity in this country, or did it? This course explores the myths that continue to shape public consciousness as they distort history.
**Prerequisite(s):** 6 credit units in HIST at the 200-level or permission of the department.
**Note:** Post-1815; the Americas.

**HIST 373.3 — 1/2(1.5L-1.5S)**
**Race Class and Gender in US History 1790 to 1865**

An examination of the significant social, economic and political developments in the history of the U.S. from the beginning of the New Republic to the end of the Civil War.
**Formerly:** HIST 335.
**Prerequisite(s):** 6 credit units in HIST at the 200-level.
**Note:** The Americas.

**HIST 374.3 — 1/2(1.5L-1.5S)**
**Race Class and Gender in US History 1865 to 1983**

An examination of major social, economic, and political developments in the history of the U.S. from Reconstruction to the early 1980s.
**Formerly:** HIST 336.
**Prerequisite(s):** 6 credit units in HIST at the 200-level.
**Note:** Post-1815; the Americas.

**HIST 378.3 — 1/2(1.5L-1.5S)**
**United States and the Vietnam Wars**

Examines key political, military, social, and cultural themes related to the American experience in Vietnam from World War Two to the fall of Saigon.
**Formerly:** HIS 398
**Prerequisite(s):** 6 credit units in history at the 200-level.
**Note:** Post-1815; the Americas. Students with credit for HIST 398 The United States and the Vietnam Wars may not take this course for credit.

**HIST 379.3 — 1/2(1.5L-1.5S)**
**Slavery in the Americas**

Examines the history of slavery in the Americas, comparing the experience in the United States, Brazil, and the Caribbean. Various themes will be examined; the reasons for slavery, the economics of the slave trade, the development of slave society, slave resistance and revolt, opposition to slavery, the abolition of slavery, and the aftermath of slavery.
**Prerequisite(s):** HIST 270 or HIST 271 or permission of the department.
**Note:** The Americas.

**HIST 383.3 — 1/2(1.5L-1.5S)**
**Scientific Revolution from Newton to Darwin**

The scientific and philosophical discovery of the laws of nature from the period of Newton to Darwin. Emphasis will be given to the status of science, the growth of experiment, the relationship between science and technology, and the decline of the mystical view of nature in the 18th and 19th centuries.
**Prerequisite(s):** HIST 283 and 284, or one of HIST 226, 227, 228, 242, 280 and 6 credit units in the natural sciences.
**Note:** Europe and Great Britain.

**HIST 384.3 — 1/2(1.5L-1.5S)**
**Women and Gender in Early Modern Europe**

The course investigates women's lives in Europe from ca. 1500 to ca. 1800, and includes topics such as female life-cycle and sexuality, women's economic and political roles, literary and artistic creations, piety and witchcraft, the development of notions of masculinity and femininity, and the relationship between gender and power.
**Prerequisite:** 6 credit units 200-level HIST.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 385.3 — 1/2(1.5L-1.5S)**
**Selected Topics in Central American History**

Examines selected themes in the history of Central America, concentrating on the 19th and 20th centuries.
**Prerequisite(s):** 6 credit units in HIST at the 100-level.
**Note:** Post-1815; the Americas.

**HIST 386.3 — 1/2(1.5L-1.5S)**
**Intelligence and Espionage in the 20th Century**

Examines intelligence operations and agencies in the 20th century in North America, Europe, Russia, and China. The role of intelligence in World War I, World War II, and the Cold War. Innovations in spy and code-breaking technology. Functions, methods, and purposes of intelligence in democracies and dictatorships.
**Prerequisite(s):** 6 credit units in HIST at the 200-level or permission of the instructor.
**Note:** Post-1815; Other Regions. Students with credit for HIST 398 Intelligence and Espionage in the 20th Century may not take this course for credit.

**HIST 388.3 — 1/2(1.5L-1.5S)**
**Mass Killing and Genocide in the Twentieth Century**

An examination of major mass killings in the twentieth century. The course analyzes the definitions and theories of mass killings, including genocide and ethnic cleansing. It also discusses how the international community can best detect and prevent a mass killing using such tools as international law and humanitarian intervention.
**Prerequisite(s):** 6 credit units 200-level HIST or permission of the instructor.
**Note:** Post-1815; Other Regions.

**HIST 390.3 — 1/2(1.5L-1.5S)**
**Cold War and Historical Interpretation**

Topics in the history and historical literature of the Cold War from the Wilson-Lenin era to the present, with primary emphasis on the post-1943 period. Major, analytical focus is on the interaction

between politics and historical writing, with attention to assumptions, biases and methodology of various writers.
**Formerly:** HIST 333.
**Prerequisite(s):** HIST 220 or 229 or 244 or 270.
**Note:** Post -1815; Other Regions. Students with credit for HIST 433 or 490 may not take this course for credit.

**HIST 391.3 — 1/2(1.5L-1.5S)**
**Healing and Illness in Early Modern Europe**

Considers illness and peoples' responses to illness in Europe (ca 1500-1800). It examines what people suffered from, how diseases and the human body were understood, and what medical treatments were available in modern society.
**Prerequisite(s):** 6 credit units in history at the 200-level or permission of the instructor.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 392.3 — 1/2(1.5L-1.5S)**
**History of Sexuality in North America**

How did this private matter become a subject of historical inquiry? How does the history of sexuality challenge our historical assumptions? Focusing primarily on nineteenth and twentieth century North America this class will explore the sexual regulation, repression and resistance at work within politics, the law, the medical profession, and society.
**Prerequisite(s):** 6 credit units in HIST at 200-level in Canadian or American history or permission of the instructor.
**Note:** Post-1815; the Americas.

**HIST 397.3 — 1/2(1.5L-1.5S)**
**Approaches to History**

How should (and how do) historians approach their scholarship, and how has this changed in recent generations? This course engages a range of methodological, philosophical, and historiographical readings drawn from a comprehensive survey of topical, thematic, and theoretical fields, collectively aimed at encouraging students to think about the process and methods of doing history.
**Prerequisite(s):** Permission of the department.
**Note:** Students with credit for HIST 398 Special Topics Approaches to History may not take this course for credit. HIST 397 is required for the Honours and Double Honours programs.

**HIST 398.3 — 1/2(1.5L-1.5S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HIST 399.6 — 1&2(1.5L-1.5S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**HIST 402.3 — 1/2(3S)**
**Aspects of Late Antiquity**

A study of the cultural and intellectual history of Late Antiquity based on the reading of primary sources in translation. Topics include church-state relations, the survival of the classical heritage, education, the early papacy, influential women, early monasticism and the fathers of the church.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 414.3 — 1/2(3S)**
**Masculinity in Middle Ages and Renaissance**

Will examine the many recent historical studies on gender and masculinity including topics such as medical theory, class and work, sexuality, and crime. Students will be asked to employ historical sources to evaluate the value of this trend in scholarship as well as the associated theoretical perspectives.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 421.3 — 1/2(3S)**
**Erasmus and Renaissance Humanism**

Erasmus of Rotterdam was the world's first best-selling author who lived amidst the transformations and upheaval of early modern Europe. Student seminar presentations will include: the origins of northern humanism; Erasmus and Thomas More; Erasmus and the Classical heritage; Erasmus as satirist; education; biblical and patristic studies; spirituality; controversies with Catholic and Protestant critics; peace and toleration.
**Formerly:** HIST 462.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 424.3 — 1/2(3S)**
**Catholic Reform and Counter Reformation in Italy 1540 to 1650**

A seminar on Catholic Reform in Italy focusing on early projects for reform, the development of the Papacy, new religious orders, the Council of Trent and its implementation, the Roman Inquisition, and the Index of prohibited books.
**Formerly:** HIST 466.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 427.6 — 1&2(3S)**
**Social and Political Thought in Russia 1800 to 1917**

Survey of thought and culture in nineteenth- and early twentieth-century Russia, with an emphasis on social theory and political ideology. Topics include the Slavophile-Westernizer debate, the rise of revolutionary movements, and the Gold and Silver ages of Russian culture.
**Formerly:** HIST 410.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; Europe and Great Britain.

**HIST 428.6 — 1&2(3S)**
**Siberia from 16th Century to Present**

An examination of Siberian history from indigenous and Russian perspectives. Topics to be covered include exploration, development, and modernization; encounters between Russians and native Siberians; and Siberia's status as borderland between Europe and Asia.
**Formerly:** HIST 411.
**Prerequisite(s):** Permission of the department.
**Note:** Europe and Great Britain.

**HIST 435.3 — 1/2(3S)**
**Nazi State 1933 to 1938**

A study about the origins, nature, and structure of the National Socialist (Nazi) state in Germany. The Nazi regime provides a well-documented example of a catastrophic failure of democracy, and of the creation of an authoritarian and totalitarian system marked by racism and aggressiveness. Nazism blended modernism and anti-modernism, idealism and opportunism, power and banality, and domination by Adolf Hitler with a mass movement, in puzzling and contradictory ways that still obsess historians and the popular imagination.
**Formerly:** HIST 420.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; Europe and Great Britain.

**HIST 436.3 — 1/2(3S)**
**Topics in French Revolution**

This seminar will focus on selected topics and current interpretations of the French Revolution.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 441.6 — 1&2(3S)**
**Selected Problems in 17th Century English History**

Studies the social history of English and Scottish men, women, and children in light of their own national histories, in relation to one another, and against the backdrop of contentious political developments that united and divided them from the Union of the Crowns in 1603 through to the consolidation of the United Kingdom and the rise of the British Empire. The emphasis here will be on history and historiography, original documents, and recent scholarship.
**Formerly:** HIST 453.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 442.6 — 1&2(3S)**
**Imperialism and the Victorians**

The British Empire in Victorian times from the viewpoint of politicians, intellectuals, military men, travelers and explorers, and fiction writers. Research papers on prominent imperial events such as the Indian Mutiny of 1857, the missionary activities of David Livingstone, and the Boxer Rebellion of 1900.
**Formerly:** HIST 456.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; either Europe and Great Britain or Other Regions.

**HIST 448.6 — 1&2(3S)**
**Peoples Republic of China**

Focuses on the People's Republic of China from the beginning of the Chinese Communist Movement in 1921 to the present, with emphasis on the post-1949 period.
**Formerly:** HIST 437.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; Other Regions.

**HIST 450.6 — 1&2(3S)**
**French Canada before 1800**

Discovery; relations with Indian Nations; building an Old Regime colony; war and conquest; revolution; a French society in a British empire. Students read and discuss major works and write a major research paper from primary sources. [French desirable but not essential.]
**Formerly:** HIST 406.
**Prerequisite(s):** Permission of the department.

**Note:** Pre-1815; the Americas.

**HIST 451.6 — 1&2(3S)**
**History of Native Newcomer Relations in Canada**

Explores the history of relations between the peoples indigenous to the northern half of North America and European intruders from the sixteenth century to the present. It focuses on commercial, evangelical, and military relations in the first centuries after contact, and then examines Aboriginal peoples as the target of assimilative programs until their re-emergence as assertive and influential communities in the second half of the twentieth century.
**Formerly:** HIST 401.
**Prerequisite(s):** Permission of the department.
**Note:** The Americas.

**HIST 458.6 — 1&2(3S)**
**Politics and Society in Nineteenth Century Canada 1860 to 1920**

Examines politics and society in nineteenth-century Canada. The course considers not only the politicians, the political parties, political institutions, and major political events, but also how the interplay of economic, social, and cultural factors influenced the course of national, provincial, colonial, and local politics in British North America and Canada.
**Formerly:** HIST 407.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; the Americas.

**HIST 461.6 — 1&2(3S)**
**Canadian Women History**

This class will provide an overview of the historiographical development of Canadian women's history from the role of women in the fur trade up until the present day. Women's history in this class attempts to be as inclusive of all Canadian women's experiences as possible, so the analytical categories of race, class, gender, region and sexuality will all figure in weekly seminar discussions.
**Formerly:** HIST 412.
**Prerequisite(s):** Permission of the department.
**Note:** The Americas.

**HIST 464.6 — 1&2(3S)**
**History of Canadian Popular Culture**

Is there a distinctive Canadian popular culture? This course will help students answer that question, explore the Canadian cultural experience from the mid-nineteenth century to the present, and provide a hands-on experience in the art of doing cultural history. Topics covered include: film, television, newspapers, magazines, novels, radio, advertising, and sports.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; the Americas.

**HIST 465.6 — 1&2(3S)**
**Canadian Public Policy and the Fiscal Crisis**

Will focus on the origins and management of the fiscal crisis which dominated Canadian public policy in the 1990s and will consider the differing approaches taken by various provinces and areas affected by the fiscal crisis ? healthcare, social policy, the role of government in the economy, and the Innovation Strategy.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; the Americas. Students with credit for HIST 499 Special Topics Canadian Public Policy may not take HIST 465 for credit.

**HIST 471.6 — 1&2(3S)**
**United States in the Nuclear Age**

Examines the development of U.S. Cold War policies, with special attention paid to the decisions regarding nuclear weapons. While emphasis is on political and diplomatic history, the course also studies the social, cultural and environmental implications of these policies in the United States and beyond.
**Formerly:** HIST 431.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; the Americas.

**HIST 483.6 — 1&2(3S)**
**Science and Revolution 1640 to 1790**

Will examine the place of science and technology in the transformation of the early modern world. The focus will be on western Europe, primarily but not exclusively, France and England, in the era of social and political revolutions. Therefore, the emphasis will be on the context of the emergence of modern science and the relationship science had as an intellectual activity in a period of rapid social and intellectual transformation. Special attention will be paid to the organization and epistemological foundation of science, the English Civil War and its interaction with natural philosophy, the English Revolution of 1688 and the emergence of Newtonianism and experimentation, the popularization of science and the industrial revolution, and the significance of science in the radicalism of the Enlightenment and the French Revolution.
**Prerequisite(s):** Permission of the department.
**Note:** Pre-1815; Europe and Great Britain.

**HIST 488.3 — 1/2(3S)**
**Topics in History of Development**

Research seminar in which students are required to do some work with primary sources. The discussion of assigned readings, and the preparation, presentation and criticism of research papers are the main activities. Historical themes and problems are examined in depth.
**Prerequisite(s):** Permission of the department.
**Note:** Other Regions.

**HIST 489.3 — (3S)**
**Development A History of an Idea and Its Application**

Discusses the origins and evolution of the idea of 'development.' It traces the idea through the European enlightenment, the development and devolution of European colonies, and the emergence of the modern era of 'development' with Truman's Four points following WWII. The course explores various arguments (theories) about development and puts them into their historical context. The impact of the application of these ideas is assessed through examples drawn from Latin America, Africa, and Asia.
**Prerequisite(s):** Permission of the department.
**Note:** Other Regions.

**HIST 490.6 — 1&2(3S)**
**The Cold War**

Spans the entire history of the Cold War from the emergence of Leninism in the Russian Revolution of 1917 to the collapse of Soviet power in Eastern Europe both within the USSR and the Soviet Bloc. The course explores the widening gulf between the superpowers arising out of their wartime alliance. It covers the post-war crises during which the Iron Curtain arose and the subsequent crises which cast the Cold War in its permanent form. Particular attention is given to the crisis of 1946, the Berlin Blockade, the Korean War, the Cuban Missile Crisis, the Vietnam War and the various attempts at detente.
**Formerly:** HIST 433.
**Prerequisite(s):** Permission of the department.
**Note:** Post-1815; either Europe and Great Britain or Other Regions. Students may not take both HIST 390 and 490 for credit.

**HIST 494.0**
**Michael Swan Honours Colloquium**

Oral presentation of a historical paper at a conference of Honours students. The presentation is normally based on a paper already prepared, or in preparation, for a third- or fourth-year seminar course.
**Prerequisite(s):** Admission to an honours program in history.
**Note:** HIST 494 is required for all Honours and Double Honours programs.

**HIST 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.
**Prerequisite(s):** Permission of the department.

**HIST 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.
**Prerequisite(s):** Permission of the department.

## HLTH — HEALTH

Department of Curriculum Studies, College of Education

**HLTH 100.3 — 2(3L)**
**Health Concepts for Elementary and Middle Years**

Provides prospective teachers with the health content which they will need to teach health to students in grades one to nine. Areas include physical health; environmental health; nutrition; healthy sexuality; family relationships; drug education and choices in health care.
**Note:** Students with credit for HSC 120 may not take this course for credit.

## HRM — HUMAN RESOURCES MANAGEMENT

Department of Industrial Relations & Organizational Behaviour, College of Commerce

**HRM 400.6 — 1&2(3S)**
**Honours Seminar in Human Resource Management**

Directed readings and individual research in the areas of human resource management. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# HSC — HEALTH SCIENCES

College of Kinesiology

**HSC 120.3 — 1/2(3L-1P)**
**Personal Health and Lifestyles**

A multidisciplinary health course that introduces and addresses topics relevant to personal health and lifestyle choices. Presents health topics that are current, topical and relevant to all university students. Topics may include food, nutrition, exercise, fertility and contraception, environmental issues, stress and mental health, and consumerism and commercial thinking.
**Note:** Not for credit in the Colleges of Arts & Science, Kinesiology, or Pharmacy & Nutrition. Intended for students who wish to enter the College of Education Elementary/Middle Years Sequential programs, the direct entry TEP programs, and the Middle Years Home Economics program.

**HSC 208.6 — 1&2(3L)**
**Human Body Systems**

Introduces the major organ systems of the human body and how they work.
**Formerly:** PHSIO 212.
**Prerequisite(s):** BIOL 110 and CHEM 112.
**Note:** Students with credit for BIOL 217 and 218, PHSI 212 or ACB 105 may not take this course for credit.

**HSC 350.3 — 2(3L)**
**Integrative Neuroscience**

Mechanisms of integration of neural signals. Examples will be used to show how different types of sensory input are integrated at various levels of the nervous system to evoke appropriate effector responses.
**Formerly:** PHSIO 350.
**Prerequisite(s):** HSC 208 or ACB 202 or 210.
**Note:** Students with credit for PHSI 349 may not take this course for credit. Offered next in 2006/2007, then in alternate years.

# INTS — INTERDISCIPLINARY STUDIES

College of Arts and Science

**INTS 200.6 — 1&2(3L)**
**Cultivating Humanity**

Utilizes the perspectives of different disciplines in exploring a common theme - what does it mean to be human, what does it mean to become humane? A number of faculty team-teach the course and work to encourage critical thinking, develop practical skills, and emphasize integration of material across disciplines.
**Prerequisite(s):** 18 credit units at university level or permission of the instructor.
**Note:** The course may only be used toward requirement 7 in Arts and Science programs.

**INTS 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**INTS 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**INTS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**INTS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**INTS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**INTS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# IPJP — INDIGENOUS PEOPLES AND JUSTICE PROGRAM

College of Arts and Science

**IPJP 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IPJP 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IPJP 301.3 — 1(3L)**
**Indigenous Knowledge I Methodologies**

Provides an analysis of research methodologies concerning indigenous peoples through an interdisciplinary perspective that considers the social, political and legal contexts in which research is conducted. The overall theme is to situate the complex and multi-faceted role of research methodologies within the imperative of achieving justice.
**Formerly:** IK 301.
**Prerequisite(s):** 30 credit units at the university level including at least 12 credit units of social sciences, or permission of the instructor.

**IPJP 302.3 — 2(3L)**
**Indigenous Knowledge II Theory and Practice**

Examines the theory and practice of indigenous knowledge systems. Students examine the importance of oral histories, languages, the land and traditional territories, and cultural traditions in the organization and practice of Aboriginal world-views. The course creates a critical space for students who wish to work and think within indigenous histories and traditions.
**Formerly:** IK 302.
**Prerequisite(s):** 30 credit units at the university level including at least 12 credit units of social sciences, or permission of the instructor.

**IPJP 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IPJP 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IPJP 402.3 — 1/2(2L-1S)**
**Interdisciplinary Concepts of Justice**

Examines Aboriginal conceptions of justice and their relationships to indigenous knowledge. Interdisciplinary focus with contributions drawn from Law, Sociology and Political Studies. Considers the contributions of each discipline in promoting theories and practices of justice.
**Formerly:** IK 402.
**Prerequisite(s):** IPJP 301 or 302 or permission of the instructor.

**IPJP 403.3 — 1/2(2L-1S)**
**Reconciliation as a Concept of Justice**

Examines concepts of justice and reconciliation, and the political, legal and institutional possibilities for achieving both justice and reconciliation in Canada. Incorporating discussions with Elders and comparative studies, the examination includes the broad context out of which questions of justice arise, particularly in the sphere of criminal justice.
**Formerly:** IK 403.
**Prerequisite(s):** IPJP 301 or 302 or permission of the instructor.

**IPJP 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IPJP 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# IPRM — INDIGENOUS PEOPLE RESOURCE MANAGEMENT

College of Agriculture

**IPRM 100.3**
**Introduction to Legal Concepts in Resource Management**

A study of the land systems used in Canada historically, currently and comparatively, as well as a look at the development and impact of legislation on Aboriginal people in Canada and recognition of traditional law. This course is designed to introduce students to various legal systems, international, national and local. Students will learn the basics of legal systems and structures and how jurisdiction and consultation have emerged as legal doctrines in Canada as well as how they impact on decisions and processes used by land and resource managers.
**Note:** Restricted to IPRMP students. This is a combination of lecture and web-based instruction. Students will attend face-to-face lectures on campus for two weeks and continue with web supported home study for ten weeks.

**IPRM 101.3**
**Introduction to Management for Resource Managers**

Students will be exposed to concepts of leadership, managing democratically, and conflict management. Economic considerations will concentrate on teaching students how to manage and interpret financial information. Fundamentals learned in this class will allow land managers to work with business plans, and be able to assess financial potential for resource development projects.
**Note:** This course is blended face-to-face and web-based instruction. Students will attend face-to-face lectures on campus for two weeks with web-supported home study and assignments for ten weeks.

**IPRM 102.3**
**Introductory Environmental Science and Management**

Introduces students to basic biophysical and economic theory underlying natural resource management and legal rules enabling or constraining management decisions. Instruction will focus on case studies and will involve a field trip component. Economic and legal theory will be integrated with the study of physical, biological and ecological components of resources studied.
**Prerequisite(s):** IPRM 100, 101.
**Corequisite(s):** IPRM 103.
**Note:** This course will be blended face-to-face instruction with web supported home study. The face-to-face portion will be one week of full time study with readings and assignments conducted over the following ten week period.

**IPRM 103.3**
**Environmental Studies II - Field Study**

Introduces students to principles of sustainable development of land, water and forests. Students will become familiar with basic components of soil and be able to recognize factors affecting productivity and land value as well as important environmental issues associated with managing a large land base. The course will investigate components of agricultural production systems and the relationship of agriculture to its environment, surface and subsurface water quantity and quality, forest ecology and sustainable forest management. Emphasis will be placed on methods of gathering information in addition to laboratory exercises and field trips.
**Prerequisite(s):** IPRM 100, 101.
**Corequisite(s):** IPRM 102.
**Note:** During the on-campus portion of the course, students will receive three hours face-to-face instruction and three hours of laboratory or field trip each day for five days. Web-supported home study will involve four assignments over the following ten weeks.

**IPRM 200.3**
**Legal Process and Instruments in Resource Management**

A study of real property law in Canada using specific examples. Students will examine a number of real property issues facing Aboriginal people and land by examining instruments in detail, including ways of holding property, property transfer, property rights, taxation and property responsibility and obligations.
**Prerequisite(s):** IPRM 102, 103.
**Corequisite(s):** IPRM 210.
**Note:** Course instruction is blended with two weeks face-to-face lecture and web supported home study for the following ten weeks.

**IPRM 210.3**
**Integrated Management Planning and Proposal Development**

Incorporates learning from previous courses in the IPRM Certificate Program. Students will take a project from their reserve and using tools learned, evaluate and assess the proposed project: legally, economically, and environmentally. Students will research land, history, market and impact of the proposal to determine pros and cons of the proposal. Written and oral presentations are required.
**Prerequisite(s):** IPRM 102, 103.
**Corequisite(s):** IPRM 200.
**Note:** This is a blend of face-to-face and distance instruction. The face-to-face instruction will be offered on campus for a two week period and the web-supported home study will take place in the following ten weeks.

# IS — INTERNATIONAL STUDIES

College of Arts and Science

**IS 200.6 — 1&2(3L)**
**International Studies**

An examination of selected international issues in interdisciplinary perspective. Theoretical and methodological contributions of the social sciences and history to international studies. Fields of specialization within international studies, including development studies, international relations and conflict resolution, and area studies.
**Prerequisite(s):** 18 credit units at the 100-level including at least 12 credit units from a minimum of two of the departments participating in the International Studies program (i.e., RLST, ANTH, ECON, GEOG (Human), HIST, POLS, or SOC).

**IS 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IS 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IS 385.3 — 1/2(3S)**
**Latin American Studies**

Offered as part of the Antigua, Guatemala Term Abroad. Specific course topics will change on each occasion it is offered, but will typically cover a range of interdisciplinary topics focused on Guatemala, Central America, and Latin America.
**Prerequisite(s):** Attendance at the Guatemala Term Abroad.

**IS 388.3 — 1/2(1S)**
**Independent Research**

Offers senior International Studies students the opportunity to do an interdisciplinary Independent Research course. This will be most attractive to students away from the university on study trips. Research projects and topics must be approved by the International Studies Administrative Committee.
**Prerequisite(s):** Permission of the International Studies Administrative Committee and the project supervisor.

**IS 389.6 — 1&2(1S)**
**Independent Research**

Offers senior International Studies students the opportunity to do an interdisciplinary Independent Research course. This will be most attractive to students away from the university on study trips. Research projects and topics must be approved by the International Studies Administrative Committee.
**Prerequisite(s):** Permission of the International Studies Administrative Committee and the project supervisor.

**IS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**IS 401.3 — 1&2(3S)**
**International Cooperation and Conflict**

Explores the contribution which interdisciplinary theory and research make toward understanding international issues, particularly international cooperation and conflict. Topics will include nationalism and ethnicity, the role of international organizations in conflict resolution and democratization, human rights, militarism and peacekeeping.
**Prerequisite(s):** Fourth-year standing in the International Studies Program or the permission of the IS Chair.
**Note:** Students with credit for IS 400 may not take this course for credit.

**IS 402.3 — 1&2(3S)**
**International Development**

This seminar explores the contribution which interdisciplinary theory and research make toward understanding international issues, particularly international development. Topics will include theoretical conceptualization of development and sustainability, global poverty and inequality, the globalization debate, foreign aid and structural instabilities.
**Prerequisite(s):** Fourth-year standing in the International Studies Program or permission of the IS Chair.
**Note:** Students with credit for IS 400 may not take this course for credit.

**IS 403.0 — 1/2(3P)**
**Honours Practicum**

Provides first-hand international and/or development experience and is required for students commencing an Honours International Studies program from September 2006 onward. Students must consult with the International Studies Chair no later than the beginning of the third year in their program to determine suitable opportunities and complete the practicum by the end of Term 1 in the fourth year of their program. For more information see International Studies in the Arts and Science section of the Calendar.
**Prerequisite(s):** Honours standing in the International Studies program.

**IS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in

depth, topics that are not thoroughly covered in regularly offered courses.

**IS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ITDL — INTERDEPARTMENTAL COURSES

College of Medicine

**ITDL 200.0**
**Preclerkship Clinical Elective**

Self-selected clinical learning experiences to help medical students consolidate and integrate their learning.

**ITDL 201.0**
**Cardio Pulmonary Resuscitation**

Provides a basic level of knowledge and skill in first aid and basic cardiac life support.

**ITDL 202.1**
**History of Medicine**

Through short lectures, readings, and small and large group discussions, this course explores primarily at a societal and organizational level some areas of importance, concern, and controversy in medicine. Drawing on relevant historical events and personalities where possible and using selected critical thinking skills, this course seeks to develop among students an understanding of the place of medicine, medical practice, and physicians in Canadian and world society and to encourage in students a commitment to high standards of professionalism. The course will help prepare students to engage in informed discussions on several challenging issues facing medicine using valid arguments that may include lessons from the history of medicine.

**ITDL 203.2**
**Professional Issues in Medicine**

Through short lectures, readings, and small and large group discussions, this course explores primarily at a societal and organizational level some areas of importance, concern, and controversy in medicine. Drawing on relevant historical events and personalitites where possible and using selected critical thinking skills, this course seeks to develop among students an understanding of the place of medicine, medical practice, and physicians in Canadian and world society and to encourage in students a commitment to high standards of professionalism. The couse will help prepare students to engage in informed discussion on several challenging issues facing medicine using valid arguments that may include lessons from the history of medicine.

**ITDL 204.6**
**Life Cycle and Humanities**

Through interactive lectures, discussion and individual/group projects, students will gain an understanding of the stages and tasks of human development and major social, psychological and biological factors that influence human health through the life cycle. The course will encourage self-awareness of how these same factors can influence the students own health and interactions with patients and colleagues, as well as strategies for maintaining personal well-being.

**ITDL 205.6**
**Professional Skills**

Provides medical students with the opportunity to develop a wide array of fundamental clinical skills upon which they will build throughout their professional lives: interviewing and communication skills; physical examination skills; the ability to apply ethical principles; the ability to search out reliable sources of clinical information; the ability to direct their own learning; and the ability to recognize and willingness to address community health needs. These are the core skills which will enable them to establish effective patient-physician relationships and to practice safely and ethically.

**ITDL 206.18 — 6L-3P**
**Form and Function of the Human Body**

A foundational course designed to help medical and dental students integrate structure with function. It emphasizes the functional perspective of human organ systems, their control and interactions, using physiological, embryological, anatomical and histological perspectives. Integrative cases discussed throughout the course and a final module on interacting systems are used to learn in context and understand the implications for clinical practice. The terminal objective of this course is to equip students with information that is essential and relevant to the study of clinical systems in the following years and to the practice of Medicine.

**ITDL 300.0**
**Preclerkship Clinical Elective**

Self-selected clinical experience to help medical students consolidate and integrate learning.

**ITDL 303.12**
**Interdepartmental Clinical Systems I**

Provides an interdisciplinary approach to diseases involving the major organ systems. With input from clinical, diagnostic and basic science departments, students will learn the pathogenesis and pathophysiology of specific diseases, the signs and symptoms of patients presenting with these diseases, and the diagnostic and therapeutic principles required for patient management. The following body systems will be covered: Hematology/Oncology, Female Reproductive, Kidney and Male Genitourinary, Gastrointestinal, Cardiovascular, Respiratory and Dermatology.

**ITDL 304.12**
**Clinical Sciences I**

Through direct student/patient interaction and small group tutorials, stresses the refinement of basic clinical skills, the physician/patient relationship, and will introduce diagnostic and therapeutic strategies. Interdepartmental course with rotations through the clinical departments of Medicine, Medical Imaging, Surgery and its subspecialties, Pediatrics and Obstetrics & Gynecology.

**ITDL 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ITDL 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ITDL 400.0**
**Preclerkship Clinical Electives**

Self-selected clinical learning experiences to help medical students consolidate and integrate learning.

**ITDL 403.6**
**Interdepartmental Clinical Systems II**

Provides an interdisciplinary approach to diseases involving the major organ systems. With input from clinical, diagnostic and basic science departments, students will learn the pathogenesis and pathophysiology of specific diseases, the signs and symptoms of patients presenting with these diseases, and the diagnostic and therapeutic principles required for patient management. The following body systems will be covered: Neurology, Endocrine and Rheumatology.

**ITDL 404.6**
**Clinical Sciences II**

Through direct student/patient interaction and small group tutorials, stresses the refinement of basic clinical skills, the physician/patient relationship, and will introduce diagnostic and therapeutic strategies. Interdepartmental course with rotations through the clinical departments of Geriatrics, Neurosciences, Psychiatry and Rehabilitation Medicine.

**ITDL 405.6**
**Interdepartmental Clinical Linking Courses**

Provides basic principles, concepts and knowledge necessary for clerkship training in the areas of Anaesthesia, Healthcare Ethics, Law and Medicine, Medical Imaging, Neonatology, Ophthalmology, Orthopedics.

**ITDL 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ITDL 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**ITDL 502.0 — PD(12 weeks)**
**Elective**

A wide choice of electives by subject and location is allowed. This elective period allows students to broaden their medical education and to explore in-depth future career opportunities.
**Note:** Four-week course.

**ITDL 503.4**
**Postclerkship Selective**

A wide selection of options by subject and location will be allowed within these courses. The selective period allows students to broaden their medical education or to explore in-depth future career or research areas.
**Note:** Four-week course.

# KIN — KINESIOLOGY

College of Kinesiology

**KIN 121.3 — 1/2(3L-P)**
**Functional Basis of Physical Activity**

In surveying the functional effects of physical activity the course will examine strength development and training, anaerobic training, aerobic training, flexibility, diet and other selected topics. Physical growth patterns of children and the effects of exercise on growing tissues will also be covered. Laboratory experiences will be provided to supplement the lectures.

**KIN 122.3 — 1/2(3L)**
**Social Behavioral Foundations of Physical Activity**

Introduction to the basic concepts and topics associated with the behavioral aspects of physical activity. The focus is basic principles of motor learning and the social psychology of sport. A brief introduction to cultural aspects of physical activity in Canada is also presented along with current issues.

**KIN 150.3 — 1/2(3L-P)**
**How Body Moves I**

Introduces students to the theoretical and practical study of human movement. Students will become knowledgeable in the basic sports science principles underpinning human movement while at the same time developing their own body-management skills (moving efficiently and safely). Through the medium of gymnastics, students will be introduced to the six mechanically-related Movement Patterns from which most human movement evolves: The Body in Stillness (Statics), The Body in Explosive Movement (Spring or Take-off), The Body in Repetitive Movement (Locomotion), The Body in Absorbing Movement (Landing), The Body in Rotation and The Body in Swing. Students will be assessed on both theoretical and practical content.
**Corequisite(s):** KIN 121 or 122.
**Note:** Students may not receive credit for both KIN 150 and KINA 213.

**KIN 222.3 — 1/2(3L-1P)**
**Biomechanics I**

A study of the principles of statics and dynamics related to human motor performance in exercise and sport. Systematic methods for analyzing simple and complex motor skills are presented.
**Prerequisite(s):** KIN 121 and 122; MATH 101 or MATH 110.

**KIN 223.3 — 1/2(3L)**
**Contemporary Health Issues for Students**

Provides a forum for the discussion of current health issues. Global health concerns (e.g. environment, media, medical technologies, health care), as well as personal behaviors related to one's health and the health of others, will be examined. Students will develop the skills needed to seek out and evaluate health information enabling them to make wise choices for themselves and others.
**Prerequisite(s):** KIN 121 and 122.

**KIN 225.3 — (3L-2P)**
**Introductory Exercise Physiology I**

An introductory course on the effects of physical activity on specific physiological systems. Specific emphasis will be placed on the basic aspects of skeletal muscle and neural physiology.
**Prerequisite(s):** KIN 121 and 122.

**KIN 226.3 — (3L-2P)**
**Introductory Exercise Physiology II**

Continues to study the effects of physical activity on basic physiological function and systems. Special emphasis will be placed on the basic aspects of cardiovascular and respiratory function.
**Prerequisite(s):** KIN 225.

**KIN 231.3 — 1/2(3L)**
**Social Psychological Foundations of Physical Activity**

Explores individual human behaviour in a physical activity context. The emphasis will be placed upon understanding social-psychological concepts as they relate to the physical activity setting.
**Prerequisite(s):** KIN 121 and 122.

**KIN 232.3 — 1/2(3L)**
**Physical Activity in Society**

Introduces the sociology of physical activity, including sport, and challenges students to think critically about physical activity in Canadian society. Overarching topics include: (a) the emergence of physical activity as a way to promote health and prevent chronic disease in Canadian society, (b) social inequality, arising from social structural factors such as social class, age, race, gender, and sexual orientation, and physical activity, and (c) the impact of social institutions on physical activity in society.
**Prerequisite(s):** KIN 121 and 122.

**KIN 233.3 — 3S**
**History of Sport and Physical Education in Canada**

A historical and comparative study of the role, significance, and extent of sport and physical education in Canadian society and a series of selected cultures. The development and significance of sport and physical education in the U.S.A., Germany, Sweden, and China will also be studied.
**Prerequisite(s):** KIN 121 and 122.

**KIN 240.3 — 1/2(3L)**
**Pedagogy in Physical Activity Setting I Theory**

A study of the philosophical and theoretical concepts involved in a physical education environment. The intent is to establish a foundation upon which further developments in the area may be undertaken. Topics will include factors such as: developmentally appropriate physical education, factors influencing the learning of motor skills, development of movement tasks, and a comprehensive understanding of human movement taxonomies.
**Prerequisite(s):** KIN 121 and 122.
**Note:** Cannot receive credit for both KIN 240 and 245. Previous KIN 245 credit fulfills the KIN 240 requirement in the B.Sc.(Kin.) program.

**KIN 255.3 — 1/2(3L)**
**Program Planning and Design for Leisure and Sport**

Provides students with the basic information required to successfully plan a leisure or sport program for a variety of agencies and target groups. In an effort to address the changing demographic trends that influence leisure and sport programs, focus will be on needs assessments of clients, resource implications, short- and long-term planning.
**Prerequisite(s):** KIN 121 and 122.

**KIN 281.3 — 1/2(3L-P)**
**Fitness Foundations for Life**

Introduces students to fitness foundations for life and their relationship to a healthy lifestyle through traditional fitness methods and current trends in different mediums. Students will become knowledgeable in physical activity prescription and the application of specific fitness programming, as well as enhancement of leadership skills in aerobic fitness, flexibility, resistance training, and expressive movement. Students will be assessed on both theoretical and practical content.
**Prerequisite(s):** KIN 121, 122 and 150.
**Note:** Student may not receive credit for both KIN 281 and KINA 270.

**KIN 320.3 — 1/2(3L)**
**Physical Growth and Development of Children**

Deals with the physical changes that occur during the growth period in children. The implications of changes in structure and function as they relate to education, exercise and physical activity will be discussed. Topics include the relationship of growth to physiological function, strength and motor performance, exercise and growth, secular trends, variations in puberty and the assessment of growth by anthropometric techniques.
**Prerequisite(s):** KIN 226.

**KIN 321.3 — 1/2(3L-2P)**
**Prevention and Care of Sports Recreational and School Injuries**

Acquaints the student with the common types of athletic injuries that are encountered in Canadian athletic competitions, the methods for their prevention, the methods of treatment and the rehabilitative procedures that can be safely employed by the physical educator in order to enable the athlete to return to competition with maximum safety.
**Prerequisite(s):** KIN 121 and 122, ACB 221, and CPR.

**KIN 322.3 — 1/2(3L-2P)**
**Theory of Human Movement**

An overview of the theoretical basis of human movement control, acquisition and development. Lectures address motor control theory, phases and theory of motor skill acquisition and childhood motor development. Laboratories emphasize the method of science and applied use of statistics to demonstrate theoretical concepts.
**Prerequisite(s):** KIN 121 and 122; STAT 245 or PLSC 314 or PSY 233.

**KIN 334.3 — 2(3L)**
**Theory of Coaching**

Designed to provide the student with an appreciation and understanding of the theory and practice of coaching. Students will look at the development of techniques of communication between the coach, individuals and/or groups as they relate to team organization and integration. There will be a development of the concept that coaching is a specialized form of teaching.
**Prerequisite(s):** Restricted to senior B.Sc.(Kin.) students.

**KIN 341.3 — 1/2(3L)**
**Pedagogy in Physical Activity Setting II Practice**

The aim of this course is to develop an increased understanding of selected principles and practices of motor skill development in children and youth. In addition emphasis will be placed upon the establishment of optimal environments for the instruction and practice of motor skills. Opportunities will be provided for the observation and application of these principles and practices in lab and field based settings.
**Prerequisite(s):** KIN 240.
**Note:** Student may only receive credit for one of KIN 341, 345 and 346. Previous credit for KIN 345 fulfills the KIN 341 requirement in the B.Sc.(Kin.) program.

**KIN 380.3 — 1/2(3L)**

**Introduction to Research in Kinesiology**

The aim of this course is to prepare student to be critical consumers of disseminated research. Student will evaluate the merit of research studies by asking optimistically skeptical questions about the rationale and purpose, design, data analysis, and stated conclusions of published, empirical research studies.
**Prerequisite(s):** KIN 121 and 122; STAT 245 or PLSC 314 or PSY 233.
**Note:** Students may not receive credit for both KIN 380 and 390.

**KIN 381.3 — 1/2(3L-2P)**
**Adult Fitness and Exercise Management I**

Presents basic theoretical and advanced practical information related to prescription, development and assessment of physical activity and lifestyle as an underlying theme. Students will have the opportunity to complete C.S.E.P. (Canadian Society for Exercise Physiology) Certified Fitness Consultant theory and practical examinations.
**Prerequisite(s):** KIN 222, 225, 226, 281 (or KINA 270).
**Corequisite(s):** KIN 321 and 322.
**Note:** Students may not receive credit for both KIN 381 and 420.

**KIN 382.3 — 1&2(1L-3P)**
**Adult Fitness and Exercise Management II**

Provides practical experiences in a wide variety of advanced physical fitness assessment methods applicable to sport, general public and occupational settings. Students will have the opportunity to challenge the PFLC exam provided the prerequisites have been satisfied (see PFLC Requirements under KIN 481). Students graduating in the spring will have the opportunity to challenge the PFLC exam in May. Students graduating the following year will be able to challenge the exam in December.
**Prerequisite(s):** KIN 381.
**Note:** Students may not receive credit for both KIN 382 and 470.

**KIN 390.3 — 2(3L)**
**Research Methods in Kinesiology**

This course provides an introduction to research methods and design used in kinesiology research. The course will focus on critical evaluation of research studies and the use of various types of research methods with emphasis on the sport and physical activity context.
**Prerequisite(s):** KIN 121 and 122; STAT 245 or PLSC 314; admission to the honours program; or permission of the department.
**Note:** Students may not receive credit for both KIN 380 and KIN 390.

**KIN 412.3 — 1&2(P)**
**Dance Practicum**

Involves practical experience in the teaching of dance resulting in a short presentation of work accomplished.
**Prerequisite(s):** KIN 121 and 122.

**KIN 423.3 — 1/2(3L)**
**Physical Activity for Persons with Impairment**

Focuses on physical activity programs for persons with impairments. Current trends in Canadian physical activity program philosophy and delivery are considered in concert with the more general philosophy and delivery systems for persons with impairments. Basic adapted physical activity principles focusing on activity, program and instructional modification are also considered.
**Prerequisite(s):** KIN 222, 225, 226, 231 and 322.

**KIN 424.3 — 1/2(3L-1.5P)**
**Aging and Activity**

Will focus on exercise programming for older adults with respect to understanding the biology of aging as it affects potential for physical activity in later years. Emphasis will be on the special and changing needs of older adults and the adaptations to traditional exercise modalities necessary to ensure success in active living. As part of the practicum experience, students are expected to spend 6-10 hours during the term, outside of class lecture times, observing and participating in community-based activity programs for seniors.
**Prerequisite(s):** KIN 225 and 226.

**KIN 425.3 — 2(3L-2P)**
**Physiology of Exercise**

Examples of topics to be discussed include exercise and altitude, exercise and heart disease, women and exercise, etc. Laboratory sessions will include both formal laboratories and an approved student designed research project which will be reported to the class upon completion.
**Prerequisite(s):** KIN 225 and 226.

**KIN 426.3 — 1/2(3L)**
**Health Aspects of Physical Activity and Physical Fitness**

A comprehensive review of current knowledge regarding the effects of physical activity and physical fitness on physical and mental health. Additional topics include exercise and aging, cost/benefit of physical activity and risks of exercise.
**Prerequisite(s):** KIN 225 and 226.

**KIN 428.3 — 1/2(3L-2P)**
**Nutrition Drugs and Physical Activity**

Examines the effects of nutritional intake and drug usage on physical performance. Preparation for competitive or recreational activities demands an understanding of: (1) the nutritional requirements which underpin such activity, and (2) the major consequences that ingestion of performance enhancing drugs may have upon the health and physical achievement of an individual.
**Prerequisite(s):** KIN 225 and 226.

**KIN 429.3 — 1/2(2L-2P)**
**Exercise and Cardiac Rehabilitation**

Primarily a practicum course in cardiac rehabilitation. Students will intern within the tri-hospital cardiac rehabilitation program offered through Saskatoon District Health. The major emphasis of this course is the role of exercise in cardiac rehabilitation.
**Prerequisite(s):** KIN 381 and 382. Recommend PATH 205 and PHSI 346. Apply to the Administrative Assistant, Academic Office.

**KIN 431.3 — 1/2(3L)**
**Mental Training for Sport and Physical Activity**

An introduction to mental skills training for sport and physical activity. This course will build on the material presented in KIN 231.3 and focus on the development and application of a mental skills training program in sport and physical activity. Analysis, discussion, and application will focus on ethical issues, pre-competition and competition planning, goal-setting, arousal control, imagery, self-talk, attention control, and program evaluation.
**Prerequisite(s):** KIN 231.

**KIN 432.3 — 1/2(2L-1S)**
**Ethics and Values in Sport and Physical Activity**

Students will be introduced to a number of decision making models which guide the ethical decision making process. Contemporary issues and controversies from the behavioural, functional, educational and management areas of physical activity will be examined from an ethical and moral perspective.
**Prerequisite(s):** Restricted to senior students with no more than 42 credit units remaining to complete the B.Sc.(Kin.).

**KIN 442.3 — 1/2(3L-P)**
**Biomechanics II**

This is a second level biomechanics course which provides students an opportunity to further their study in both the qualitative and quantitative aspects of sport biomechanics.
**Prerequisite(s):** KIN 222.

**KIN 445.3 — 1&2(R)**
**Advanced Readings and Special Studies in Kinesiology**

Students are required to present in writing a detailed description of the proposed special study to a college faculty member with expertise in that area. The faculty member may then wish to sponsor the study by requesting approval from the Associate Dean.
**Prerequisite(s):** Restricted to senior students who have a strong background and wish to pursue planned study in a special phase of physical education.

**KIN 471.6 — 1&2(P)**
**Administration Practicum**

Students will be involved in assigned field experience equal to 10 hours per week for one complete term. In addition, a monthly group seminar will be held to discuss programs and problems related to the field experience. Provides for practical field experience in the administration of sport and leisure programs. Will be under the direction of college staff and competent community authorities. FIELD EXPERIENCE: Students will be assigned to work with leisure services boards, intercollegiate athletic boards, amateur sport associations or special games committees. Work done will be evaluated by the college staff and the professional in the field.
**Prerequisite(s):** Open to senior students with permission of the instructor. Apply to the Administrative Assistant, Academic office.

**KIN 475.3 — 1/2(3L-P)**
**Information Technology for Leisure and Sport Management**

Involves application of information technology in the discipline of Kinesiology. Work processing, spreadsheet analysis, database management, graphics, presentation, communication, and dedicated software applications and hardware will be used in a project-based context.
**Prerequisite(s):** KIN 121 and 122.

**KIN 481.6 — 1&2(P)**
**Advanced Adult Fitness and Exercise Management Practicum**

This practicum is designated to develop the professional skills related to physical fitness and physical activity assessment and exercise prescription in a variety of environments; these include a broad spectrum from athletic settings to community or occupational health/fitness programs. Students will be involved in assigned field experience equal to 6 hours per week over two complete terms. In addition, two monthly group seminars will be held to discuss both theoretical and practical issues as they arise from ongoing practicum activities. Students will have the opportunity to challenge the PFLC exam in May provided the prerequisites have been satisfied (see PFLC Requirements).
**Prerequisite(s):** KIN 381 and 382. Apply to the Administrative Assistant, Academic Office.
**Note:** PFLC Requirements:1) Formal documentation confirming successful completion of a university degree in Kinesiology, exercise science or allied health sciences. 2) A minimum of 75 hours of practical experience in the areas of fitness programming, counseling and evaluation. 3) Current CFC certification and CPR certification (Basic Rescuer level). Students may not receive credit for both KIN 470 and 481.

**KIN 490.3 — 1/2(3S)**
**Honours Seminar**

Students will attend presentations, review articles, and prepare materials that will assist them in interpreting and presenting research in exercise and sport science.
**Prerequisite(s):** KIN 390; admission to the honours program.

**KIN 494.6 — 1/2(3P)**
**Honours Thesis**

The student will work two terms on a project under a faculty member's supervision; become familiar with the pertinent research literature; establish procedures, collect, record and analyze experimental results; submit to the College a written thesis which incorporates the background to the work done, procedures used, results obtained and a discussion of the results and their significance. The student will present the thesis findings in KIN 490.3 Honours Seminar. Before beginning, the student must submit an outline of the project for approval of the Associate Dean. At the end of the project, the student will submit to the department a journal and a written report in thesis form.
**Prerequisite(s):** Registration in B.Sc.(Kin.) Honours Program with a minimum Cumulative Weighted Average of 70% or higher; KIN 390.
**Corequisite(s):** KIN 490.

**KIN 498.3 — 1/2(3L)**
**Special Topics**

Takes advantage of special circumstances in which one time special topic offerings can be made available to senior students in the College.

# KINA — KINESIOLOGY ACTIVITY

College of Kinesiology

**KINA 200.2 — (3L)**
**How Body Moves Projectiles and Implements**

Introduces students to the theoretical and practical study of the common movement patterns from which most Games evolve. Students will gain knowledge and skills in how the body generates and absorbs force using projectiles (throwing, shooting, kicking, spiking, trapping, etc) and implements (bats, racquets, clubs, sticks, etc). Low organized games and lead-up games will be used extensively to teach students the commonalities in teaming and evading used in team games. Students will be assessed on both theoretical and practical content.
**Prerequisite(s):** KIN 150.

**KINA 210.2 — (3L)**
**Introduction to Fundamentals of Movement and Rhythm**

Introduces fundamentals of movement and rhythm. Includes basic movement techniques designed to give the student an understanding of body alignment, body balance and control of the centre.

**KINA 211.2 — (3L)**
**Aquatics**

Includes practical and theoretical work. Practical aspects include strokes, life saving, resuscitation and first aid training. Opportunity is provided for earning the Royal Life Saving Society Resuscitation and Life Saving Awards. Pulmonary Resuscitation certification is required. There will be a special fee assessed of approximately $40.00 for CPR certification.
**Prerequisite(s):** One of - AquaQuest 7, Swim Kids Level 6, Lifesaving Rookie Patrol or demonstrate equivalent distance swimming (150 meters). Includes practical and theoretical work. Practical aspects include strokes, lifesaving skills and rescues, resuscitation and first aid training. Opportunity is provided to earn the Lifesaving Society Star Patrol and Fitness award. CPR-C certification is required. There will be a special fee assessed of approximately $75.00 for CPR Certification.
**Note:** Certified WSI Instructors are not required to take KINA 211. However another 2 credit unit activity must be taken in lieu of KINA 211.

**KINA 220.2 — (3L)**
**Basketball**

An introduction designed to develop knowledge and understanding of the performance of individual basketball skills and basic knowledge of FIBA rules. Minor emphasis on the basic elements of team play. Level I technical certification possible.

**KINA 226.2 — (3L)**
**Football**

A practical approach to the basic skills involved in competitive football. Such skills as passing, kicking, blocking and tackling will be covered during the class periods. Basic offensive and defensive tactics will also be covered.

**KINA 227.2 — (3L)**
**Hockey**

Fundamental skill areas of ice hockey are covered with some emphasis on team play.

**KINA 229.2 — (3L)**
**Volleyball**

Introduces fundamental techniques in the game of volleyball. Includes description of basic individual skills, the development of teaching progressions, skill analysis and correction and current rule interpretations and officiating techniques.

**KINA 235.2 — (3L)**
**Track and Field**

Introduces basic events of track and field. Develops understanding of the fundamental principles underlying the teaching and execution of each event. A practical approach to develop the ability to demonstrate basic skills. Some coverage of organization and administration in track and field and cross country running. Level I technical certification possible.

**KINA 445.2 — (3P)**
**Special Studies in Physical Activities**

Restricted to senior students who wish to pursue an advanced planned study in a physical activity. Students wishing to pursue a special study area are required to present in writing a detailed description of the proposed study to a college faculty member with expertise in that area. The faculty member may then wish to sponsor the study by requesting approval from the Associate Dean.

**KINA 472.3 — (3P)**
**Physical Activity Practicum**

Designed for students who wish to specialize in a specific activity. Emphasizes advanced technical considerations and coaching/ instructional strategies where applicable.
**Prerequisite(s):** KIN 334, the appropriate 200-level KINA course, and permission of the instructor.
**Note:** Students must apply for a placement in this course by April 1. Applicants will be notified by May 15 regarding the status of their application.

# LATN — LATIN

Department of History, College of Arts and Science

**LATN 112.3 — 1(5L)**
**Latin for Beginners I**

An introduction to the basics of Latin grammar, with particular attention to accidence.

**LATN 113.3 — 2(5L)**
**Latin for Beginners II**

An introduction to the main elements of basic Latin syntax.
**Prerequisite(s):** LATN 112.

**LATN 202.3 — 1(3L)**
**Intermediate Latin I**

Consolidation of basic Latin grammar and introduction to advanced Latin syntax. The readings of some of the less difficult ancient Latin texts.
**Prerequisite(s):** LATN 113.
**Note:** Minimum of 75 per cent in Latin 113 recommended.

**LATN 203.3 — 2(3L)**
**Intermediate Latin II**

Readings in continuous Latin prose texts. Introduction to Latin poetry and metrics. Latin prose composition.
**Prerequisite(s):** LATN 202.

**LATN 298.3 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**LATN 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**LATN 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LATN 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LATN 400.3 — 1/2(3L)**
**Senior Latin**

Advanced study, in Latin, of particular authors, works, or genres, with emphasis on the precise translation and analysis (grammatical, metrical, stylistic, historical, and/or literary) of the assigned Latin texts.
**Prerequisite(s):** LATN 203.

**LATN 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LATN 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# LAW — LAW

College of Law

**LAW 201.6 — 1&2(3L)**
**Contracts**

An introduction to the law of contracts, including formation of contractual obligations, consideration, privity, contract formalities, capacity, contractual terms, misrepresentation, mistake, illegality, discharge and remedies.

**LAW 204.6 — 1&2(3L)**
**Criminal Law**

Basic concepts and procedures, principles of criminal liability, physical and mental elements of a crime, common law and statutory defences, the Canadian Charter of Rights and Freedoms, capacity, justification, parties to offences, and specific offences.

**LAW 208.6 — 1&2(3L)**
**Property I**

A survey of the law of personal property. The forms and methods by which interests in personal property are created, used and transferred. A survey of English land law and its introduction to, and use in, Saskatchewan.

**LAW 212.6 — 1&2(3L)**
**Tort Law**

An introduction to the legal processes through which an injured person can seek compensation either from the state, from insurance schemes or in a tort action. Detailed consideration will be given to the Saskatchewan Criminal Injuries Compensation Scheme, the tort of negligence, and the Saskatchewan Automobile Accident Insurance Act. Preliminary treatment will also be given to civil procedure, ethical issues, and access to justice considerations, together with a critique of Canada's legal response to personal injury.

**LAW 231.3 — 1/2(3L)**
**Constitutional Law I Division of Powers**

Principles of federalism and of constitutional interpretation. The judicial system. Detailed examination of the distribution of legislative power between Parliament and the Provincial Legislatures. Constitutional amendment. Policy issues will also be addressed.

**LAW 233.3 — 1/2(3L)**
**Constitutional Law II Charter of Rights and Freedoms**

An examination of the Charter of Rights and Freedoms. Emphasis will be placed on general principles of interpretation and theories of judicial review and human rights, general provisions of the Charter (s. 24, 12, 5, etc.) and issues concerning selected charter rights and freedoms, such as section 2, 7 and 15.

**LAW 243.0 — 1&2(1L)**
**Legal Research and Writing**

An introduction to the methods of legal research and writing. Students will be required to complete a number of legal memoranda as well as bibliographical and research assignments. The first year moot court program forms part of this course.

**LAW 302.3 — 1/2(3L)**
**Commercial Relationships**

Designed to give students the opportunity to examine the law applicable to a range of commercial legal relationships that commonly occur in business and consumer transactions: sale of goods, equipment leasing, agency, suretyship and negotiable instruments law and payments systems.

**LAW 303.3 — 1/2(3L)**
**Secured Financing in Canada**

The basic features of secured transactions law and negotiable instruments law are examined. Students are given the opportunity to examine, principally in the context of consumer-level credit transactions, the basic concepts and practical application of The Personal Property Security Act. In addition, peripheral statutory measures affecting secured transactions such as The Limitation of Civil Rights Act, The Saskatchewan Farm Security Act and The Exemptions Act are examined. In the second part of the course, the concept of negotiability is examined in the context of the provisions of the Bills of Exchange Act. The practical application of negotiable instruments law are addressed in the context of the banking system.
**Prerequisite(s):** LAW 302.

**LAW 314.3 — 3L**
**Health Law**

Introduces students to the basic principles of medical law and its application to common issues in health care. It also explores the legal framework for the health professions and the health care system.

**LAW 326.3 — 1/2(3L)**
**Trusts**

Covers the creation, administration, variation and termination of express trust, including charitable trusts. Breech of trust, trustee defences and beneficiary remedies are examined. Resulting trusts and constructive trusts are also addressed.

**LAW 331.3 — 1/2(3L)**
**Constitutional Law III**

This course canvasses important areas of constitutional law that the mandatory first-year course does not address. It examines, 'inter alia' current federalism issues, including the social union negotiations; constitutional amendment, including the process or succession; the judicial branch of government, and in particular the impact of the Judges Reference; the internationalization of domestic constitutional law and changing notions of sovereignty; and the Charter's mobility rights, language rights, and democratic rights. Overall, it identifies underlying themes in constitutional law and explores different approaches to constitutional adjudication.

**LAW 340.3 — 1/2(3L)**
**Administrative Law I**

A survey of the role of administrative agencies within the Anglo-Canadian legal system focusing primarily upon consideration of the extent to which agency and executive action is subject to judicial review and control.

**LAW 351.3 — 1/2(3L)**
**Evidence I**

Examination of the foundations of the law of evidence in civil and criminal trials in Canada. The principles, rules, statutes and procedures are examined from a critical perspective with emphasis on the history, rationale and reform of rules and statutes affecting the admissibility of evidence. The topics examined are admissibility, relevance, character evidence, opinion evidence, hearsay evidence, competence, privilege and confessions.

**LAW 361.3 — 1/2(3L)**
**Business Organizations I**

Examination of the basic features of business corporations. The following topics, among others, are considered: corporate personality, the process of incorporation, the powers and duties of directors and officers, shareholder rights and remedies.

**LAW 363.3 — 1/2(3L)**
**Agricultural Law I**

Agriculture is a highly regulated industry in most jurisdictions, as is the case in Canada and Saskatchewan. Historically governments have intervened in agriculture under the pretext of ensuring stability in both the agriculture and consumer communities, thus Agricultural Law is often considered the law of exceptions. Reviews specific legislation designed to regulate agriculture, such as the Saskatchewan Farm Security Act, as well as agricultural exceptions in general. Case law and other legal analysis wll be included when necessary.
**Prerequisite(s):** Successful completion of first year law.

**LAW 372.3 — 1/2(3L)**
**Family Law I**

Introduction to trends in families and family law, the constitutional and statutory framework for the regulation of families and the role of process issues in family law practice. The course also provides a detailed examination of maintenance and property rights as between spouses, both married and common law.

**LAW 384.3 — 1/2(3L)**
**Civil Procedure**

A chronological study of the procedural steps, rules and related substantive law in a civil action from the moment of the decision to sue to the trial of the matter. The context of the adversarial process in an action is examined by reference to the policies underlying civil procedure, the role and authority of the lawyer, the organization and jurisdiction of the courts, limitations of actions and costs. The civil action is examined through a focus on principles of jurisdiction and venue, type and manner of commencement of proceedings, pleadings, multiple claims

and parties, and discovery. The course will involve the drafting of documents.

**LAW 388.3 — 1/2(3L)**
**Constitutional Theory**

This is a Legal Perspectives course that introduces students to important theoretical questions in the context of constitutional law. These questions include the nature of law, the relationship between law and politics, the nature of judicial reasoning, the relationship between democratic practice and judicial review, the scope of the constitutional norms of equality and liberty. These issues will be explored using recent constitutional cases and scholarly writings.

**LAW 390.3 — 1/2(2S-1R)**
**Critical Legal Theory**

A Legal Perspectives course intended to introduce students to the literature and approaches of what is presently known as critical legal studies. Major themes developed in the work of crits and fem-crits include: the artificiality and arbitrariness of formal legal systems, the indeterminacy of rules, the duplicity of the public/private distinction, the use of myths of legal neutrality and objectivity to maintain hierarchy and conditions of social inequality, and the role of images and rhetoric of freedom and equality in obtaining compliance with institutional mechanisms of control and oppression. Many of these themes and problems were previously analyzed by the legal realists.

**LAW 393.3 — 1/2(2S-1R)**
**Gender and Law**

Examines the social construction of gender, and critical and feminist perspectives on law.

**LAW 394.3 — 1/2(3L)**
**Jurisprudence**

A Legal Perspectives course examining the nature and function of law, focusing particularly on the relationships between law and society, law and morality and law and political theory.

**LAW 395.3 — 1/2(3L)**
**Jurisprudence and Tort Law**

A survey of jurisprudential theory in the context of the law of torts. Various schools of thought will be examined, including natural law and rights theory, law-and-economics theory, feminist theory, and the critical legal studies movement. Fundamental issues of particular relevance to tort law will also be examined.

**LAW 396.3 — 1/2(2S-1R)**
**Objectivity in Law**

This legal theory seminar examines the concept of objectivity and its role in law. Claims of objectivity are routinely made in law for what are purportedly findings of 'fact', either simple or complex, as well as for complex and overtly normative or value-laden determinations of mixed 'fact' and 'law'. Invites the student to develop critical and analytic skills through examination of the theoretical foundation and conceptual framework for such claims. The materials studied will include selections from a variety of writers, including the social sciences, epistemology, and ethics. Use will be made of selected legal cases, facta, and case studies to permit discussion of theory as it applies to concrete legal issues. Cross-cultural theoretical perspectives are considered and the approaches taken by contemporary writers (legal realist/ feminist/ critical/ liberal/post-modernist, etc.) compared.

**LAW 398.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LAW 399.6 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LAW 401.3 — 1/2(2L-1R)**
**Securities Regulation**

An introduction to the principles of securities regulation in Canada and an examination in some detail of The Securities Act 1988 (Saskatchewan) the National Uniform Act and Local Policies, and General Rulings and Orders. Examines the definitions of key concepts such as security, trade, distribution, full true and plain disclosure, and material fact. A historical perspective will provide the starting point, and the basic scheme of the regulatory system will be covered, including registration and prospectus requirements, continuous disclosure, insider trading and reporting, take-over bids, and minority shareholder rights. Special emphasis will be given to the exemptions available for financing activities prior to or instead of a public offering.
**Corequisite(s):** LAW 361.

**LAW 402.3 — 1/2(3L)**
**International Commercial Transactions**

Addresses a variety of issues that arise in the context of international private sales and the law that is applicable to their solution. Introduction to basic conflict of laws (private international law) and rules that determine how the law is applicable to a particular contractual issue. Examines the United Nations Convention on Contracts for the International Sale of Goods and explores application to central features of an international sale of goods contract. Examines methods of payment and security mechanisms such as letters of credit (governed by the Unifrom Customs and Practices for Documentary Credits), security agreements, financing leasing, factoring, forfeiting, standby letters of credit and export credit insurance. New international instruments such as the Convention on International Interests in Mobile Equipment, 2001 and the Convention on Assignments in Receivable Financing, 2002 are examined. Since dispute settlement through international arbitration is a common feature of modern international contracting, both domestic arbitration law (The Arbitration Act) and international arbitration law (International Arbitration Act) are considered in detail.
**Prerequisite(s):** LAW 302 and 303.

**LAW 403.3 — 1/2(2S-1R)**
**Advanced Secured Transactions**

Seminar designed to give students who have taken the course in Secured Financing in Canada the opportunity to undertake research projects examining a range of legal issues that arise in the context of secured financing involving both personal property and land.
**Prerequisite(s):** LAW 302 and 303.

**LAW 404.3 — 1/2(3L)**
**Debtor Creditor Law**

The issuance of a judgment does not, in itself, enable a successful claimant to reach the financial resources or property of the judgment debtor for purposes of satisfaction of the successful plaintiff's claim. Examines the specialized system of law that enforces a judgment for the payment of money, including various methods of judgment enforcement such as execution against goods, intangibles and interests in land; exemptions from execution; equitable execution; charging orders and garnishment. Also examines features of the system that are incidental or peripheral to the enforcement of judgments, including distribution under The Creditors Relief Act, interlocutory injunctions, pre-judgment garnishment, fraudulent conveyance and fraudulent preference actions, and enforcement of foreign judgments. Some features of the Bankruptcy and Insolvency Act are considered.

**LAW 405.3 — 1/2(2S-IR)**
**Advanced Criminal Law**

The seminar focuses on substantive criminal law with emphasis on critical analysis of the grounds of criminal liability and criminal responsibility. The challenges that social and cultural diversity pose for the principled development of substantive criminal law will be considered throughout.

**LAW 406.3 — 1/2(2S-1R)**
**Law and Culture**

This interdisciplinary seminar explores legal culture within the larger cultural contexts that it shapes and is shaped by. In studying the ways in which law and cultures intersect in history, theory, and practice, students will enhance their critical understanding of the independence and interdependence of law and justice; the value of cultural theory in reading legal texts; the challenges and opportunities of inter-cultural perspectives; the role of media images of the law and lawyers; issues of race, gender, class, commodification, and sexuality; the construction of public and private spheres; censorship and intellectual property; agency and accountability; cultural myths and narrative powers.

**LAW 407.3 — 1/2(3L)**
**Bankruptcy Insolvency and Receiverships**

Designed to permit close examination of central features of the law of bankruptcy, insolvency and equitable receiverships. Recent and proposed changes to bankruptcy and insolvency law will be considered and comparisons will be made with the law of other jurisdictions which have recently enacted reforms in this area of the law. The specific issues that will be examined in the context of bankruptcy and insolvency law will include: The role and efficacy of consumer and business insolvency proceedings, the position of secured creditors of the bankrupt, the status of statutory lien holders, the relationship between receivership and bankruptcy, dealings with undischarged bankrupts, bankruptcy exemptions, the role of unsecured creditors in bankruptcy administration and consumer bankruptcies. The specific issues that will be examined in the context of equitable receivership include: the receiver as agent of the debtor and representative of the secured party, the special position of a receiver-manager and receiverships under The Personal Property Security Act and Bankruptcy and Insolvency Act.
**Prerequisite(s):** LAW 404.

**LAW 408.3 — 1/2(2S-1R)**
**Multi Party Negotiation**

This seminar offers theoretical understandings and skills development in negotiations involving multiple parties seeking to revise their institutional, i.e. legal and policy - relationships. Such negotiations include international multi-lateral negotiations, domestic constitutional negotiations, or any large scale negotiations involving multiple stakeholders with political, economic, cultural and legal relationships with one another. Such negotiations often take place in the context of long-standing social conflict. Beginning January 2004, the seminar may be delivered in a distributed learning format involving on-line learning,

multi-media interaction, and students at other law schools. Evaluation in the seminar is based on a participation in a negotiation and simulation and a 35-page analytic paper.

**LAW 410.3 — 1/2(3L)**
**Intellectual and Industrial Property I**

The general nature of intellectual and industrial property rights and the present legal framework in Canada for the protection and exploitation of such rights. Traditional and emerging categories and their theoretical underpinnings. The substantive law of patents and copyright will be examined. An examination of the developments and problems caused by new technologies and the demands made on the law by a post-industrial, information society.

**LAW 412.3 — 1/2(3L)**
**Torts II**

Consideration of areas of tort liability not covered in LAW 212, and an examination of underlying theoretical concepts in tort law. Topics normally include: negligent misrepresentations; negligently caused economic loss; the relationship between tort and contract; constitutional torts and human rights claims in torts; the business torts and the tort of nuisance.

**LAW 413.3 — 1/2(2S-1R)**
**Current Issues in Law Reform**

Law reform has been a matter of interest for as long as there has been law. Seminar focusing on the process of law reform, who contributes to it, the machinery of law reform, and current issues in law reform in areas of provincial jurisdiction. The method of delivery will be dynamic, using guest speakers, direct interaction with the Law Reform Commission of Saskatchewan and opportunities to work with others involved in law reform.

**LAW 415.3 — 1/2(3L)**
**Municipal Law**

An examination of the organization and operation of municipal corporations and land-use control. Consideration will be given to such matters as the scope and exercise of municipal powers, municipal planning and land-use regulation.

**LAW 417.3 — 1/2(3L)**
**Insurance Law**

An examination of general topics of insurance law and how the Saskatchewan Insurance Act effects those topics in relation to fire insurance, life insurance and automobile insurance. These topics include the legal position of agents in the business of insurance and the Insurance Law concepts of indemnity, insurable interest, non-disclosures and misrepresentations, warranties and conditions, proximate cause, valuation, subrogation and contribution.

**LAW 418.3 — 1/2(2S-1R)**
**Sexual Assault**

The seminar examines sexual assault in domestic and international criminal and civil law. Topics addressed include: 1) comparison of alternate theoretical conceptualizations and legal definitions of sexual assault; 2) issues in interpretation of current substantive law: defining consent in the actus reus, consent and voluntariness, mens rea, mistakes of fact and mistakes of law, the 'reasonable steps' provision; 3) issues in the administration of justice in relation to sexual assault: police and prosecutorial practices and policy, determinations of credibility and admissibility of evidence, questions of law and questions of fact, the judicial role, jury instructions, sentencing; 4) civil actions; 5) criminal compensation boards; 6) issues under the Charter and international human rights law, the UN Declaration of Human Rights, Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), 1979, Declaration on the Elimination of Violence Against Women, 1993, Statute of the International Criminal Court (Rome Statute), 1998, including recognition of 'rape' and other forms of sexual violence of comparable gravity as 'war crimes' and 'crimes against humanity'.
**Prerequisite(s):** LAW 351.

**LAW 419.3 — 1/2(3L)**
**Remedies I**

Examination of judicial remedies in equity and at common law. In the first part the focus is on specific relief in the form of injunctions and specific performance. Particular attention is paid to the recent development of two new forms of interlocutory injunctive relief: Mareva injunctions and Anton Pillar orders. Selected topics in the assessment of damages comprise the balance of the course.

**LAW 421.3 — 1/2(3L)**
**Professional Responsibility**

Introduces students to i) the roles, responsibilities and authority of the legal profession and ii) the legal and ethical duties of lawyers in the practice of law. The regulation of various aspects of the profession - admission, regulation of the practice of law, lawyer discipline, etc. are critically examined. As well, students will learn the elements of a lawyer's duties to client, the court and others, including himself or herself. This involves an understanding of the lawer's role in the adversary system, the nature of lawyer-client confidentiality, integrity and conflicts of interest in various roles performed by lawyers.

**LAW 423.3 — 1/2(3L)**
**Criminal Procedure**

Jurisdiction, including classification of offences, time limitations, jurisdiction under the Charter; pre-trial procedure and practices, including search and seizure, arrest and detention, right to counsel; judicial interim release (bail); the preliminary inquiry and the process of discovery; the charging process, including stays and withdrawals; pleas; trials; trial by jury.
**Prerequisite(s):** LAW 351 recommended.

**LAW 425.3 — 1/2(3L)**
**Sentencing in Criminal Justice System**

Selected topics relevant to sentencing in the criminal justice system combining theory, doctrine and practice. Theoretical aims of punishment and their translation into current legal doctrine and practice will be discussed, with particular emphasis on the Canadian and Saskatchewan context.

**LAW 427.3 — 1/2(3S)**
**Gale Moot**

Participation in the Gale Moot Competition held annually in Toronto is required. It will involve research and advocacy, both oral and written, on a complex case or problem in the field of criminal and/or constitutional law. Students are responsible for the preparation of both an Appellant's and a Respondent's factum, and will participate in at least three practice moots at the College prior to the competition. Recommended for students with an interest in public speaking and exacting research.

**LAW 428.3 — 1/2(3L)**
**Wills**

Execution and revocation of wills, survivorship, intestate succession, probate, construction of wills, dependants' relief, the Family Property Act as it relates to estates.

**LAW 430.3 — 1/2(2S-1R)**
**Alternate Dispute Resolution Theory and Practice**

Examination of the forms and functions of major disputing processes - negotiation, mediation, and adjudication. These are the processes which are critical to lawyers and other persons concerned with preventing or resolving disputes. Alternate methods of dispute resolution (ADR) will be studied from theoretical, critical and practical perspectives. Emphasis will be placed on the role of the lawyer in ADR processes.

**LAW 431.3 — 1/2(2S-IR)**
**Advanced Constitutional Law**

Examination of current issues in constitutional law, with particular emphasis on constitutional theory and the interpretive approaches to the Canadian Charter of Rights and Freedoms being developed by the Supreme Court of Canada.

**LAW 432.3 — 1/2(2S-IR)**
**Human Rights**

An understanding of contemporary debates about universalism and of the meaning of human rights in Canada with attention to political theory and international underpinnings. The concept of discrimination and the constitutional position of human rights and fundamental freedoms in Canada. Detailed analysis of the concept of equality as it is embedded in domestic anti-discrimination law and enshrined in section 15 of the Charter.

**LAW 433.3 — 1/2(2S-1R)**
**Sallows Human Rights Seminar**

The Sallows Seminar in Human Rights will be offered once a year, usually in the first term. It will be led by the visiting Sallows Professor in Human Rights and have a varied content, depending upon the incumbent's experience and interest. The seminar may be interdisciplinary.

**LAW 436.3 — 1/2(3L)**
**Indian and Aboriginal Law**

The Aboriginal peoples of Canada; Aboriginal title and Aboriginal rights; treaties and the treaty-making process, including hunting and fishing rights, Natural Resources Transfer Agreements; the Metis; land claims; federal and provincial jurisdiction over Aboriginal peoples and lands; Indian Act, including membership and Bill C-31; constitutional recognition and protection of the rights of Aboriginal peoples; Aboriginal self-government.

**LAW 437.3 — 1/2(2S-1R)**
**Advanced Studies in Aboriginal Law**

The seminar will involve an advanced discussion of current Aboriginal issues. Areas for discussion may include aspects of Aboriginal self-government, Aboriginal rights in international law, traditional Aboriginal law, Aboriginal title and sovereignty, treaties, Metis rights, hunting and fishing rights, reserve lands, federal and provincial jurisdiction.
**Prerequisite(s):** LAW 436.

**LAW 438.3 — 1/2(2S-1R)**
**Wealth Distribution and Poverty**

Examines the conditions and lives of those who are poor in Canada. Consideration of various definitions and theories of poverty and the relationship between poverty and race, gender and class inequality. Explores the role of law in regulating and/or alleviating poverty.

**LAW 439.3 — 1/2(2S-1R)**
**Mediation**

This seminar will explore the mediation process from both a theoretical and a

practical, skill-based point of view. In addition to examining the stages of mediation and the role of the mediator, the seminar will deal with the use of mediation in different settings, such as family, labour, commercial and criminal law. Critical issues such as the impact of power imbalances, culture and gender will be discussed. Through the use of simulations, students will experience the mediation process as lawyers, clients and mediators. Students will also receive a clinical placement.

**LAW 441.3 — 1/2(3S)**
**Laskin Moot**

This seminar is designed to provide academic supervision and credit for the five students who are members of the College team in the Laskin Memorial Moot Court competition. The team consists of four oralists and one research counsel. Participants do research and written and oral advocacy on a complex problem in administrative and constitutional law. The seminar is recommended for those with an interest in advocacy, exacting research, and public law issues.
**Prerequisite(s):** LAW 340 recommended.

**LAW 444.3 — 1/2(3L)**
**Environmental Law**

Surveys the actual and potential role of the law in protecting the integrity of the environment from threats posed by scientific and technological advances over exploitation of resources, rapid development and population growth.

**LAW 446.3 — 1/2(2S-1R)**
**Natural Resources Law**

Seminar introducing the legal regulation of natural resources. Explores a variety of legal and policy considerations involved in the exploitation of natural resources. Subjects addressed include sustainable development of natural resources, the ownership and disposition of natural resources, and social and environmental considerations.

**LAW 447.3 — 1/2(3S)**
**Aboriginal Moot**

The Aboriginal Rights Moot is a non-competitive moot structured on the traditional Aboriginal circle consensus-building process. It is designed to allow Aboriginal law students to debate and discuss Aboriginal rights issues vital to the Aboriginal peoples.
**Prerequisite(s) or Corequisite(s):** LAW 436.
**Note:** Team is chosen in October and competition takes place in March.

**LAW 449.3 — 1/2(3L/S)**
**Canadian Legal History**

Introduces students to fundamental developments in Canadian legal history, and uses a historical perspective to enhance understanding of Canadian legal institutions and principles. The course will survey the ingredients of the Canadian legal heritage: English, European and American influences; the legacy of civil, common and customary law. There will also be discussion of the impact of Canadian historical events on specific areas of Canadian law, such as immigration law, family law, criminal and constitutional law.

**LAW 450.3 — 1/2(3L)**
**Western Canada Moot**

The Western Canada Moot is a criminal trial moot. The students will prepare jury addresses, examination in chief, cross-examination, and arguments on the law and evidence, for use at trial. The students work with a fact situation, witness statements, and exhibits. Volunteer witnesses assist students in practicing examination in chief, and cross-examination and opening and closing jury addresses. In addition, the students will spend time analyzing the legal and evidential problems, reviewing the case law governing the problems, preparing memorandum on the issues, and delivering arguments to the presiding trial judge on these issues. Two team members will be selected to present the case at the Western Canada Moot competition. If the team is successful, they will attend the national competition for the Sopinka Cup in Ottawa, in March of each year.

**LAW 451.3 — 1/2(3L)**
**Evidence II**

A completion of the foundations of the Law of Evidence and an examination of the Law of Evidence from a critical perspective. First, an examination of the history, rationale and reform of evidence rules and statutes with some examination of the relationship to the system of proof. Second, an examination of the exclusion of evidence grounded in policies external to the Laws of Evidence including the Charter. Third, an examination of selected topics which bring an interdisciplinary, comparative or other relevant perspective to Evidence law.
**Prerequisite(s):** LAW 351.

**LAW 452.3 — 1/2(3L)**
**Trial Advocacy**

Advocacy techniques, practice and tactics in civil and criminal trial fora. Topics covered will include: the essentials of direct examination and cross examination, chambers advocacy, examinations for discovery, impeachment of witnesses, occurrence witness testimony, expert witnesses, the use of exhibits, family law, pre-trial conferences, closing arguments and addresses as well as sentencing.
**Prerequisite(s):** LAW 351.

**LAW 453.3 — 1/2(3L)**
**Aboriginal Law and Policy in Canada**

An overview of the main historical and contemporary legal and policy developments affecting Aboriginal people and their interests in Canada, and examination of the relationship between law and policy in this area. Following a brief review of the Constitutional and historical background, the emphasis will be on developments since the second half of the 20th century.
**Prerequisite(s):** LAW 436.

**LAW 454.3 — 1/2(2S-1R)**
**Alternate Dispute Resolution Theory Seminar**

Critically analyzes the theoretical issues raised by alternate dispute resolution, including consideration of the moral justice, rights and interest issues of ADR.
**Prerequisite(s):** LAW 430.

**LAW 455.3 — 1/2(3L)**
**Oil and Gas Law**

Introduction to oil and gas law. Topics addressed will include: the nature of interests in oil and gas; rights of mineral interest holders inter se and the operation of the rule of capture; acquisition of freehold interests in oil and gas; the freehold oil and gas lease; estoppel, waiver and involuntary termination; disposition of minerals by the Crown; oil and gas conservation (pooling unitization and shut-in wells); and surface rights.

**LAW 456.3 — 1/2(3L)**
**Conflict of Laws**

Conflict of Laws or Private International Law, as it is also widely known, deals with the analysis and resolution of legal problems involving more than one jurisdiction. Using cases primarily from Tort, contract, property, and matrimonial law, the student learns how to characterize a legal issue, how to determine which jurisdiction is the most appropriate forum and which jurisdiction's law governs the issue, and how to evaluate the significance of factors that influence the recognition and enforcement of the foreign judgments.

**LAW 457.3 — 1/2(3L)**
**International Law**

An examination of the legal principles governing the conduct of states and other subjects of international law. Topics studied will include the creation and ascertainment of international law, application of international law in domestic and international tribunals, sovereign immunity, diplomatic relations, law of armed conflict, international protection of human rights and international environmental protection.

**LAW 459.3 — 1/2(3S)**
**Jessup Moot**

This seminar is designed for students who wish to participate in the Canadian Regional Round of the Jessup International Law Moot Court Competition. The seminar will involve discussion of contemporary problems in public international law relevant to argument in the Jessup Moot, a survey of important cases decided by the World Court, and the preparation of a paper or brief that could serve as a basis for argument on the current moot topic assigned. A team of four or five students will be selected to represent the College at the forthcoming Moot. The seminar is recommended mainly for those with an aptitude for public speaking and exacting research.

**LAW 460.3 — 1/2(3L)**
**International Trade Law**

A study of the important law aspects of major international trade agreements, international economic integration arrangements, and international business transactions. The following topics will be examined: The World Trade Organization Agreement (WTOA), the North American Free Trade Agreement (NAFTA), Canadian trade law and some aspects of international private trade law.
**Prerequisite(s):** LAW 457 recommended.

**LAW 461.3 — 1/2(3L)**
**Business Organizations II**

An examination of the different vehicles that may be employed as alternatives to the corporation for the purpose of carrying on a business. The structures examined include the sole proprietorship, master/servant relationship, agency relationship, partnership, joint venture, limited partnership, business trust, co-operative corporation and franchise. The characteristics of these structures and other factors that influence the choice of business vehicle are explored in detail.
**Prerequisite(s):** LAW 361.

**LAW 462.3 — 1/2(2S-1R)**
**Cooperative Law**

A study of the co-operative corporation as a business form and the theory of co-operative enterprise. The first part of the seminar will look at co-operatives from a legal perspective. Among other things, the following topics will be discussed: incorporation, members' rights, directors' duties and obligations, taxation of co-operatives compared with other business units, and consideration of special types of co-operatives such as Credit Unions. The second part of the seminar will attempt to view the co-operative in a broader, social

perspective. Reliance will be placed on various resource people, if available, in discussing these broader aspects. The third part of the seminar will be devoted to papers presented by the student members of the seminar.
**Prerequisite(s):** LAW 361.

**LAW 463.3 — 1/2(2S-1R)**
**Fiduciary Obligations**

Seminar concerned with the law regulating the actions of fiduciaries. A fiduciary is a person who undertakes to act for the benefit of others. Society imposes on such persons a general obligation to set aside their own self-interest. Explores in detail the general and specific principles comprising this obligation and the remedies for breach of trust.

**LAW 467.3 — 1/2(3L)**
**Labour Law**

A study of the legal concepts, institutions and procedures of labour law in Canada: the contract of employment at common law; legal protection of the right to organize; status under collective bargaining legislation; the concept of exclusive bargaining agent; the role of labour-relations tribunals; industrial dispute resolution mechanisms; and internal union affairs.

**LAW 468.3 — 1/2(2S-IR)**
**Labour Relations**

A seminar devoted to a consideration of the arbitration system and process. The first part of the seminar focuses upon case and doctrinal analysis. All students are required to write a paper dealing with an approved aspect of labour relations. A further requirement is that a summary of the paper must be presented to all members of the class.
**Prerequisite(s):** LAW 467.

**LAW 470.3 — 1/2(2S-1R)**
**Business Finance**

A seminar introducing the legal regulation of business finance. Explores the variety of legal considerations and mechanisms involved in financing the operations of business undertakings. Topics addressed include types of securities, debt versus equity, covenant patterns, dividend features, asset securitization, income trusts and securities markets.
**Prerequisite(s):** LAW 361.

**LAW 471.3 — 1/2(3L)**
**Family Law II**

Examination of rights to child support, custody and access, determination of paternity, child protection and adoption, and the enforcement of support and custody orders.
**Prerequisite(s):** LAW 372.

**LAW 473.3 — 1/2(2S-1R)**
**Aboriginal Self Government in Canada**

This seminar will examine theoretical, Constitutional, legal and policy aspects of Aboriginal self-government, drawing upon international, comparative and domestic sources, including the reports of Canada's Royal Commission on Aboriginal Peoples.
**Prerequisite(s):** LAW 436.

**LAW 474.3 — 1/2(2S-IR)**
**Children and Law**

Seminar exploring the legal status and treatment of children from a historical, cross-cultural and multi-disciplinary perspective.

**LAW 475.3 — 1/2(2S-1R)**
**Comparative Trade Regulation**

Seminar undertaking a comparative analysis of the approaches to international economic integration by various international and regional organizations and agreements, including the World Trade Organizatoin (WT), European Union (EU), North American Free Trade Agreement (NAFTA), Organization for Economic Cooperation and Development (OECD), and the United Nations (UN). While international trade law has historically focused on the continued liberalization of trade in goods across international borders, initiatives that liberalize the movement of services, capital and labour pose unique challenges to international and regional trading systems. Requires reflection on the linkages between trade and investment, competition, development, labour and migration, and environmental law through comparing and contrasting the approaches taken to such issues by these institutions and organizations.
**Prerequisite(s):** LAW 460. LAW 457 recommended.

**LAW 476.3 — 1/2(2S-1R)**
**Employment Law**

Employment law as it relates to the non-unionized sector of the workforce, including social and economic influences, comparative law, the duty of fairness and statutory provisions affecting minimum rights, human rights, and health and safety legislation.

**LAW 477.3 — 1/2(3L)**
**Taxation I**

Deals with federal income taxation which focuses on basic tax principles and underlying theoretical concepts. The taxation unit concentrated upon is the individual. Topics normally covered in the course include procedure, statutory interpretation, the tax base, measurement of income, deductions, exemptions, and capital gains.

**LAW 478.3 — 1/2(3L)**
**Taxation II**

Focuses upon taxation of entities other than the individual including corporations, trusts, and partnerships. Also examines tax aspects of transactions which lawyers often encounter in practice. Knowledge of the basic concepts covered in the introductory income taxation course is essential.
**Prerequisite(s):** LAW 477.

**LAW 480.3 — 1/2(2S-1R)**
**Indigenous Peoples in International and Comparative Law**

The question of the legal rights of Indigenous peoples has emerged in a number of states since the last half of the twentieth century, and has influenced developments in the work of the United Nations and the Organization of the American States, and also in their constituent organizations. This course will explore these developments. A major focus of the course will be on a comparative examination of the legal and policy developments pertaining to indigenous peoples in selected states.
**Prerequisite(s):** LAW 436.

**LAW 484.3 — 1/2(2S-1R)**
**Advanced Jurisprudence Historical and Comparative Approach**

Seminar investigating, through a historical and comparative approach, manifestations of and alternative answers to theoretical questions of law including the nature of law and judicial reasoning, tensions between natural law and positivism, law and morality, law and politics, law and justice, law and order, and law and the economy.
**Prerequisite(s):** LAW 394.

**LAW 486.3 — 1/2(2S-IR)**
**Law and Psychiatry**

Introduction to psychiatric theory; the methodology of psychiatric diagnosis and modern psychiatric treatment; the role of psychiatrists in the legal process. Psychiatry and the criminal process: remand for mental examination, fitness to stand trial, sentencing, automatism, insanity and dangerous offenders. The concept of competency: contractual and testamentary capacity. Civil commitment of the mentally ill: a comparative study. The psychiatrist as expert witness. Selected problems.
**Prerequisite(s):** LAW 351.

**LAW 489.3 — 1/2(2S-1R)**
**Remedies and Litigation**

Selected topics in the areas of tort law, remedies and the civil litigation process, including the theoretical underpinnings of civil remedies, the integration and overlap of causes of action, class actions; public interest litigation; and comparative law. The seminar will have both a pragmatic and theoretical focus, and will consider recent jurisprudence from Canada, Australia, England and the United States. Students will be encouraged to choose topics of research in which they have a particular interest.

**LAW 490.3 — 1/2(3S)**
**Law Review**

This course publishes the Saskatchewan Law Review. The work involves selecting and editing material submitted for publication, participating in policy decisions, proofreading, and other miscellaneous tasks. Each student also undertakes written work for possible publication in the Review.
**Note:** A one-year commitment to the Review is required. Academic credit is, however, awarded only for one term. Students will designate the term for which academic credit is awarded.

**LAW 495.3 — 1/2(3S)**
**Individual Directed Research**

This seminar allows interested students to undertake a substantial research project. Enrolment is limited to two students for each of the professors willing to take on student(s). The course is not timetabled as a convenient meeting time can be arranged to suit the instructors and students concerned. Students must approach individual professors with a research proposal. All proposals must be approved by the Studies Committee.

**LAW 498.3 — 1/2(3L/2S-1R)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LAW 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# LING — LINGUISTICS

Department of Languages & Linguistics, College of Arts and Science

**LING 111.3 — 1/2(3L)**
**Structure of Language**

An introduction to the findings, theories and methods of modern structural linguistics. Includes phonetics, phonology, word-formation, syntax, semantics and pragmatics. Basic analytical skills are emphasized. Examples will be drawn from a wide variety of natural languages.

**LING 112.3 — 1/2(3L)**
**Dynamics of Language**

An introduction to language acquisition, dialectology and historical linguistics. Includes how language varies geographically and socially, how it changes, borrowing, common descent and typological similarities among languages. The human biological propensity to acquire language and language universals are considered.

**LING 240.3 — 1/2(3L-1P)**
**Principles of Phonology**

Basic concepts of phonology and the procedures of phonological analysis are introduced, with an emphasis on generative phonology. Data from a variety of natural languages is analyzed.
**Formerly:** ANTH 240.
**Prerequisite(s):** LING 111 or 6 credit units in a language other than English.

**LING 241.3 — 1/2(3L-1P)**
**Introduction to Grammar**

Advanced introduction to traditional, structural, and transformational models of grammar. Emphasizes recent trends in linguistic analysis and theory. Natural language data will be analyzed extensively.
**Formerly:** ANTH 241.
**Prerequisite(s):** LING 111 or 6 credit units in a language other than English.

**LING 242.3 — 1/2(3L-1P)**
**Phonetics**

Introduces articulatory phonetics, the structure and functioning of the vocal tract, the major classes of speech sounds and systems of phonetic notation. A brief discussion of acoustic and perceptual phonetics will be given. Recognition, production and notation of speech sounds and the preliminaries of phonological analysis will be emphasized.
**Formerly:** ANTH 242.
**Prerequisite(s):** LING 111.

**LING 243.3 — 1/2(3L)**
**Morphological Patterns in Language**

Investigates the internal structure of words and the rules by which words are formed. Material from a wide variety of languages is drawn upon to explore morphological processes, their relationship to syntactic structures, and to language typology. Practical work in morphological analysis is emphasized.
**Formerly:** ANTH 243.
**Prerequisite(s):** LING 111.

**LING 244.3 — 1/2(3L)**
**Sociolinguistics**

Presents language in its social context, covering aspects of linguistic variation within and across speech communities. Topics include language and class, gender, age, speech context and ethnicity. Language standardization, code-switching, bilingualism and diglossia, rules of conversation and appropriate address, and societal features of language change will be discussed.
**Prerequisite(s):** LING 111, 112, SOC 110, or WGST 210.

**LING 246.3 — 1/2(3L)**
**Language in Time and Space**

An introduction to the historical linguistics of unwritten and written languages. Topics will include genetic and topological relationship, comparative reconstruction, dialect formation, phonological, morphological and semantic change, and writing systems. The integration of linguistics with prehistory and historical ethnology will be emphasized.
**Formerly:** ANTH 246.
**Prerequisite(s):** LING 111.

**LING 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LING 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LING 342.3 — 1/2(3L)**
**American Indian Languages**

Linguistic structures of native America, with special reference to the families of North America. Genetic relationship and areal typology will be included.
**Formerly:** ANTH 342.
**Prerequisite(s):** LING 111 and 112, or NS 105 and 106.

**LING 398.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LING 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LING 478.3 — 1/2(IS)**
**Honours Project**

A reading course on a specialized topic combining at least two of the components of the student's program: linguistics, languages and/or literature. This course will also provide an initiation into research methods leading to a term paper.
**Prerequisite(s):** Permission of the department and the instructor.

**LING 498.3 — 1/2(3L/2S-1R)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LING 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# LIT — LITERATURE

Department of Languages & Linguistics, College of Arts and Science

**LIT 100.6 — 1&2(3L)**
**Masterpieces of European Literature in English Translation**

A study of representative masterpieces of Greek, Latin, Spanish, French, German and Slavic literatures. Assigned reading, lectures, discussion, essay writing.

**LIT 261.3 — 1/2(3L)**
**Revolution and Dissidence in Protest Literature**

Literary selections from French, German, Hispanic and Russian literatures. All class lectures and readings in English. Authors studied may include Camus, Dostoevsky, Anouilh, Seghers, Brecht, Argueta and Asturias. Students majoring in Comparative Literature will have a one-hour tutorial each week to read and discuss in the original language the literary selections pertinent to their language specialization.
**Prerequisite(s):** ENG 110 or LIT 100.

**LIT 262.3 — 1/2(3L)**
**Exiles and Emigres in Expatriation**

Literary selections from French, German, Hispanic and Russian literatures. All class lectures and readings in English. Selections may include works of Voltaire, Conrad, Nabokov, Brecht, Carpentier and Makine. Students majoring in Comparative Literature will have a one-hour tutorial each week to read and discuss in the original language the literary selections pertinent to their language specialization.
**Prerequisite(s):** ENG 110 or LIT 100.

**LIT 263.3 — 1/2(3L)**
**Heroines Anti Heroines and Gender Definition in Literature**

Literary selections from French, German, Hispanic and Russian literatures. All class lectures and readings in English. Authors studied may include Flaubert, Tolstoy, Mme de La Fayette, Garcia Marquez, Merimee, Christa Wolf and Brecht. Students majoring in Comparative Literature will have a one-hour tutorial each week to read and discuss in the original language the literary selections pertinent to their language specialization.
**Prerequisite(s):** ENG 110 or LIT 100.

**LIT 264.3 — 1/2(3L)**
**Mephisto and Faust Knowledge Power Damnation and Redemption**

The development of the Faust and Mephisto figures from the Renaissance to the twentieth century in literature. French, German, Hispanic and Russian works will be included. All class lectures and readings will be in English. Students majoring in Comparative Literature will have a one-hour tutorial each week to read and discuss in the original language the literary selections pertinent to their language specialization.
**Prerequisite(s):** ENG 110 or LIT 100.

**LIT 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**LIT 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students

interested in these courses should contact the department for more information.

**LIT 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LIT 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LIT 479.6 — 1&2(1S)**
**Honours Project**

A reading course on a specialized topic combining the literatures of the student's two languages. This course will also provide an initiation into research methods leading to an honours thesis.
**Prerequisite(s):** 12 credit units of Comparative Literature courses and permission of the department.

**LIT 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LIT 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# LUES — LAND USE AND ENVIRONMENTAL STUDIES

College of Arts and Science

**LUES 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LUES 299.6 — 1/2(3L)**
**Special Topics**

Offerred occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LUES 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LUES 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LUES 400.3 — 1/2(3S)**
**Field Training in Environmental Management**

Land Use and Environmental Studies students will analyze, research and propose solutions to actual problems in environmental management under the direction of professional management personnel and of instructors in the LUES program. The course will also provide training in field research techniques and report preparation.
**Prerequisite(s):** Completion of three years of the LUES program or permission of the Administrative Committee.

**LUES 401.3 — 1/2(3L)**
**Legal Issues in the Environment**

Provides a basic introduction to environmental law for students with a non-legal background. The course explores the legal aspects of environmental protection, environmental offences, constitutional law, environmental impact assessment and environmental audits.
**Prerequisite(s):** GEOG 280 or permission of the LUES Chair.

**LUES 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**LUES 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# MATH — MATHEMATICS

Department of Mathematics & Statistics, College of Arts and Science

**MATH 100.6 — 1&2(3L)**
**Mathematics for Education Students**

An introductory course designed for students planning to teach at the elementary school level. Topics include basic algebra review, mathematics of finance, number theory, linear algebra, linear programming, counting techniques, probability and statistics.
**Prerequisite(s):** Mathematics A30 or B30 or C30 or Algebra 30.
**Note:** Intended for students entering the Elementary Program in the College of Education. Does not fulfill requirements of a major or monours in either mathematics or statistics, or any other Arts & Science degree program. Students who have credit for a university course in mathematics (at least 3 credit units) are not permitted to take MATH 100 for credit. Students who have taken MATH 100, and subsequently take other junior mathematics courses, will be governed by the regulations of the Department of Mathematics and Statistics.

**MATH 101.3 — 1/2(3L)**
**Elementary Calculus**

An elementary introduction to calculus including functions, limits, derivatives, techniques of differentiation, curve sketching and maximum and minimum problems, antiderivatives and the integral.
**Prerequisite(s):** Mathematics B30 (or Algebra 30).
**Note:** May not be included in the courses comprising a major or honours in either mathematics or statistics and does not meet the requirement of any Arts & Science degree program. Students with credit for one of MATH 101.3, 110.3 or STAT 101.3 may subsequently take MATH 100.6 for half credit only. Students with credit for MATH 100.6 may subsequently take one of MATH 101.3, 110.3 or STAT 101.3 for credit.

**MATH 110.3 — 1/2(3L-1.5P)**
**Calculus I**

Introduction to derivatives, limits, techniques of differentiation, maximum and minimum problems and other applications, implicit differentiation, anti-derivatives.
**Prerequisite(s):** Mathematics B30 and Mathematics C30, or Algebra 30 and Geometry-Trigonometry 30.
**Note:** Students wishing to complete a full year of calculus should register for either MATH 112 or 116 for Term 2. At the completion of MATH 110, students will be allowed the option of changing their choice of the Term 2 course. Students who have credit for MATH 112, 116, or 123 may not take this course for credit. Students who have credit for the former MATH 102 and subsequently take MATH 110 will lose credit for half of MATH 102. Students who have credit for MATH 101 and subsequently take MATH 110 will lose credit for MATH 101.

**MATH 112.3 — 1/2(3L-1.5P)**
**Rudiments of Integral Calculus**

Techniques of integration; the definite integral and simple differential equations - with applications and numerical techniques.
**Prerequisite(s):** MATH 110.
**Note:** Intended to be a terminal course in calculus taken only by those students who are content to limit their mathematical options. Students who may require a more thorough grounding in calculus are advised to take MATH 116. May not be included in the courses comprising a major or honours in either mathematics or statistics. Students who have credit for MATH 116 or 124 may not take this course for credit. Students with credit for MATH 123 may take this course for credit. Students who take MATH 112 and who subsequently require MATH 116 in their programs must take MATH 116 but will not receive credit for it toward degree requirements in the College of Arts and Science. Students who have credit for the former MATH 102 and subsequently take MATH 112 will lose credit for half of MATH 102.

**MATH 115.3 — 1/2(3L-1.5P)**
**Calculus for Pharmacy**

Introduction to differential and integral calculus. Techniques of differentiation, curve sketching, and rate problems. Emphasis will be on topics that are most relevant to pharmaceutical applications of calculus.
**Prerequisite(s):** MATH B30, MATH C30, enrolment in the College of Pharmacy & Nutrition.

**MATH 116.3 — 1/2(3L-1.5P)**
**Calculus II**

Techniques of integration; the definite integral and simple differential equations with applications and numerical techniques; the theoretical foundations of limits, including the formulation; continuity and differentiability; advanced curve sketching; inverse functions; inverse trigonometric functions.
**Prerequisite(s):** MATH 110.
**Note:** Intended to complete the basic introduction to calculus for students in the mathematical and physical sciences, and for others who require a solid introduction to calculus. The specified prerequisite for most second-year courses in mathematics and statistics, including all courses accepted in major and honours programs.Students who have credit for MATH 112 or 124 may not take this course for credit. Students with credit for MATH 123 may take this course for credit. Students who have credit for the former MATH 102 and subsequently take MATH 116 will lose credit for half of MATH 102.

**MATH 121.3 — 1(3L-1.5T)**
**Mathematical Analysis for Business and Economics**

An introduction to mathematics for business and economics students using examples from business to motivate mathematical techniques. Necessary mathematical terms and concepts are developed, but emphasis is on applications to business with sufficient theory to support applications. Topics: algebraic functions, mathematics of finance, analysis of functions, differential and integral calculus.
**Prerequisite(s):** Mathematics B30 and C30.
**Note:** First offered Spring and Summer Session 2007.

**MATH 124.3 — 2(3L-1.5P)**
**Calculus II for Engineers**

Differentiation and integration of inverse trigonometric functions, exponential, hyperbolic and logarithmic functions with applications. Techniques of integration; applications to work, pressure, moments and centroids. Polar co-ordinates and parametric equations of plane curves; complex numbers.
**Prerequisite(s):** MATH 110 and enrolment in the College of Engineering.

**MATH 211.3 — 1/2(3L-1P)**
**Numerical Analysis I**

An introductory course. Topics include errors, solutions of linear and non-linear equations, interpolation, numerical integration, solutions of ordinary differential equations.
**Prerequisite(s):** MATH 110 and 116.

**MATH 213.3 — 2(3L)**
**Linear Programming and Game Theory**

Inequalities, Solutions of Linear Equations, Simplex Method, Transportation Problem, Duality, Game Theory and its transformation into a linear programming problem. Applications will be emphasized.
**Prerequisite(s):** One of MATH 100, 101 (or 102), 110 or STAT 103.
**Note:** May not be included in the courses comprising a major or honours in either mathematics or statistics. Students with credit for COMM 393 or CMPT 393 may not take this course for credit.

**MATH 223.3 — 1(3L-1P)**
**Intermediate Calculus**

Vectors in two and three dimensions, vector calculus, space geometry, multiple integration and partial differentiation, line integrals and Green's Theorem.
**Prerequisite(s):** MATH 110 and 124 and enrolment in the College of Engineering.

**MATH 224.3 — 2(3L-1P)**
**Differential Equations**

Differential equations of first and second order, sequences and series, convergence, Taylor's Series and elementary series.
**Prerequisite(s):** MATH 110 and 124 and enrolment in the College of Engineering.

**MATH 225.3 — 1(3L-1P)**
**Intermediate Calculus I**

Discusses analytic geometry, vectors, vector functions, partial differentiation, multiple integration, line integrals and Green's theorem.
**Prerequisite(s):** MATH 110 and 116.
**Note:** Students with credit for MATH 223 or 276 may not take this course for credit. Students obtaining a grade of 80% or better in this course may request permission from the Head of the Department of Mathematics and Statistics to register in courses for which MATH 276 is the stated prerequisite.

**MATH 226.3 — 2(3L-1P)**
**Intermediate Calculus II**

The topics to be discussed include infinite sequences and series, complex numbers, and first order and linear differential equations.
**Prerequisite(s):** MATH 110 and 116.
**Note:** Students with credit for MATH 224 or 238 may not take this course for credit. Students obtaining a grade of 80% or better in this course may request permission from the Head of the Department of Mathematics and Statistics to register in courses for which MATH 238 is the stated prerequisite.

**MATH 238.3 — 1(3L-1.5P)**
**Introduction to Differential Equations and Series**

Solutions of first order and linear differential equations, infinite sequences and series, power series, Taylor's series, power series solutions of differential equations, and elements of mathematical modelling.
**Prerequisite(s):** MATH 110 and 116.
**Note:** Students intending to enter an honours or double honours program are encouraged to take this course. Students with credit for MATH 224 or 226 may not take this course for credit.

**MATH 258.3 — 1/2(3L-1P)**
**Euclidean Geometry**

A course in plane Euclidean geometry. Particularly recommended for teachers of mathematics.
**Prerequisite(s):** One of MATH 100, 101 (or 102), 110 or STAT 103. Basic introduction to high school geometry recommended.
**Note:** May not be included in the courses comprising an honours program in either mathematics or statistics.

**MATH 264.3 — 1/2(3L)**
**Linear Algebra**

Vector spaces, matrices and determinants, linear transformations, sets of linear equations, convex sets and n-dimensional geometry, characteristic value problems and quadratic forms.
**Prerequisite(s):** 3 credit units of MATH or STAT.
**Note:** Students are not permitted to take more than one of MATH 264, 266 or 358 for credit. May not be included in the courses comprising a major or honours in either mathematics or statistics

**MATH 266.3 — 1/2(3L)**
**Linear Algebra I**

A study of linear equations, matrices and operations involving matrices, determinants, vector spaces and their linear transformations, characteristic values and vectors, reduction of matrices to canonical forms, and applications.
**Prerequisite(s):** MATH 110 and 116.
**Note:** Designed to meet the needs of students majoring or honouring in mathematics, statistics, computer science or one of the natural sciences. Students are not permitted to take more than one of MATH 264, 266 or 358 for credit.

**MATH 276.3 — 1(3L-1.5P)**
**Vector Calculus I**

Vector analysis, differentiation and integration of functions of several variables, line integrals and surface integrals.
**Prerequisite(s):** MATH 110 and 116.
**Note:** Students intending to enter an Honours or Double Honours program are encouraged to take this course. Students with credit for MATH 223 or 225 may not take this course for credit.

**MATH 277.3 — 1/2(3L-1.5P)**
**Vector Calculus II**

An extension of MATH 276 to include a fuller discussion of parametrized surfaces and surface integrals, derivative as a linear mapping, inverse and implicit function theorems, change of variable formula for multiple integrals, Stokes' theorem and generalizations, max.-min. problems with constraints and analysis of critical points.
**Prerequisite(s):** MATH 276 (or MATH 225 with a grade of 80% or better).

**MATH 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MATH 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MATH 313.3 — 1(3L)**
**Numerical Analysis II**

Numerical methods in linear algebra. Topics covered include approximation theory, least squares, direct methods for linear equations, iterative methods in matrix algebra, eigenvalues, systems of non-linear equations.
**Prerequisite(s):** MATH 211, and 266 or equivalent in linear algebra.
**Note:** Students may receive credit for a maximum of two of MATH 313, 314 and 315.

**MATH 314.3 — 2(3L)**
**Numerical Analysis III**

Numerical differentiation and integration, initial-value problems for ordinary differential equations, boundary-value problems for ordinary differential equations, introduction to numerical solutions to partial-differential equations.
**Prerequisite(s):** MATH 211 and 238.
**Note:** Students may receive credit for a maximum of two of MATH 313, 314 and 315.

**MATH 315.3 — 1/2(3L)**
**Applications of Numerical Methods**

Surveys numerical methods used in solving engineering problems in the areas of: linear equations, non-linear equations, eigenvalue problems, curve fitting and interpolation, numerical differentiation and integration, ordinary differential equations (initial-value and boundary-value problems), partial differential equations and optimization.
**Prerequisite(s):** MATH 238 or 224 or 226; MATH 264 or 266; MATH 211.
**Note:** Students may receive credit for a maximum of two of MATH 313, 314 and 315.

**MATH 327.3 — 1(3L)**
**Graph Theory**

Graph Theory and its contemporary applications including the nomenclature, special types of paths, matchings and coverings, and optimization problems soluble with graphs.
**Prerequisite(s):** MATH 264 or 266, and CMPT 260 or 6 credit units 200-level MATH.

**MATH 328.3 — 2(3L)**
**Combinatorics and Enumeration**

The theory of Combinatorics and Enumeration and its contemporary applications, including generating functions and recurrence relations, and the Polya and Ramsey Theories. A wide variety of practical applications will be presented.
**Prerequisite(s):** MATH 264 or 266, and CMPT 260 or 6 credit units 200-level MATH.

**MATH 338.6 — 1&2(3L)**
**Differential Equations II**

Use of Laplace transforms, theory of infinite series, solution of ordinary linear equations in series, Sturm-Liouville problems, Fourier series, Bessel and Legendre functions, the Fourier integral, the Laplace, diffusion, and wave equations, calculus of variations, matrices, quadratic forms, oscillations of conservative systems.
**Prerequisite(s):** MATH 238 or 226.

**MATH 350.6 — 1&2(3L)**
**Differential Geometry**

Curves in 3-space, Euclidean motions, surface theory, introduction to differentiable manifolds, Gaussian and mean curvature, imbedding conditions, geodesics, parallel transport, Gauss-Bonnet theorem.
**Prerequisite(s):** MATH 276 or 225, and 277.

**MATH 360.6 — 1&2(3L)**
**Algebra I**

Groups, rings, unique factorization domains, modules over principal ideal domains, vector spaces, linear transformations and canonical forms.
**Prerequisite(s):** MATH 264, 266 or 358.
**Note:** May not obtain credit for both MATH 363 and 360.

**MATH 363.3 — 2(3L)**
**Abstract Algebra**

Introduction to algebraic structures, notably groups and rings. Topics include binary operations, groups, subgroups, homomorphisms, cosets, Lagrange's theorem, permutation groups, the general linear group; rings, polynomial rings, Euclidean rings.
**Prerequisite(s):** One of MATH 100, 101 (or 102), 110 or STAT 103.
**Note:** Recommended for teachers of mathematics. May not be included in the courses comprising an honours program in either mathematics or statistics. Students having credit for MATH 360 may not take this course for credit.

**MATH 364.3 — 1(3L)**
**Number Theory**

A course in elementary number theory with emphasis upon the interrelation of number theory and algebraic structures: review of unique factorization and congruences, the ring of integers modulo n and its units, Fermat's little theorem, Euler's function, Wilson's theorem, Chinese remainder theorem, finite fields, quadratic reciprocity, Gaussian integers, and the Fermat theorem on primes congruent to one modulo four.
**Prerequisite(s):** One of MATH 100, 101 (or 102), 110 or STAT 103.
**Note:** Recommended for teachers of mathematics. May not be included in the courses comprising an honours program in either mathematics or statistics.

**MATH 366.3 — 1(3L)**
**Linear Algebra II**

Follow-up to MATH 266. Further important properties of linear transformations, such as spectral theorems and Jordan normal form, will be dealt with.
**Prerequisite(s):** MATH 266.
**Note:** Designed to meet the needs of major and honours students in mathematics, as well as students majoring in computer science or one of the natural sciences.

**MATH 371.3 — 1(3L)**
**Metric Spaces and Continuous Functions**

A rigorous construction of the real numbers followed by an introduction to general metric spaces and their basic properties. Continuous functions are studied in detail.
**Prerequisite(s):** MATH 238 and 276.

**MATH 373.3 — 1/2(3L)**
**Integration Theory**

Review of the Newton, Riemann and Riemann-Stieltjes integrals and their shortcomings, the generalized integrals including the Lebesgue integral, the main convergence theorems, Lebesgue measure, Lp-spaces and an introduction to Fourier analysis.
**Prerequisite(s):** MATH 371.
**Note:** Students with credit for MATH 470 may not take this course for credit.

**MATH 379.3 — 2(3L)**
**Complex Analysis**

Fundamental concepts, analytic functions, infinite series, integral theorems, calculus of residues, conformal mappings and applications.
**Prerequisite(s):** MATH 225 or 276; and 226 or 238.

**MATH 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MATH 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MATH 401.0 — 1&2(1.5S)**
**Seminar**

Students in honours mathematics or statistics, or in double honours programs in mathematics or statistics and a second subject, are required to participate in this seminar during the third and fourth years.
**Note:** Students in honours mathematics or statistics, or in double honours programs in mathematics or statistics and a second subject, are required to participate in this seminar during the third and fourth years.

**MATH 431.3 — 1/2(3L)**
**Ordinary Differential Equations**

Existence and uniqueness of solutions; time dependent and time independent linear systems; submanifolds of euclidean space, phase space, vector fields, flows; equilibria; linearization; stable, unstable and center manifolds; local bifurcations; planar flows; numerical methods.
**Prerequisite(s):** MATH 277, 366 and 371.

**MATH 432.3 — 1/2(3L)**
**Dynamical Systems and Chaos**

One dimensional dynamics; the quadratic family, symbolic dynamics and chaos. Period doubling; conservative systems, action angle variables, KAM theory; complex analytic dynamics, the Mandelbrot and Julia sets.
**Prerequisite(s):** MATH 277, 266 and 379.

**MATH 433.3 — 1/2(3L)**
**Applied Group Theory**

Treats the following topics from group theory: permutation groups, crystallographic groups, kinematic groups, abstract groups, matrix Lie groups, group representations. Specific topics include the rotation group (spinors and quantum mechanical applications), the Lorentz group (representations and wave equations), SU (3) (its Lie algebra and physical relevance).
**Prerequisite(s):** MATH 276 and 366, or MATH 276 and 266 and permission of the instructor. MATH 277 recommended.

**MATH 434.3 — 1/2(3L)**
**Applied Topology in Physics and Chemistry**

Basic notions of topology, knot theory and graph theory are introduced and applied to the study of physical and chemical problems such as the classification of defects in an ordered medium as well as knotting and linking in models of DNA.
**Prerequisite(s):** MATH 276, or 225 and permission of the instructor. It is advisable to complete MATH 371 and 379 either previously or concurrently.

**MATH 438.3 — 1(3L)**
**Methods of Applied Mathematics**

Calculus of variations, integral equations and applications.
**Prerequisite(s):** MATH 238, 276 and 277.

**MATH 439.3 — 2(3L)**
**Partial Differential Equations**

Classification of second order partial differential equations, some properties of elliptic, parabolic, and hyperbolic equations, applications.
**Prerequisite(s):** MATH 238, 276 and 277.

**MATH 485.3 — 1/2(3L)**
**Elements of General Topology**

Topological spaces, separation axioms, products, quotients, convergence, connectedness, extension theorems, and metric spaces.
**Prerequisite(s):** MATH 371.

**MATH 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MATH 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# MDSP — MEDICINE SPECIAL TOPICS

College of Medicine

**MDSP 598.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MDSP 599.6**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# ME — MECHANICAL ENGINEERING

Department of Mechanical Engineering, College of Engineering

**ME 214.3 — 1(3L-3P alt weeks)**
**Introduction to Materials and Manufacturing**

Provides an introduction to the relations between the structure and properties in engineering materials. It deals with the basics of structure, strengthening and deformation mechanisms of steels.

**ME 215.3 — 2(3L-3P alt weeks)**
**Fluid Mechanics I**

The basic principles of fluid mechanics are introduced. A generalised approach to fluid statics is used as an introduction to calculating the forces exerted by fluids on surfaces. Fluid dynamics is approached using a control volume formulation and basic pipe flow is introduced. Potential flow is applied to calculate the velocity and pressure fields over basic shapes.
**Prerequisite(s):** MATH 223 (taken).
**Corequisite(s):** GE 125.

**ME 227.3 — 1(3L-3P alt weeks)**
**Thermodynamics I**

The basic fundamental laws of thermodynamics involving compressible fluid flow, mass and energy transfers are developed. Problems are analyzed for closed and open systems using the concepts of heat and work and the basic laws. The course content is amplified by tutorials and laboratory experiments.
**Prerequisite(s):** CHEM 114 and MATH 124 (taken).

**ME 229.3 — 2(1.5L-3P)**
**Introduction to Engineering Design**

Introduces the mechanical engineering student to the concepts behind engineering design. Special seminars by practicing professionals supplement the course materials. Specific topics to be covered are: historical background, log books, scheduling, literature search, cost analysis, project management, CAD and CAM techniques, report writing, design ethics and legal responsibilities. Students are responsible for participating in and completing an applied design project.
**Prerequisite(s):** GE 110, GE 125 (taken) and ME 214.

**ME 251.3 — 2(3L-1.5P)**
**Engineering Analysis I**

Introduces some of the mathematical tools and engineering procedures to solve applied engineering problems. Topics include: linear algebra and applications to mechanical systems, vector calculus with applications to mechanical, fluids, and thermal systems, probability, statistics, and mean testing.
**Prerequisite(s):** GE 120 and MATH 223.

**ME 313.3 — 1(3L)**
**Mechanics of Materials I**

General principles underlying the mechanics of materials are discussed and applied to the advanced strength analysis of common structural elements. Failure criteria and fracture mechanics are also considered.
**Prerequisite(s):** GE 213, MATH 223 (taken), MATH 224 (taken) and ME 251 (taken).

**ME 316.3 — 1(3L)**
**Dynamics and Vibrations**

Kinematics of rigid bodies and systems of rigid bodies using both stationary and moving coordinate systems. Three-dimensional kinetics. Introduction to vibration analysis. Introduction to Lagrangian dynamics. Discussion of design considerations, including numerical solution techniques, parameter estimation, and linkage synthesis. Cam-follower mechanisms.
**Prerequisite(s):** GE 226, ME 251 (taken) and MATH 224 (taken).

**ME 318.3 — 1(6P)**
**Mechanical Engineering Laboratory I**

A general laboratory course demonstrating and further investigating engineering principles related primarily to material treated in the third year first term lectures. Considerable importance is placed on the development of student report writing capability.
**Prerequisite(s):** ME 214 and 215.
**Coerequisite(s):** ME 313 and ME 327.

**ME 321.3 — 1(3L)**
**Engineering Analysis II**

Partial differential equations of physical systems, concepts of wave propagation and heat transfer. Fourier series, Fourier and Laplace transforms, special functions. Solution techniques involving separation of variables and transform methods. Applications in mechanics, heat transfer, vibrations and electro-magnetism.
**Prerequisite(s):** ME 251 and MATH 224 (taken).

**ME 323.3 — 2(3L)**
**Mechanics of Materials II**

The strength analysis of more complex structural elements is discussed. Also introduces the general principles of the mechanics of solids. Methods leading to computer aided analysis are emphasized.
**Prerequisite(s):** ME 313.

**ME 324.3 — 1(3L)**
**Engineering Materials**

Covers the iron-carbon diagram in detail. The processes taking place during heat treatment of steels are examined. Non-ferrous alloys, composites, and non-metallics are also covered. The subject of corrosion is introduced.
**Prerequisite(s):** ME 214 or CE 212.

**ME 327.3 — 1(3L)**
**Heat Transfer**

The basic concepts of the three major fields of heat transfer; conduction - basic laws and applications; convection - free and forced convection, internal and external flows, heat exchangers; radiation - laws of generation and exchange. Laboratory includes elementary heat exchanger design and computer simulation in the three modes of heat transfer.
**Prerequisite(s):** ME 215 and 227.

**ME 328.3 — 2(6P)**
**Mechanical Engineering Laboratory II**

A general laboratory course demonstrating and further investigating engineering principles related primarily to material treated in the third year, second-term lectures with emphasis on written reports.
**Prerequisite(s):** ME 318.
**Coerequisite(s):** ME 323 and 335.

**ME 330.3 — 2(3L)**
**Manufacturing Processes**

Introduction to the processes in which physical objects are manufactured. Topics include casting, machining, powder metallurgy, special treatment of steels, joining, molding of plastics and superplastics forming of non-ferrous alloys.
**Prerequisite(s):** GE 213 and ME 324.

**ME 335.3 — 2(3L)**
**Fluid Mechanics II**

The basic principles of fluid mechanics are developed using a differential control volume formulation, and then applied to the study of incompressible flow. The distinction is made between ideal and viscous fluids, and laminar and turbulent flow. Both integral and differential methods are used to study boundary layers, with both industrial and environmental applications.
**Prerequisite(s):** MATH 224 (taken), ME 215 and ME 251 (taken).

**ME 352.3 — 2(3L)**
**Engineering Analysis III**

The Laplace Transform as a tool in the solving of differential equations is introduced. First and second order initial value differential equations are examined in context with engineering terms and applications. Transient and frequency responses are examined. Modeling of mechanical and electro-mechanical systems is introduced. Using the mathematical models combined with computer techniques, design of linear systems is considered
**Prerequisite(s):** ME 321.

**ME 413.3 — 1(3L)**
**Machine Design I**

Deals with various machine design fundamentals and the use of integrated design software. Design for fatigue and consideration of fracture mechanics is emphasized. Topics include: the selection of fasteners, rolling element bearings, V-belts and roller chains and the design of

coil and leaf springs, spur gears, clutches and brakes.
**Prerequisite(s):** ME 324 and 323 (taken).
**Corequisite(s):** ME 316.

**ME 417.3 — 1(3L)**
**Thermodynamics II**

A second course in equilibrium thermodynamics. It focuses on the second law and the concept of entropy, which are used to study the conditions of thermal, mechanical and chemical equilibrium, with applications to power cycles, refrigeration cycles and reacting mixtures. The second law is next used to develop the concept of availability or energy. Finally, both the first and second laws are used to study one-dimensional compressible duct flow.
**Prerequisite(s):** ME 227, ME 335 (taken).

**ME 418.3 — 1(6P)**
**Mechanical Engineering Laboratory III**

The laboratory exercises give the student responsibility for planning and setting up laboratory experiments and for the preparation of written reports. The use of standard measuring procedures in Mechanical Engineering is also emphasized. These laboratory exercises include control systems, fatigue and tribology, CNC manufacturing, engines and compressors, and vibrations.
**Prerequisite(s):** ME 328.
**Corequisite(s):** ME 417 and 431.

**ME 431.3 — 1(3L)**
**Control Systems**

Transfer functions, transient and frequency responses, performance specifications, stability analyses, introduction to design (compensation).
**Prerequisite(s):** ME 352.

**ME 450.3 — 1(3L-3P alt weeks)**
**Finite Element Analysis**

The finite element concept is introduced using simple structural elements. The method is then generalized using weighted residual methods. Numerous engineering problems drawn mainly from solid mechanics are solved using finite element methods. It is shown how the finite element method might be used for fluid flow and heat transfer analysis.
**Prerequisite(s):** ME 321 (taken) and 323.

**ME 460.3 — 2(3L-3P alt weeks)**
**Automation and Robotics in Manufacturing**

An introduction to production automation and robotic modelling. Topics include: flow line production, automated assembly systems and line balancing, industrial robotics, kinematics, dynamics and trajectory control of robots.
**Prerequisite(s):** ME 229 and 316.

**ME 463.3 — 2(3L-3P alt weeks)**
**Advanced Structural Analysis**

Governing equations for plates, membranes, shells and thin-walled beams. Applications to typical engineering problems. Elements of structural stability and dynamics. Some geometrically and materially nonlinear problems. Methods of numerical solutions, including the use of advanced FEM.
**Prerequisite(s):** ME 450.

**ME 469.3 — 2(3L-3P alt weeks)**
**Computers in Mechanical Engineering**

Introduces students to several aspects of the practice of incorporating or embedding computers in mechanical designs (Mechatronics). Included are the use of microcontrolers for data collection, sensing and control. The class emphasizes a hands-on approach and communication within disparate design groups.
**Prerequisite(s):** ME 321.

**ME 471.3 — 2(3L-3P alt weeks)**
**Introduction to Aerodynamics**

This course is an introduction to aerodynamics which explores the lift and drag performance of airfoils. Potential flow is used to develop the theory of flow over airfoils and wings, using both classical and numerical - e.g. vortex panel - methods. Boundary layer theory is used to explain the role of viscosity and the potential for flow separation. Numerical models are used to predict skin friction values. Finally, the development of shock waves for supersonic conditions is considered.
**Prerequisite(s):** ME 215.
**Corequisite(s):** ME 335.

**ME 472.3 — 2(3L-3P alt weeks)**
**Advanced Control Systems**

Topics include: frequency response, design and compensation using root-locus and frequency response methods, state-space approach, nonlinear systems, Liapunov stability methods, digital control systems, as well as case studies.
**Prerequisite(s):** ME 431.

**ME 473.3 — 2(3L-3P alt weeks)**
**Introduction to Computational Fluid Dynamics**

Introduces the student to the subject of Computational Fluid Dynamics, as well as numerical methods for predicting heat transfer. The course focuses on incompressible flow of a viscous fluid, including both diffusive and convective transport. Pressure solvers and turbulence models are also described. A comprehensive commercial CFD package is introduced to the students, as an example of the software used by engineers to perform numerical simulation of heat and fluid flow.
**Prerequisite(s):** ME 321 and 335.

**ME 475.3 — 2(3L-3P alt weeks)**
**Introduction to Mechatronics**

The objective of the course is to provide engineers with the tools necessary for managing the design and development of Systems requiring a multi-disciplinary approach. It deals with life cycle models and disciplines required for integration of complex industrial systems. The course will review and links selected topics from mechanical, electrical, electronics, software and control engineering. Problems considered would involve real-time computer aided control of nonlinear and multivariable systems.
**Prerequisite(s):** ME 431.

**ME 476.3 — 1(3L-3P alt weeks)**
**Multiphase Flow and Heat Transfer**

The fundamental concepts of the flow of multiphase mixtures, momentum and energy equations for two-phase flow systems, convective boiling and condensation heat-transfer processes, applications in oil-gas transport and thermal control systems (terrestrial and non-terrestrial).
**Prerequisite(s):** ME 327 and ME 335.

**ME 477.3 — 2(3L-3P alt weeks)**
**Advanced Engineering Materials**

Provides students with an exposure to advanced materials not covered in the core ME materials courses. Emphases will be placed on topics relating to materials used in high temperature and other hostile environments. Other topics will include fracture toughness and crack growth. Engineering applications of non-metallic materials are considered
**Prerequisite(s):** ME 324.
**Corequisite(s):** ME 330.

**ME 478.3 — 1(3L-3P alt weeks)**
**Introduction to Fire Protection Engineering**

Covers the basics of fire science, including important theory from heat transfer, fluid mechanics, thermodynamics and other fields. Simple fire models are used to design fire protection systems for buildings, such as sprinklers, detectors and building construction features. Main fire test methods in use today and the analysis of fire test data are also discussed.
**Corequisite(s):** ME 327.

**ME 490.3 — 2(3L-3P alt weeks)**
**Design of Fluid Power Circuits**

An introduction to the design of industrial and Fluid Power circuits. The operation and design of basic components are considered. A methodology to the design of industrial circuits is introduced and applied to industrial applications. Design criteria for closed loop applications are introduced.
**Prerequisite(s):** ME 215 or CHE 210 or CE 225.

**ME 491.3 — 1(3L-3P alt weeks)**
**Thermal Systems Design**

A design course involving the application of the fundamentals of thermodynamics. Topics may vary depending on the choice of design project, but would typically include psychrometrics, internal and external energy gains, heating and cooling loads, duct and piping design, overall thermal design specifications and system component design and selection.
**Prerequisite(s):** ME 327 and ME 335 (taken).

**ME 492.3 — 2(3L-3P alt weeks)**
**Materials in Engineering Design**

Emphasizes materials engineering in the design process. It covers an overview of available engineering materials and their selection based on mechanical properties, surface durability and cost.
**Prerequisite(s):** ME 324.
**Corequisite(s):** ME 330.

**ME 493.3 — 2(3L-3P alt weeks)**
**Machine Design II**

A continuation of Machine Design I with an emphasis on the use of integrated design software. Major topics may include design and fatigue prediction of welded connections, power transmission systems, life prediction and selection of rolling element bearings, and the design of journal bearings. Basic gear design including strength, wear, and efficiency considerations for spur and helical gears is considered. Also, the use of optimization in design is introduced. The final portion includes case studies of actual designs.

**Prerequisite(s):** ME 413 and ME 450 (taken).

**ME 495.6 — 1&2(1L-3P)**
**Industrial Design Project**

The synthesis and design of mechanical engineering components and systems. Students work in groups as a design team on selected projects submitted by industry. Oral and written presentations are made by students during the term with a formal oral presentation and final written report at the end of the course. Evaluations of oral and written presentations are made by supervisors as well as other outside examiners. Lecture material covers design processes and methodologies as well as design aspects related to occupational health and safety. This material is augmented through seminars given by industrial design specialists based on their design experiences.
**Prerequisite(s):** ME 229 and 90 credit units at the university level towards the B.E. degree in Mechanical Engineering.

**ME 498.3 — (3L-3P)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# MED — MEDICINE

Department of Medicine, Dept of, College of Medicine

**MED 505.12 — PD**
**Internal Medicine and Neurology**

A mandatory course during which the student is assigned to Internal Medicine Services including the Clinical Teaching Unit, Cardiology and Neurology, for 1 to 4 week periods. During these rotations the student is assigned to a call schedule. In both phases, students are responsible for assessing patients, developing a treatment plan and, in some cases, evaluating its results, all under the supervision of Residents and/or Faculty.
**Note:** Twelve-week course.

# MGT — MANAGEMENT

Department of Management & Marketing, College of Commerce

**MGT 400.6 — 1&2(3S)**
**Honours Seminar in Management**

Directed readings and individual research in the areas of general business. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# MICR — MICROBIOLOGY

Department of Microbiology and Immunology, College of Medicine

**MICR 214.3 — 1(3L-3P)**
**Basic and Medical Microbiology**

An introduction to the structure, physiology, and genetics of micro-organisms, with special consideration given to bacteria and viruses of medical importance and their role in human disease.
**Prerequisite(s):** BIOL 110, CHEM 112. Students intending to major in microbiology must take BIOC 200 concurrently.
**Note:** Laboratories emphasize techniques used in the study of micro-organisms. Students with credit for APMC 212 may not take this course for credit.

**MICR 216.3 — 2(3L-3P)**
**Introductory Prokaryotic Genetics and Physiology**

Introduces the metabolic and genetic properties of bacterial cells. Topics include bacterial growth and culture systems, key metabolic pathways and their regulation, nutrient transport systems, organization of genetic material, regulation of bacterial and viral gene expression and genetic exchange mechanisms. Students will appreciate the central role of bacteria in modern biotechnology. Laboratories illustrate concepts developed in the lectures.
**Prerequisite(s):** APMC 212 or MICR 214; BIOC 200.

**MICR 224.3 — 2(3L-3P)**
**Microbiology for Pharmacists**

Introduces students to medically-important microorganisms including bacteria, viruses, fungi, and parasites. Topics include the structure and function of microorganisms, host-pathogen interactions, immunological principles, antimicrobial agents and resistance, infection control principles, and a representative survey of medically relevant microorganisms. Laboratory exercises stress the observation, growth, and safe handling of microorganisms.
**Prerequisite(s):** BIOL 110, CHEM 111 and enrolment in the College of Pharmacy.
**Note:** Replaces MICR 214 in the Pharmacy program; students who already have credit for MICR 214 will not be required to take MICR 224.

**MICR 308.3 — 1(3L)**
**Medical Bacteriology**

Considers the characteristics of bacterial agents of infectious disease in humans. Host-parasite interactions are emphasized with respect to pathogenesis and the innate immune response. The role of the laboratory in the control of infectious disease is discussed.
**Prerequisite(s):** APMC 212 or MICR 214; BIOC 200.

**MICR 309.3 — 2(3L)**
**Medical Virology**

The principles of animal virology are covered, including classification, cell-virus relationships, basic techniques in virology, transmission of viruses, and study of viral disease.
**Prerequisite(s):** APMC 212 or MICR 214; BIOC 200.

**MICR 387.3 — 1(3L-1T)**
**Microbial Genetic Systems**

Bacterial and bacteriophage genetic systems will be dissected with a view to understanding their genomes, gene regulation, replication, mutagenesis, repair, and recombination, and their practical use as tools for molecular genetics experimentation and biotechnology.
**Formerly:** MICR 386.
**Prerequisite(s):** MICR 214, 216, BIOC 200, BIOL 211.
**Note:** Students with credit for MICR 386 may not take MICR 387 for credit.

**MICR 390.3 — 1(3L-4P)**
**Laboratory Aspects of Microbiology I**

The principles and applications of techniques used in microbiology are covered with an emphasis on problem solving. Included are methods relating to safe handling, growth and identification of microbes and methods for studying virology and immunology.
**Formerly:** MICR 395.
**Prerequisite(s):** BIOC 200, MICR 214, 216.
**Note:** Intended primarily for Microbiology students. Others may be considered if space permits. For permission contact the Department of Microbiology and Immunology.

**MICR 391.3 — 2(3L-4P)**
**Laboratory Aspects of Microbiology II**

The principles and applications of techniques used in microbiology are covered with an emphasis on problem solving. Included are methods for studying microbial physiology and genetics, and basic methods of microbial gene manipulation. Students with credit for MICR 391 cannot receive credit for BIOC 311.
**Formerly:** MICR 395.
**Prerequisite(s):** BIOC 200, MICR 214, 216.
**Note:** Intended primarily for Microbiology students. Others may be considered if space permits. For permission contact the Department of Microbiology and Immunology.

**MICR 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MICR 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MICR 416.3 — 2(3L)**
**Microbial Physiology**

Considers the structure and function of micro-organisms, the relationship between structure and function, mechanisms of cell division, composition of microbial cell walls and membranes, aerobic, fermentative, chemolithotrophic and photolithotrophic metabolism, and regulation of genes and metabolism.
**Formerly:** MICR 215.
**Prerequisite(s):** BIOC 200, MICR 216. Students majoring in microbiology must take BIOC 211 previously or concurrently.
**Note:** Students with credit for MICR 215 may not take MICR 416 for credit.

**MICR 417.3 — 1(3L)**
**Molecular Virology**

Representative members of known animal virus families are used as models of biological events at a macromolecular level. Topics covered are virus purification and analysis methods, virus structure and self-assembly, virus genomes and genome expressions, virus proteins and their function, and virus-cell interactions during lytic, transforming, persistent and slow virus infections.
**Prerequisite(s):** APMC 212 or MICR 214; BIOC 200.

**MICR 421.3 — 1(3L)**
**Principles of Immunology**

Emphasizes the fundamental aspects of immunology dealing with the structure, genetics and function of antibody molecules, and the cellular and molecular regulation of immune responses. A portion

is devoted to regulation of the immune response to tumours and particular parasites.
**Prerequisite(s):** APMC 212 or MICR 214; BIOC 200.

**MICR 423.3 — 2(3L)**
**Immunopathogenesis of Microbial Infections**

Explores microbial interactions with the host and its immune system. Various models of bacterial, viral and parasitic immunopathogenesis will be covered as well as intervention through vaccines or immune modulation.
**Prerequisite(s):** MICR 421.

**MICR 425.3 — 2(3L)**
**Molecular Basis of Microbial Pathogenesis**

Explores ways in which microbial pathogens interact with their hosts from a molecular and genetics perspective. Topics include: general pathogenic mechanisms of bacteria, viruses and parasites; bacterial virulence factors and their genetic regulation; molecular genetic approaches to studying pathogenesis; and various model systems which have been used to understand pathogenic mechanisms.
**Prerequisite(s):** MICR 214, a course in genetics or molecular biology; or permission of the department.

**MICR 490.0 — 1&2(1S)**
**Seminar**

In their final year, students in the Honours Microbiology program are required to present one departmental seminar and to attend all departmental seminars.

**MICR 491.6**
**Research Project in Microbiology**

A research project is selected in consultation with a faculty supervisor in whose laboratory the research will be carried out. Students will become familiar with the scientific literature and the laboratory techniques pertinent to the project. Experimental work will be undertaken and data compiled and analyzed. To complete the research project, a written report will be tabled and a short oral presentation will be given to faculty and students.
**Formerly:** MICR 497
**Prerequisite(s):** Minimum cumulative average of 70% in those courses counting toward the microbiology requirement of an Honours Degree in Microbiology. Permission of department is required.
**Note:** Intended primarily for those students majoring in microbiology who are considering a post-graduate degree in microbiology or another area of the life sciences.

**MICR 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MICR 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# MKT — MARKETING

Department of Management & Marketing, College of Commerce

**MKT 400.6 — 1&2(3S)**
**Honours Seminar in Marketing**

Directed readings and individual research in the area of marketing. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# MUAP — MUSIC APPLIED

Department of Music, College of Arts and Science

**MUAP 120**
**Band**

(01) Concert Band or (02) Wind Orchestra. Emphasis is on the study and performance of the most significant literature.

**MUAP 121**
**Chorus**

(01) Greystone Singers or (03) University Chorus. Emphasis is on the study and performance of the most significant literature.

**MUAP 122**
**Corelli Strings**

Emphasis is on the study and performance of the most significant literature.

**MUAP 123**
**Chamber Ensemble with Piano**

Emphasis is on the study and performance of the most significant literature.

**MUAP 124**
**Percussion Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 125**
**String Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 126.0**
**Vocal Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 127**
**Small Wind Ensembles**

Emphasis is on the study and performance of the most significant literature.

**MUAP 128**
**Collegium Musicum**

Emphasis is on the study and performance of the most significant literature.

**MUAP 130**
**Music Theatre**

Emphasis is on the study and performance of the most significant literature.

**MUAP 131**
**Contemporary Music Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 132**
**Jazz Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 140**
**Piano**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 142**
**Organ**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 144**
**Harpsichord**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 148**
**Voice**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 150**
**Flute**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 152**
**Oboe**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 154**
**Clarinet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 156**
**Saxophone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 158**
**Bassoon**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 160**
**Recorder**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 162**
**French Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 164**
**Trumpet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 166**
**Trombone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 168**
**Baritone Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 170**
**Tuba**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 172**
**Percussion**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 174**
**Violin**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 176**
**Viola**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 178**
**Violoncello**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 180**
**Double Bass**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 182**
**Guitar**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 220**
**Band**

(01) Concert Band or (02) Wind Orchestra. Emphasis is on the study and performance of the most significant literature.

**MUAP 221**
**Chorus**

(01) Greystone Singers or (03) University Chorus. Emphasis is on the study and performance of the most significant literature.

**MUAP 222**
**Corelli Strings**

Emphasis is on the study and performance of the most significant literature.

**MUAP 223**
**Chamber Ensemble with Piano**

Emphasis is on the study and performance of the most significant literature.

**MUAP 224**
**Percussion Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 225**
**String Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 226.0**
**Vocal Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 227**
**Small Wind Ensembles**

Emphasis is on the study and performance of the most significant literature.

**MUAP 228**
**Collegium Musicum**

Emphasis is on the study and performance of the most significant literature.

**MUAP 230**
**Music Theatre**

Emphasis is on the study and performance of the most significant literature.

**MUAP 231**
**Contemporary Music Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 232**
**Jazz Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 240**
**Piano**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 242**
**Organ**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 244**
**Harpsichord**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 248**
**Voice**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 250**
**Flute**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is

required to appear in recitals and perform at juries.

**MUAP 252**
**Oboe**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 254**
**Clarinet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 256**
**Saxophone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 258**
**Bassoon**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 260**
**Recorder**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 262**
**French Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 264**
**Trumpet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 266**
**Trombone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 268**
**Baritone Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 270**
**Tuba**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 272**
**Percussion**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 274**
**Violin**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 276**
**Viola**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 278**
**Violoncello**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 280**
**Double Bass**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 282**
**Guitar**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 320**
**Band**

(01) Concert Band or (02) Wind Orchestra. Emphasis is on the study and performance of the most significant literature.

**MUAP 321**
**Chorus**

(01) Greystone Singers or (03) University Chorus. Emphasis is on the study and performance of the most significant literature.

**MUAP 322**
**Corelli Strings**

Emphasis is on the study and performance of the most significant literature.

**MUAP 323**
**Chamber Ensemble with Piano**

Emphasis is on the study and performance of the most significant literature.

**MUAP 324**
**Percussion Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 325**
**String Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 326.0**
**Vocal Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 327**
**Small Wind Ensembles**

Emphasis is on the study and performance of the most significant literature.

**MUAP 328**
**Collegium Musicum**

Emphasis is on the study and performance of the most significant literature.

**MUAP 330**
**Music Theatre**

Emphasis is on the study and performance of the most significant literature.

**MUAP 331**
**Contemporary Music Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 332**
**Jazz Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 340**
**Piano**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 342**
**Organ**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of

interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 344**
**Harpsichord**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 348**
**Voice**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 350**
**Flute**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 352**
**Oboe**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 354**
**Clarinet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 356**
**Saxophone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 358**
**Bassoon**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 360**
**Recorder**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 362**
**French Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 364**
**Trumpet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 366**
**Trombone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 368**
**Baritone Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 370**
**Tuba**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 372**
**Percussion**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 374**
**Violin**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 376**
**Viola**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 378**
**Violoncello**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 380**
**Double Bass**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 382**
**Guitar**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 420**
**Band**

(01) Concert Band or (02) Wind Orchestra. Emphasis is on the study and performance of the most significant literature.

**MUAP 421**
**Chorus**

(01) Greystone Singers or (03) University Chorus. Emphasis is on the study and performance of the most significant literature.

**MUAP 422**
**Corelli Strings**

Emphasis is on the study and performance of the most significant literature.

**MUAP 423**
**Chamber Ensemble with Piano**

Emphasis is on the study and performance of the most significant literature.

**MUAP 424**
**Percussion Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 425**
**String Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 426.0**
**Vocal Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 427**
**Small Wind Ensembles**

Emphasis is on the study and performance of the most significant literature.

**MUAP 428**
**Collegium Musicum**

Emphasis is on the study and performance of the most significant literature.

**MUAP 430**

**Music Theatre**

Emphasis is on the study and performance of the most significant literature.

**MUAP 431**
**Contemporary Music Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 432**
**Jazz Ensemble**

Emphasis is on the study and performance of the most significant literature.

**MUAP 440**
**Piano**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 442**
**Organ**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 444**
**Harpsichord**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 448**
**Voice**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 450**
**Flute**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 452**
**Oboe**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 454**
**Clarinet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 456**
**Saxophone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 458**
**Bassoon**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 460**
**Recorder**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 462**
**French Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 464**
**Trumpet**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 466**
**Trombone**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 468**
**Baritone Horn**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 470**
**Tuba**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 472**
**Percussion**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 474**
**Violin**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 476**
**Viola**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 478**
**Violoncello**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 480**
**Double Bass**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

**MUAP 482**
**Guitar**

Emphasis is on solo and ensemble literature, orchestral and choral studies (where applicable), advancement of technique, and development of interpretation and comprehension. In addition to course work, the student is required to appear in recitals and perform at juries.

# MUS — MUSIC

Department of Music, College of Arts and Science

**MUS 101.3 — 1/2(3L)**
**Fundamentals of Music**

Introduction to the basic parameters of music including notation, rhythm, intervals, melody, scales, key signatures; aural and written comprehension of the above rudiments. This course could provide foundational material for the music theory sequence.
**Formerly:** MUS 100.
**Note:** Sometimes offered as a mixed mode course. There are no scheduled lectures, online course materials are used and students attend a weekly 2-hour musicianship lab.

**MUS 105.3 — 1/2(3L)**
**Introduction to Western Art Music**

The art of listening to music; analysis of structure and form; history of the great periods in music through its literature.
**Note:** Involves a small cost in addition to tuition fees. Open to all students without prerequisite. Students majoring in music may not take this course for credit. Students with credit for MUS 109 may not take this course for credit.

**MUS 111.3 — 1/2(3L)**
**History of Popular Music**

An introduction to popular music of the United States and Canada. Organized chronologically, the course examines popular music from 1840 to present in a historical context. Fundamental musical skills (i.e. notation, directed listening) will be a component. No previous musical-specific training is required.
**Note:** Open to all students without prerequisite. Students majoring in music may not take this course for credit.

**MUS 113.2 — 1/2(3L)**
**Materials of Music I Acoustics Modality and Early Tonality**

An introduction to the acoustical foundations of music as a basis for the unfolding of theoretical concepts (modes, intervals, pitches, pitch classes, gamuts, scales, rhythm) relating to music up to 1700, focusing on two-part modal counterpoint. The course will develop aural, notational, and analytical tools in the above areas.
**Formerly:** MUS 115.
**Prerequisite(s):** Permission of the department. Music majors must register concurrently in MUS 113, 114, 117 and 119.

**MUS 114.2 — 1/2(3L)**
**Materials of Music II Theory and Analysis of Common Practice Repertories**

The foundations and development of triadic harmony, inclusive of inversions, voice leading in strict four-part, open choral and keyboard scoring, figured bass practices. Implications of harmonic processes and harmonic rhythm on phrase structures and forms, simple modulations, issues of rhythmic and metric patterns, melodic augmentations and diminutions, chordal or non-chordal embellishments. The course will develop aural, notational and analytical tools in the above areas.
**Formerly:** MUS 115.
**Prerequisite(s):** MUS 113.

**MUS 117.1 — 1/2(1P)**
**Keyboard Skills I**

Corresponds with materials studies in MUS 113; keyboard skills including scales, chords, harmonization of melodies, improvisation, clef reading, transposition and figured bass.
**Prerequisite(s) or Corequisite(s):** MUS 113 and 114.

**MUS 119.1 — 1/2(1P)**
**Aural and Vocal Skills I**

Corresponds with materials studies in MUS 113 and 114, aural cognition and vocal/notational reproduction through melodic, harmonic and rhythmic dictation of materials from music up to 1700 (first semester) and from the Common Practice period up to 1839 (second semester). Includes singing intervals, tonal melodies, chords, rhythms.
**Formerly:** MUS 116 and 118.
**Prerequisite(s) or Corequisite(s):** MUS 113.

**MUS 129.0 — 1/2**
**Recitals**

Non-credit course required of all B.Mus. and B.Mus.(Mus.Ed.) students. To obtain a passing grade all students must follow the prescribed guidelines as specified in the Department of Music's Student Handbook. Students should keep open 12:30-13:30 on Mondays, Wednesdays and Fridays, and 20:00-21:30 on Thursdays. Specific Sunday evenings are announced in September.

**MUS 140.3 — 1(3L)**
**History of Music I Western Music prior to 1650**

History of western music from the earliest times to the period of the early Baroque, with an emphasis on the main forms, composers and representative compositions.
**Formerly:** MUS 260.

**MUS 141.3 — 2(3L)**
**History of Music II Western Music from 1650 to 1830**

History of western music covering the High Baroque, Classical and High Romantic eras with an emphasis on the main forms, composers and representative compositions.
**Formerly:** MUS 161.
**Prerequisite(s):** MUS 140.
**Note:** Students with credit for MUS 161 may not take this course for credit.

**MUS 184.3 — 1/2(3L)**
**Jazz Materials**

Course includes development of jazz theory, ear training, transcribing and keyboard skills. This course is the prerequisite to Jazz Improvisation (MUS 283.3) and Jazz Arranging (MUS 386.3). This course is the suggested co-requisite for Jazz Ensemble Techniques (EMUS 337.3) and Jazz Ensemble. MUS 184.3 is open to students of all colleges.

**MUS 202.6 — 1&2(3L)**
**Composition**

Composition in small forms for various media.
**Prerequisite(s):** MUS 213 and 214, may be taken concurrently.

**MUS 210.3 — 2(3L)**
**Introduction to World Music**

Provides a foundation for the study of music through a comparative survey of music from cultures worldwide. Students will gain an introduction to many regional and idiomatic strands of world music through aural familiarity. Course assessment and exams are both written and aural.
**Note:** Open to music and non-music majors.

**MUS 213.2 — 1/2(3L)**
**Materials of Music III Extended Harmony and Theory of Common Practice Repertories**

Advanced harmony including seventh chords and their inversions. Advanced figured bass practice. Analysis of harmonic phenomena in diverse textual environments including polyphonic or solo instrument settings. Chromatic harmony, extended chords and embellishments, tonicizations, intervallic projections, a comprehensive theory of modulation to all tonal regions. Expansion of phrase structures and formal procedures in 19th Century repertories. The course will develop aural, notational and analytical tools in the above areas.
**Formerly:** MUS 215.
**Prerequisite(s):** MUS 113 and 114. Music majors will normally register concurrently for MUS 213, 214, 217 and 219.

**MUS 214.2 — 1/2(3L)**
**Materials of Music IV Theory and Analysis of 20th Century Repertories**

Impressionism, expressionism: material, concepts. Traditional and newly-developed scales. The emancipation of dissonance, fusion tonality, atonal music, twelve-tone and serial techniques including rhythm and timbre. Analytic orchestration (Klangfarben). Techniques of twelve-tone row rotation, partitioning and combinatoriality. Concepts of electro-acoustic music theory. Stochastic-, chance-based, aleatoric and time-structure techniques.
**Formerly:** MUS 215.
**Prerequisite(s):** MUS 213.

**MUS 217.1 — 1/2(1P)**
**Keyboard Skills II**

Corresponds with materials studies in MUS 213 and 214; keyboard skills including chords, figured bass, improvisation, transposition, score reading, lead-sheet notation and sight reading.
**Prerequisite(s):** MUS 117.

**MUS 219.1 — 1/2(1P)**
**Aural and Vocal Skills II**

Corresponds with materials studied in MUS 213 and 214; aural cognition and vocal/notational reproduction through melodic, harmonic and rhythmic dictation of materials from music of extended chromatic (19th Century) Common Practice repertoire (first semester) and from 20th Century repertoire (second semester).
**Formerly:** MUS 216 and 218.
**Prerequisite(s):** MUS 119; MUS 213 is prerequisite or corequisite.

**MUS 229.0 — 1/2**
**Recitals**

Non-credit course required of all B.Mus. and B.Mus.(Mus.Ed.) students. To obtain a passing grade all students must follow the prescribed guidelines as specified in the Department of Music's Student Handbook. Students should keep open 12:30-13:30 on Mondays, Wednesdays and Fridays, and 20:00-21:30 on Thursdays. Specific Sunday evenings are announced in September.

**MUS 235.3 — 1/2(3L)**
**Music Technology Computer and Music Software**

Recommended for all musicians who are interested in using computer software and new technologies in their everyday work in music. Includes an introduction to computer, digital synthesizer and MIDI language and will explore some important software available on the market.
**Prerequisite(s):** MUS 113 and 114 or permission of the department.

**MUS 240.3 — 1(3L)**
**History of Music III Western Music from 1830 to Present**

History of western music covering the High Romantic and Modern eras, with an emphasis on the main forms, composers

and representative compositions, including Canadian music.
**Prerequisite(s):** MUS 141.

**MUS 241.3 — 2(3L)**
**Introduction to Music Bibliography**

An introduction to the materials and methods of music research, including an examination of historical and contemporary bibliographic resources, analyses and evaluation of reference materials in music education, music history and literature, performance, and music theory.
**Formerly:** MUS 372.
**Prerequisite(s):** MUS 240 or permission of the department.
**Note:** Students with credit for MUS 354 may not take this course for credit.

**MUS 283.3 — 1/2(3L)**
**Jazz Improvisation**

Focuses on the study and development of musical skills as they pertain to the performance of jazz improvisation. Topics such as basic jazz-related theory; chord/scale relationships; motivic, chord based and modal improvisations are presented in a systematic manner. This course assumes no pre-existing knowledge base of jazz improvisation but does presume a basic working knowledge and control over any given musical instrument. This course is open to all instrumentalists.
**Prerequisite(s):** MUS 184.

**MUS 285.3 — 1/2(3L)**
**Jazz History Survey**

An overview of the history and evolution of jazz music. The course will include the examination and discussion of the most historically significant musicians in jazz and their music as well as the examination of the evolution of jazz music as an art form.
**Prerequisite(s):** Completion of 24 credit units at the university or permission of the department.

**MUS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MUS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MUS 302.6 — 1&2(3L)**
**Composition**

A continuation of work begun in MUS 202, including composition in larger forms for various media.
**Prerequisite(s):** MUS 202.

**MUS 303.3 — 1/2(3L)**
**History of Church Music**

The significant developments in Judaeo-Christian religious music from its origins to the present day. The role of music in Jewish and particularly Western Christian traditions, both Roman Catholic and Protestant, will be examined.
**Formerly:** MUS 204.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 307.3 — 1(3L)**
**Orchestration I**

A study of the art of orchestration and its practical application to strings, woodwinds and horn. The various styles of scoring, from Bach to the 20th Century, will be analyzed as well as discussion on the history of orchestration. Emphasis will be placed on arranging for full orchestra with particular attention to string, woodwind and horn sections.
**Prerequisite(s):** MUS 213 and 214.
**Note:** Students with credit for MUS 305 cannot take this course for credit.

**MUS 311.3 — 1/2(3L)**
**History of Opera**

A survey study of the history of opera from the Florentines to modern times.
**Formerly:** MUS 310.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 312.3 — 1/2(3L-1P)**
**Vocal Literature**

Song literature of various western cultures will be studied toward acquiring a broad awareness of the vast repertoire of song.
**Formerly:** MUS 253.
**Prerequisite(s):** Two years of applied voice training, MUS 141, 213, 214 and 241 or permission of the department.

**MUS 313.3 — 1/2(3L-1P)**
**Science and Sound of Singing**

A scientific and pedagogical study of the process of singing, with an emphasis on combining these facets of study toward a better understanding for use as artists and vocal instructors.
**Formerly:** MUS 356.
**Prerequisite(s):** Two years of applied voice training and MUS 213 and 214 or permission of the department.

**MUS 325.3 — 1/2(3L)**
**Conducting Introduction**

An introduction to the basic grammar of conducting choral and instrumental music.
**Formerly:** EMUS 335.
**Prerequisite(s):** MUS 213 and 214 or permission of the department.
**Note:** Students cannot receive credit for EMUS 335 and MUS 325.

**MUS 326.3 — 1/2(3L)**
**Conducting Intermediate**

A continuation of the introductory course in conducting choral and instrumental music with emphasis on score analysis, study, interpretation and performance.
**Formerly:** EMUS 336.
**Prerequisite(s):** MUS 325 (or EMUS 335).
**Note:** Students cannot receive credit for EMUS 336 and MUS 326.

**MUS 329.0 — 1/2**
**Recitals**

Non-credit course required of all B.Mus. and B.Mus.(Mus.Ed.) students. To obtain a passing grade all students must follow the prescribed guidelines as specified in the Department of Music's Student Handbook. Students should keep open 12:30-13:30 on Mondays, Wednesdays and Fridays, and 20:00-21:30 on Thursdays. Specific Sunday evenings are announced in September.

**MUS 335.3 — 1/2(3L)**
**History of Electronic Music**

(See Music History and Literature)

**MUS 346.3 — 1(3L)**
**Pre Baroque Counterpoint**

Mainly a study of 16th-century contrapuntal techniques and forms. Though general stylistic features of the music are emphasized, differences in the styles of various composers are also studied. A brief study of pre-16th-century contrapuntal music is included.
**Prerequisite(s):** MUS 213 and 214.

**MUS 347.3 — 2(3L)**
**Baroque and 20th Century Counterpoint**

Essentially a study of 18th-century contrapuntal techniques and forms including canon, fugue, invention, and chorale prelude; 20th-century contrapuntal techniques; the use of canon and fugue in the 20th century is also introduced.
**Prerequisite(s):** MUS 213 and 214.

**MUS 350.3 — 1/2(3L)**
**Wind Instrument Literature**

Examines the solo and ensemble literature for winds from the Middle Ages to the present era including the wind band repertoire.
**Prerequisite(s):** MUS 113, 114 and 240.

**MUS 354.3 — 1/2(3L)**
**Survey of Keyboard Literature**

A history of piano literature from the origins of the instrument to the 20th century, discussing styles, forms and interpretations of works taken from all periods.
**Formerly:** MUS 353.
**Prerequisite(s):** MUS 213, 214, and 240.

**MUS 358.3 — 1/2(3L)**
**Chamber Music**

A survey of chamber music from 1750 to 1950 with particular emphasis on the development and stylistic analyses of the various forms.
**Prerequisite(s):** MUS 113, 114, 240 and 241.

**MUS 359.3 — 1/2(3L)**
**Piano Pedagogy**

Examination of materials and methods from the first elementary principles to advanced levels. Stylistic and technical aspects of representative piano literature of all periods. Consideration of fundamental procedures in sight-reading, keyboard transposition, daily practice and interpretation.
**Formerly:** MUS 357.
**Prerequisite(s):** MUS 213, 214, 240, 241 and two years of applied piano.

**MUS 361.3 — 1/2(3L)**
**Music in Middle Ages**

A history of music from the earliest times to the 14th century. Notation (monophonic and polyphonic), forms, composers, theoretical concepts and performance practices will provide the substance for the course.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 362.3 — 1/2(3L)**
**Music in Renaissance**

A history of music covering the 14th through the 16th centuries. The chief forms, composers and compositions will be studied. Stylistic analysis of selected compositions will be emphasized.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 363.3 — 1/2(3L)**
**Music of Baroque Period**

A history of music from approximately 1600 to 1725. Emphasis will be on the main forms, composers and representative compositions from this period.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 364.3 — 1/2(3L)**
**Music of Classical Period**

A history of music covering the Classical period from approximately 1700 to 1800. Emphasis will be on the main forms, composers and representative compositions from this period.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 365.3 — 1/2(3L)**
**Music of Romantic Period**

A history of music covering the Romantic period from approximately 1800 to 1900. Emphasis will be on the main forms, composers and representative compositions from this period.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 367.3 — 1/2(3L)**
**Music of Twentieth Century**

Focuses on historically prevalent ideas and on analytic techniques necessary for a definitive understanding of the Twentieth-Century revolution of musical language.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 368.3 — 1/2(3L)**
**Canadian Music**

An overview of the development of music in Canada including relationships to both European folk and art music and to Aboriginal music.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 370.3 — 1/2(3L)**
**Performance Practices I Middle Ages Renaissance Baroque**

Studies the problems involved in the performance of medieval, renaissance, and baroque music. Relates the study of music history to the stylistically correct interpretation of the music. Problems of solo performance and the interpretation of phrasing-notation from a performer's viewpoint will be discussed.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.
**Note:** Students who have credit for MUS 359 may not take this course for credit.

**MUS 371.3 — 1/2(3L)**
**Performance Practices II Classical Romantic Twentieth Century**

A study of the problems involved in the performance of classical, romantic and 20th-century music. Relates the study of music history with the stylistically correct interpretation of the music. Problems of solo performance and the interpretation of phrasing-notation from a performer's viewpoint will be discussed.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.
**Note:** Students who have credit for MUS 359 may not take this course for credit.

**MUS 386.3 — 1/2(3L)**
**Jazz Arranging**

An introduction to the fundamental concepts of jazz arranging. Areas of study include small group (combo) writing and large ensemble orchestration techniques.
**Prerequisite(s):** MUS 184.

**MUS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MUS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**MUS 402.6 — 1&2(3L)**
**Composition**

Advanced studies in composition and continuation of work begun in MUS 302.
**Prerequisite(s):** MUS 302.

**MUS 429.0 — 1/2**
**Recitals**

Non-credit course required of all B.Mus. and B.Mus.(Mus.Ed.) students. To obtain a passing grade all students must follow the prescribed guidelines as specified in the Department of Music's Student Handbook. Students should keep open 12:30-13:30 on Mondays, Wednesdays and Fridays, and 20:00-21:30 on Thursdays. Specific Sunday evenings are announced in September.

**MUS 446.6 — 1&2(3L)**
**Introduction to Electronic and Computer Music**

An introduction to the use of the electronic sound synthesizer and the computer in musical composition and production including a consideration of aesthetic problems occurring in conjunction with these media. (See Performance and Pedagogy)
**Prerequisite(s):** MUS 213 and 214.

**MUS 447.3 — 1/2(3L)**
**Structural Musical Analysis**

Complete pieces of music or complete movements of compositions will be analyzed by integrating traditional analytical methods with reductive techniques and approaches based on the scientific analysis of sound and communications. The techniques are applied to music of all styles.
**Prerequisite(s):** MUS 213 and 214.

**MUS 450.3 — 2(3L)**
**Notation I Medieval to Renaissance Music**

A study of the two general systems of music notation - white mensural and black - which preceded our modern system. Deals with lute and early keyboard tablatures. Includes discussions of problems and transcriptions into modern notation of ancient manuscripts.
**Prerequisite(s):** MUS 213, 214, 240 and 241 or permission of the department.

**MUS 453.3 — 1/2(3S)**
**Seminar in Choral Literature and Materials**

A seminar in the standard choral repertoire for mixed, male and treble chorus with focus on representative works.
**Prerequisite(s):** MUS 113, 114 and 240; or permission of the department.

**MUS 457.3 — 1/2(3L)**
**Music since 1950**

A detailed study of important musical ideas and styles from 1950 to the present. Approached through the music and the theoretical writings of composers who have contributed important works during this time.
**Prerequisite(s):** MUS 213, 214, 240, and 241 or permission of the department.

**MUS 464.3 — 1/2(3L)**
**Research Seminar in Musicology I**

A study of topics of current interest in musicology. Includes the oral presentation of research as well as the preparation of major research papers. The specific topic will be announced each time the course is offered.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.

**MUS 465.3 — 1/2(3L)**
**Research Seminar in Musicology II**

Advanced research in musicology. The specific topic will be announced each time the course is offered.
**Prerequisite(s):** MUS 464 and 241 or permission of the department.

**MUS 472.3 — 1/2(3L)**
**Seminar in Music Bibliography and Research Techniques**

A seminar designed to deepen the concepts and tools of scholarship developed in MUS 241. Emphasizes developing research skills through the preparations of lectures, lecture-recitals, and papers. Special bibliographical topics in the principal areas of music will be discussed.
**Prerequisite(s):** MUS 240 and 241 or permission of the department.
**Note:** Students who have credit for MUS 354 may not take this course for credit.

**MUS 474.3 — 1/2(3L)**
**Selected Music Research Topics**

A seminar devoted to particular areas of study in music which are not covered by curriculum offerings.
**Prerequisite(s):** Advanced standing in a Bachelor of Music (Arts and Science) program. See Department Head for details.

**MUS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in

depth, topics that are not thoroughly covered in regularly offered courses.

**MUS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# NEPS — NURSING EDUCATION PROGRAM

College of Nursing

**NEPS 112.3 — 1(2L/S-2C/P)**
**Development of Self**

Introduces the concept of self in relation to others. Through reflection and understanding of the nature of one's self, individuals can experience awareness and personal growth. The individual's uniqueness and differences, which influence human interaction, will be explored.
**Formerly:** NURS 112.

**NEPS 113.3 — 1(3L/S-2C/P)**
**Nursing an Evolving Profession**

Introduces the roles and competencies of nursing practice and the context for nursing. The participants will become acquainted with the elements of caring through an interactive approach which promotes growth of all partners. Research language and concepts will be introduced.
**Formerly:** NURS 113.

**NEPS 114.3 — 2(2L/S-2C/P)**
**Interpersonal Relationships**

Emphasizes an understanding and application of interpersonal skills for personal and professional growth and development. Communication which facilitates helping relationships will be practiced within a variety of settings.
**Formerly:** NURS 114.
**Prerequisite(s) or Corequisite(s):** NEPS 112 or permission of the instructor.

**NEPS 115.4 — 2(3L/S-8C/P)**
**Core Concepts of Care**

Focuses on application of fundamental nursing concepts and skills in assisting individuals across the lifespan with health challenges. Concepts of safety, self-care, and immobility will be explored. Within a practice setting, participants will integrate concepts from other courses.
**Formerly:** NURS 115.
**Prerequisite(s) or Corequisite(s):** NEPS 112, 113, 114 , 116, 118 and 119.

**NEPS 116.3 — 2(3L/S)**
**Introduction to Health Concepts**

Introduces the concepts of Health and Primary Health Care as they relate to individuals, families, groups and communities.
**Formerly:** NURS 116.

**NEPS 118.3 — 1(3L/S-3C/P)**
**Introduction to Human Body I**

Introduces basic concepts related to structure and function of the human body.

**NEPS 119.3 — 2(3L/S-3C/P)**
**Introduction to Human Body II**

Builds on the basic concepts from NEPS 118, Introduction to the Human Body I, to further explore basic concepts related to the structure and function of the human body.
**Prerequisite(s) or Corequisite(s):** NEPS 118.

**NEPS 150.3**
**Philosophical Framework for Nursing**

Provides an opportunity for participants to become familiar with philosophical approaches to nursing and health care in Canada. It introduces the participants to the concepts of health, critical social theory, and primary health care as the framework for nursing practice. The historical, political and social context in which nursing is practised will be discussed.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 151.3**
**The Profession of Nursing**

Introduces the participants to nursing as a professional discipline. The core components will be caring, the profession of nursing, patterns of knowing, legal and ethical considerations, clinical decision making, and introduction to research and theory based practice.
**Note:** Open to Second Degree Option students in the College of Nursing.

**NEPS 152.3**
**Foundations of Nursing Practice**

Provides participants with opportunities to explore fundamental nursing concepts and to develop the skills necessary to perform related nursing interventions.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 153.3**
**Communication and Education for Health**

Introduces the concept of self in relation to others as a basis for interpersonal communication. Communication facilitating helping relationships in individual, group, and health education situations will be examined and practiced. Participants will access and develop resources to facilitate health education for health promotion.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 154.1**
**Introduction to the Practice of Nursing**

Provides an opportunity for participants to integrate concepts from prerequisite courses within a practice setting.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 155.3**
**Individual Assessment I**

Will establish a foundation for development of health assessment skills.
**Prerequisite(s):** NEPS 152.
**Note:** Open to Second Degree Entry Option students in the College of Nursing only.

**NEPS 211.3 — 1(3L/S-2C/P)**
**Counselling in Nursing Practice**

Provides opportunities for exploring the counselling role for nurses within a therapeutic relationship.
**Formerly:** NURS 211.
**Prerequisite(s):** NEPS 114.
**Prerequisite(s) or Corequisite(s):** NEPS 220.

**NEPS 212.3 — 1(2L/S-2C/P)**
**Microbiology for Health Sciences**

Introduces the concepts of microbiology in relation to health and the process of disease in humans.
**Formerly:** NURS 212.

**NEPS 216.3 — 2(4L/S)**
**Healthy Growth and Development**

Focuses on theories of growth and development of individuals throughout the lifespan, within the context of family and community.
**Formerly:** NURS 216.

**NEPS 218.3 — 2(3L/S-1.5C/P)**
**Education for Health**

Primary focus is on health education for health promotion. A variety of strategies in the access and development of resources to facilitate achievement of health goals of clients across the lifespan will be used. The participants will be given opportunity to achieve personal and professional growth as a learner-teacher, through collaborative interactions with clients.
**Formerly:** NURS 218.

**NEPS 220.3 — 1(1L/S-2.5C/P)**
**Individual Assessment I**

Establishes a foundation for development of health skills.
**Prerequisite(s):** NEPS 115 and 119.

**NEPS 221.3 — 1(1L/S-2.5C/P)**
**Individual Assessment II**

This course will develop assessment skills with greater breadth and depth building on the health assessment skills developed in NEPS 220 Individual Assessment I.
**Prerequisite(s):** NEPS 220.

**NEPS 222.3 — 1(2L/S-2C/P)**
**Nursing Therapeutics I**

Introduces basic concepts related to pharmacology and nursing pharmacotherapeutics, as well as additional therapies which promote, maintain, and restore health.
**Prerequisite(s):** NEPS 115, 119.
**Corequisite(s):** NEPS 212.

**NEPS 223.3 — 2(2L/S-2C/P)**
**Nursing Therapeutics II**

Builds on basic concepts from NEPS 222 Nursing Therapeutics I related to pharmacology and nursing pharmacotherapeutics, as well as selected therapies which promote, maintain, and restore health.
**Prerequisite(s):** NEPS 222.

**NEPS 233.6 — 3(35C/P)**
**Practicum I**

Provides opportunities for the integration of theory and practice (praxis) in holistic nursing care of individuals.
**Formerly:** NEPS 234 and 235.
**Prerequisite(s):** All required Year 1 and 2 NEPS courses.

**Note:** 8 week block.

**NEPS 250.2**
**Microbiology for the Practice of Nursing**

Introduces participants to theoretical concepts of microbiology in relation to health and disease processes in humans.
**Prerequisite(s):** NEPS 154.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 251.3**
**Pharmacology for the Practice of Nursing**

Introduces basic theoretical concepts related to pharmacology and nursing pharmacotherapeutics.
**Prerequisite(s):** NEPS 154.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 252.3**
**Practice of Nursing I Theory**

Focuses on participants developing an understanding of selected challenges to the health of adults and of related nursing practice. Concepts related to acuity and chronicity will be explored within a primary health care framework.
**Prerequisite(s):** NEPS 154.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 253.3**
**Practice of Nursing I Clinical**

Provides participants with opportunities for the integration of theory and practice in holistic care of adults in selected clinical situations.
**Prerequisite(s):** NEPS 250, 251, 252, 255.
**Prerequisite(s) or Corequisite(s):** NEPS 254.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 254.3**
**Therapeutic Interventions for Nursing Practice**

Provides participants with opportunities to explore selected evidence-based principles of nursing practice and to develop the skills necessary to perform related nursing interventions. The concept of patient safety will be explored from a system perspective.
**Prerequisite(s):** NEPS 250, 251, 252, 255.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 255.3**
**Individual Assessment II**

Will develop assessment skills with greater breadth and depth, building on the health assessment skills developed in NEPS 155 Individual Assessment I.
**Prerequisites:** NEPS 155.
**Note:** Open to Second Degree Entry Option students in the College of Nursing only.

**NEPS 291.3 — 1(3L/S)**
**Health Challenges of Adults I Theory**

Focuses on the challenges of adults. Concepts of acuity and chronicity, perioperative nursing, and rehabilitative nursing will be explored.
**Formerly:** NURS 291.
**Prerequisite(s):** NEPS 115 and NUTR 120.
**Prerequisite(s) or Corequisite(s):** NEPS 211, 212, 220 and 222.

**NEPS 292.3 — 1(9C/P)**
**Health Challenges of Adults I Clinical**

Focuses on the application of nursing concepts in assisting adults with acute and chronic health challenges.
**Formerly:** NURS 292.
**Prerequisite(s) or Corequisite(s):** NEPS 291.

**NEPS 293.3 — 2(3L/S)**
**Health Challenges of Adults II Theory**

Focuses on selected health challenges of adults. Concepts of gerontology, mental health challenges, cell aberration, and palliative care will be explored.
**Prerequisite(s):** NEPS 291.
**Prerequisite(s) or Corequisite(s):** NEPS 221 and 223.

**NEPS 294.3 — 2(10C/P)**
**Health Challenges of Adults II Clinical**

This clinical course focuses on the application of nursing concepts in assisting adults with health challenges. Concepts of gerontology, mental health, cell aberration, and palliative care will be explored. The students will provide holistic nursing care for clients in one of the following settings: medical, surgical, mental health, rehabilitation, or long-term care. The student must successfully pass all seven nursing functions in order to pass the course.
**Formerly:** NURS 294
**Prerequisite(s):** NEPS 292.
**Prerequisite(s) or Corequisite(s):** NEPS 218 and 293.

**NEPS 300.3 — 1/2(3L)**
**Health Challenges III Theory**

Focuses on complex/rapidly changing health challenges of adults and their families. In selected health challenges nursing concepts related to both adults and children will be explored.
**Formerly:** NURS 300.
**Prerequisite(s):** NEPS 233.

**NEPS 301.3 — 1/2(12C/P)**
**Health Challenges III Clinical**

Focuses on application of nursing concepts in assisting adults and their families with complex/rapidly changing health challenges.
**Formerly:** NURS 301.
**Prerequisite(s) or Corequisite(s):** NEPS 300.

**NEPS 302.3 — 1/2(4L)**
**Health Challenges IV Theory**

Explores prevalent health challenges of infants, children, adolescents and childbearing families.
**Formerly:** NURS 302.
**Prerequisite(s):** NEPS 233.
**Prerequisite(s) or Corequisite(s):** NEPS 317.

**NEPS 303.3 — 1/2(12C/P)**
**Health Challenges IV Clinical**

Focuses on application of nursing concepts in assisting childbearing families and individuals from infancy to adolescence with prevalent health challenges.
**Formerly:** NURS 303.
**Prerequisite(s) or Corequisite(s):** NEPS 302.

**NEPS 317.3 — 1(3L/S-1C/P)**
**Family Diversity**

Focus on theories of families within the context of community and society. Opportunities will be provided for assessment and beginning interventions with families.
**Prerequisite(s):** All required Year 1 and 2 NEPS courses except NEPS 233.

**NEPS 323.3 — 2(3L/S)**
**Research for Professional Practice**

Introduces research concepts, methodology, and issues in health. Emphasis will be on critical appraisal of existing research as a basis for evidence-based practice.
**Formerly:** NURS 323.
**Prerequisite(s) or Corequisite(s):** 3 credit units STAT.

**NEPS 325.3 — 2(3L/S)**
**Nursing in Communities**

Focuses on practice in community settings, utilizing relevant Primary HealthCare Concepts, family and community based theories and existing community resources.
**Formerly:** NURS 325.
**Prerequisite(s):** NEPS 317.

**NEPS 327.3 — 1(2L/S-1C/P)**
**Participating with Groups**

Promotes opportunities to critically examine theoretical approaches to groups. A lab experience will promote opportunities for personal and professional growth and development within a group setting. Experiences within the group, as participant, co-facilitator and observer, will be provided.
**Formerly:** NURS 327.
**Prerequisite(s) or Corequisite(s):** NEPS 211.

**NEPS 350.3**
**The Practice of Nursing II Theory**

Focuses on participants developing an understanding of selected complex/rapidly changing challenges to the health of adults. Related nursing concepts will be explored within a primary health care framework. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s)** NEPS 253, 254; STAT 3 credit units; NUTR 3 credit units.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 351.3**
**The Practice of Nursing II Clinical**

Provides participants with opportunities for the integration of theory and practice in assisting adults with complex/rapidly changing challenges to their health. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s) or Corequisite(s):** NEPS 350, 352, 354.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 352.3**
**The Practice of Nursing III Theory**

Provides opportunities for participants to explore concepts related to selected challenges to the mental health of adults

and children. Discussion of selected psychotherapeutics is included. Concepts related to mental health and mental illness will be explored within a primary health care framework. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** NEPS 253, 254; STAT 3 credit units; NUTR 3 credit units.
**Prerequisite(s) or Corequisite(s):** NEPS 354.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 353.3**
**The Practice of Nursing III Clinical**

Provides participants with opportunities for the integration of theory and practice in assisting adults with mental health challenges. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s) or Corequisite(s):** NEPS 350, 352, 354.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 354.3**
**Counselling for Individuals and Groups**

Focuses on advanced therapeutic communications. Participants will explore the concepts and skills related to the nurses' counselling role with individuals and groups. Experiences as participant and facilitator in individual and group counselling situations will be included. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** NEPS 153, 253.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 355.3**
**The Practice of Nursing IV Theory**

Provides opportunities for participants to explore concepts related to selected challenges to the health of infants, children, adolescents, and childbearing families. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisites:** NEPS 350, 352.
**Corequisites:** NEPS 354.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 356.3**
**The Practice of Nursing IV Clinical**

Provides participants with opportunities for the integration of theory and practice in assisting infants, children, adolescents, and childbearing families with challenges to their health. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** NEPS 355, 357, 450.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 357.2**
**Diversity in Families**

Provides participants with opportunities to explore concepts related to families within the context of community and society. A variety of theoretical perspectives will be used to assess the strengths and challenges experienced by the contemporary family. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 400.3 — 1(4L/S)**
**Management in Health Systems**

Emphasizes the study of management concepts as they relate to the context of health.
**Formerly:** NURS 400.
**Prerequisite(s):** NEPS 327.
**Prerequisite(s) or Corequisite(s):** NEPS 301 or 303.

**NEPS 417.3 — 1/2(3L/S)**
**Issues in Nursing**

An opportunity for all participants to reflect upon the roles and competencies of the professional nurse within the context of their own evolving nursing experience. Legal, moral, and ethical principles will be applied to the analysis of current issues that have implications for caring in nursing practice.
**Formerly:** NURS 417.
**Prerequisite(s):** NEPS 301 or 303; and 327.

**NEPS 421.6 — 1/2(35C/P)**
**Primary Health Care in the Community**

Provides opportunities for the participant to expand the integration of research and primary health care concepts in the community.
**Formerly:** NURS 421.
**Prerequisite(s):** All required courses in Years 1, 2, 3 and 4 NEPS with the exception of NEPS 425.
**Note:** 6-week block.

**NEPS 425.6 — 1/2(35C/P)**
**Clinical Integration**

Provides opportunities for participants to expand the integration of theory and practice in nursing care of individuals, families, groups, and communities. Emphasis will be placed on the integration of management and research concepts into clinical practice.
**Formerly:** NURS 425.
**Prerequisite(s):** All required courses in Years 1, 2, 3 and 4 NEPS with the exception of NEPS 421.
**Note:** 6-week block.

**NEPS 427.3 — 1(3L/S)**
**Partnerships with Community Theory**

Focuses on community health theory, change and social theory. Emphasis will be on social participation theory, including program development.
**Prerequisite(s):** NEPS 301, 303, and 325.

**NEPS 428.3 — 1(8C/P)**
**Partnerships with Community Clinical**

Focuses on community health theory, change and social theory. Emphasis will be on integration of social participation theory, including program development, in a community setting.
**Prerequisite(s) or Corequisite(s):** NEPS 427.

**NEPS 450.3**
**The Practice of Nursing V Theory**

Uses a Primary Health Care framework to explore the nursing role in population health promotion, community development, and community capacity building. Emphasis will be on social participation theory, including program development. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** NEPS 350, 352.
**Prerequisite(s) and Corequisite(s):** NEPS 355, 357.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 451.3**
**The Practice of Nursing V Clinical**

Provides participants with opportunities for the integration of theory and practice in using the Primary Health Care framework to explore the nursing role in population health promotion, community development, and community capacity building. Emphasis will be on social participation, including program development. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** NEPS 355, 357, 450.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 453.3**
**Research for Professional Practice**

Introduces the participant to research concepts, methodology, and issues in health. The emphasis will be on critical appraisal of existing research as a basis for evidence-based practice.This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** 3 credit units STAT class.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 454.3**
**Management in Health Systems**

Will emphasize the study of management concepts as they relate to the context of health. Second Degree Entry Option students only.
**Prerequisite(s):** NEPS 354.
**Corequisite(s):** NEPS 351 or 356.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 455.3**
**Issues in Nursing**

There will be opportunity for all participants to reflect upon the roles and competencies of the professional nurse within the context of their own evolving nursing experience. Legal, moral, and ethical principles will be applied to the analysis of current issues that have implications for caring in nursing practice. Second Degree Entry Option students only.
**Prerequisite(s):** NEPS 351 or NEPS 356, 354.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 456.6**
**Primary Health Care in the Community**

Provides opportunities for the participant to expand the integration of research and primary health care concepts in the community. This course is open only to participants in the Second Degree Entry Option of the NEPS.
**Prerequisite(s):** All required courses from Terms A - F1 except NEPS 457.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

**NEPS 457.6**
**Clinical Integration**

Provides opportunities for participants to expand the integration of theory and practice in nursing care of individuals, families, groups, and communities. Emphasis will be placed on the integration of management and research concepts into

clinical practice. Second Degree Entry Option students only.
**Prerequisite(s):** All required courses from Terms A - F1 except NEPS 456.
**Note:** Open to Second Degree Entry Option students in the College of Nursing.

# NRTH — NORTHERN STUDIES

Extension Division

**NRTH 101.3 — 3S**
**Introduction to Circumpolar World**

Introduces students to the landscape, peoples and issues of the circumpolar region. Beginning with an examination of the geography, biological and physical systems of the Subarctic and Arctic, it then turns to the aboriginal and contemporary peoples of the region. This history of the Circumpolar World is treated in a broad fashion, to provide a grounding in the events and developments that have created the region's contemporary qualities. The second part of the course surveys some of the particular issues facing the region, including climate change, economic, political and social development. This course ultimately is intended to stimulate interest in the circumpolar world.

**NRTH 321.3 — 1(3L)**
**Peoples and Cultures of the Circumpolar World I**

Introduces the peoples and cultures of the North Circumpolar Region through interdisciplinary study in the fields of anthropology, sociology, history, media and cultural studies, communications and literature. Students will be introduced to traditional cultures and contemporary peoples through Indigenous and Western perspectives. This course examines primary societies (traditional Indigenous societies up to Western contact) and secondary societies (non-Indigenous enclaves in the North).
**Prerequisite(s):** NRTH 101 and 24 credit units at the University.

**NRTH 322.3 — 2(3L)**
**Peoples and Cultures of the Circumpolar World II**

Aims to promote an integrated and multidisciplinary understanding of the circumpolar peoples and their adaptations and contributions to social, economic, political, and environmental changes. This course describes the emergence of tertiary societies and a description of self-determination, followed by sections on identity and language, media, arts and literature, education, recreation and family, respective to the three primary Circumpolar regions: North America and Greenland, Siberia and Northern Asia, and Northern Scandinavia and North-west Russia.
**Prerequisite(s):** NRTH 101 and 24 credit units at the University.

**NRTH 331.3 — 1(3L)**
**Contemporary Issues of the Circumpolar World I**

Introduces students to the important structures and forces affecting the sustainability of circumpolar communities. Students will deal with the population trends in the circumpolar region, natural resource use and the economies of these communities and economic ownership.
**Prerequisite(s):** NRTH 101 and 24 credit units at the University including at least 6 credit units senior social sciences.

**NRTH 332.3 — 2(3L)**
**Contemporary Issues of the Circumpolar World II**

Students will deal with the main challenges confronting the peoples and communities of the world's northern regions, in terms of governance and politics, social issues, education and knowledge systems, and global issues.
**Prerequisite(s):** NRTH 101 and 24 credit units at the University.

**NRTH 480.6 — 1&2**
**Northern Studies Honours Thesis**

Students will work on a laboratory, field, library, or theoretical study under the supervision of a faculty member from the Northern Studies Steering Committee. Each individual project requires approval of a research proposal by the Northern Studies Chair in the term preceeding registration before permission will be granted. A thorough, written report in thesis format describing the project and the summarized results submitted at the end of the project will be evaluated by a faculty committee.
**Prerequisite(s):** Fourth year standing in the Northern Studies program, permission of the Chair of Northern Studies, and supervision by a faculty advisor.

**NRTH 490.0 — 1/2(3S)**
**Seminar in Northern Studies**

Seminar presentations by visitors, faculty and students on a broad selection of northern issues. Fourth year students in the Northern Studies program will be required to attend all seminars throughout the full academic year and present a one-hour seminar on a topic of their choice related to northern issues or problems in the environment, society, economy or politics.
**Prerequisite(s):** Fourth year standing in the Northern Studies program, or permission of the Chair of Northern Studies.

# NS — NATIVE STUDIES

Department of Native Studies, College of Arts and Science

**NS 105.3 — 1/2(3L)**
**Local Aboriginal Peoples**

Studies the Aboriginal communities of Saskatchewan and adjacent regions. Each linguistic group will be considered as will the state and status of culture and language in these communities. The course also aims to give students the skills and the background to take advanced Native Studies courses.
**Note:** Students with credit for NS 110 may not take this course for credit.

**NS 106.3 — 1/2(3L)**
**Aboriginal Canada**

Presents an overview of Aboriginal society across Canada and links the processes of the past to contemporary issues. Issues of concern to Aboriginal society will be considered and the choice of issues may vary from year to year.
**Note:** Students with credit for NS 110 or 100 may not take NS 106 for credit.

**NS 225**
**Native Women in Canada**

**NS 260.6 — 1&2(3L-1S)**
**First Nations and Metis of the Prairies 1860 to 1960**

Demonstrates and analyzes the development of the First Nations and Metis peoples of the prairie region culturally, politically, economically and socially from the 1860s to the mid 20th century. Emphasis is on the historical significance of First Nations and Metis societies in the development of Western Canada.
**Prerequisite(s):** 6 credit units 100-level Native Studies.

**NS 263.6 — 1&2(3L)**
**Aboriginal People and Canadian Politics**

An analysis of contemporary Canadian political and administrative processes as they affect Native Peoples. Emphasis will be placed on the Federal system of government and its effects on Native identity, community programs and local autonomy.
**Formerly:** NS 207.
**Prerequisite(s):** 6 credit units 100-level Native Studies.
**Note:** Students with credit for NS 207 may not take NS 263 for credit.

**NS 270.6 — 1&2(3L)**
**Literature of Native North America**

Surveys literature (folklore, biography, drama, poetry and novels) about and by the Indigenous Peoples of North America. A multifaceted approach (aesthetic, linguistic, historical, and cultural) will be employed in examining this literature.
**Formerly:** NS 211.
**Prerequisite(s):** 6 credit units 100-level Native Studies.
**Note:** Students with credit for NS 211 may not take NS 270 for credit.

**NS 271.3 — 1/2(3L)**
**Aboriginal Women in Canada**

Examination of the position of women in traditional, pre-contact Native society, the changes to that position wrought by contact with Europeans, and contemporary issues of concern to Native women.
**Formerly:** NS 225.
**Prerequisite(s):** 6 credit units 100-level Native Studies.
**Note:** Students with credit for NS 225 may not take NS 271 for credit.

**NS 280.6 — 1&2(2L-1S)**
**Metis History in Western Canada**

Through lectures and seminar readings, the origin and development of the Metis is analyzed. Emphasizes the historical significance of the Metis in the development of Western Canada. Discusses contemporary issues of the Metis.
**Formerly:** NS 200.
**Prerequisite(s):** 6 credit units 100-level Native Studies.
**Note:** Students with credit for NS 200 may not take NS 280 for credit.

**NS 281.3 — 1/2(2L-1S)**
**First Nations History in Western Canada**

Traces the history of Western Canadian First Nations from the earliest contact to the present era.
**Formerly:** NS 203.
**Prerequisite(s):** 6 credit units 100-level Native Studies.
**Note:** Students with credit for NS 203 may not take NS 281 for credit.

**NS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**NS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**NS 302.6 — 1&2(3S)**
**Seminar in Indian History**

Through seminar presentations and readings, examines major developments and themes in Canadian Indian history.
**Prerequisite(s):** 12 credit units in Native Studies.
**Note:** Offered 2006 Spring & Summer Session for ITEP students only.

**NS 340.3 — 1/2(3S)**
**Theorizing Change in Aboriginal Society**

Designed to enhance understanding and application of theories Aboriginal Society. Primary focus is on Aboriginal intellectual traditions and their role within the academic discourse that is effecting a change in the manner in which scholarship about Aboriginal peoples and societies is constructed.
**Prerequisite(s):** NS 260 and 6 credit units 200-level Native Studies.

**NS 350.6 — 1&2(3L)**
**Native Studies Research**

Develops student understandings of research methodologies, concepts and practices in Native Studies.
**Formerly:** NS 309
**Prerequisite:** NS 260 and 6 credit units 200-level Native Studies.
**Note:** Students with credit for NS 309 may not take NS 350 for credit.

**NS 365.6 — 1&2(2L-1S)**
**Aboriginal People and Development**

Surveys the historic, political and economic causes of Aboriginal underdevelopment. Government-sponsored development projects will be examined and new strategies for Aboriginal economic development will be explored.
**Formerly:** NS 304
**Prerequisite(s):** NS 260 and 6 credit units 200-level Native Studies (NS 263 recommended).
**Note:** Students with credit for NS 304 may not take NS 365 for credit.

**NS 366.6 — 1&2(3S)**
**Indigenous Peoples and Nation States**

Issues of concern for indigenous peoples globally are considered, and analogies to the Canadian Native context made.
**Formerly:** NS 305
**Prerequisite(s):** NS 260 and 6 credit units 200-level Native Studies (NS 263 recommended).
**Note:** Students with credit for NS 305 may not take NS 366 for credit.

**NS 370.6 — 1&2(3L)**
**Images of Indigenous North America**

Examines how the various historical and contemporary images or representations emerged and changed over time and the cultural world views, ideas and values behind the images. Further discussion will centre around how these images affect our relationships with each other. After critical analysis of images, strategies for changing images will be explored. This will be done through interactive lectures, presentations, group and individual activities, critical viewing and analysis of photographs, films, videos, magazines, newspapers, and other popular media forms.
**Formerly:** NS 208.
**Prerequisite(s):** NS 260 and 6 credit units 200-level NS.
**Note:** Students with credit for NS 208 may not take this course for credit.

**NS 372.6 — 1&2(3L)**
**Native Americans USA**

A history of American Indians from the contact period to the development of government policies. The Bureau of Indian Affairs and the American treaties, the removal of the Eastern tribes to the middle west, the termination policy, and contemporary issues will be discussed.
**Formerly:** NS 213
**Prerequisite(s):** NS 260 and 6 credit units 200-level NS.
**Note:** Students with credit for NS 213 may not take this course for credit.

**NS 398.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**NS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**NS 440.3 — 1/2(3S)**
**Theoretical Perspectives in Native Studies**

Examines the concept of global Indigeneity, and the utility of this concept for understanding the Aboriginal contexts. Topics may include: underdevelopment, colonialism, internal colonialism, imperialism, and the metropolis-hinterland paradigm.
**Formerly:** NS 403
**Prerequisite(s):** NS 350 and 6 credit units 300-level Native Studies.
**Note:** Students with credit for NS 403 may not take NS 440 for credit.

**NS 450.6 — 1&2(3S)**
**Research in Aboriginal Communities**

Applied research on Saskatchewan Aboriginal Communities that utilizes both written and oral sources.
**Formerly:** NS 404.
**Prerequisite(s):** NS 340, 350 and 3 credit units 300-level NS.
**Note:** Students with credit for NS 404 may not take NS 450 for credit.

**NS 451.6 — 1&2(3R)**
**Advanced Research Paper**

The student will develop a research prospectus, undertake the research, and present a final report under the direction of a faculty advisor. Topics are open, subject to the availability of a faculty advisor.
**Formerly:** NS 402
**Prerequisite(s):** NS 350 and 6 credit units 300-level Native Studies.
**Note:** Students with credit for NS 402 may not take NS 451 for credit. Students planning to register in this course must submit a proposal before August 15th.

**NS 462.3 — 1/2(3S)**
**Aboriginal People and Northern Development**

Research seminar on northern development, including the socio-cultural and economic impacts of large-scale development projects, land claims, and other development issues as they affect northern Aboriginal Peoples.
**Formerly:** NS 401.
**Prerequisite(s):** NS 350 or permission of instructor.
**Note:** Students with credit for NS 401 may not take NS 462 for credit.

**NS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**NS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# NURS — NURSING

College of Nursing

**NURS 318.3**
**Health Assessment**

Provides students opportunity to increase their ability to perform holistic assessments of clients throughout the lifespan. Health history and performance of focused assessments will be emphasized.
**Prerequisite(s) or Corequisite(s):** NURS 329.

**NURS 329.1**
**Primary Health Care and Nursing**

Provides an introduction to concepts and the philosophy of primary health care and provides opportunities for students to examine professional roles in implementation of the approach. A general orientation to the program will be included.

**NURS 411.3**
**Policy Politics and Professionalism**

Provides a capstone opportunity for students to examine current issues in nursing including knowledge transfer and development of health policy. Opportunities will be provided to interact with each other, nurse leaders and policy makers.
**Prerequisite(s) or Corequisite(s):** All other required nursing courses.

**NURS 413.3**
**Teaching and Learning for Health**

Provides opportunities for students to increase their understanding of the learning-teaching process and its application for health. Students will be given the opportunity to achieve personal and professional growth as learners/teachers.
**Prerequisite(s) or Corequisite(s):** NURS 329.

**NURS 416.3**
**Management in Health Care Environment**

Provides opportunities for students to examine concepts and theories relevant to management roles in the health care system. Implications for nursing and nursing practice will be considered.
**Prerequisite(s) or Corequisite(s):** NURS 329.

**NURS 426.3**
**Health Program Planning**

Provides opportunities for students to increase their understanding of planning and evaluating health-related programs.
**Prerequisite(s):** NURS 413.
**Prerequisite(s) or Corequisite(s):** For NEPS students only: NURS 325.

**NURS 448.3**
**Nursing in Community Settings**

Provides students with opportunities to examine nursing in community settings. Using a primary health care framework, concepts and theory related to community, health determinants and health promotion will be analyzed.
**Prerequisite(s) or Corequisite(s):** NURS 329.

**NURS 476.3**
**Health and Aging**

Provides opportunities for students to examine population trends, and health issues of an aging population in urban and rural settings. Gerontological nursing standards will be utilized as a study framework.
**Prerequisite(s):** NURS 329.
**Prerequisite(s) or Corequisite(s):** For NEPS students only: Completion of year 2 NEPS.

**NURS 478.3**
**Rural Nursing**

Provides opportunities for students to increase their knowledge and application of concepts and theory relevant to nursing in rural populations. Consideration will be given to the impact of regionalization and rural health policy development.
**Prerequisite(s):** NURS 448 or permission of the instructor.
**Prerequisite(s) or Corequisite(s):** For NEPS students only: NURS 325.

**NURS 483.3**
**Cultural Diversity and Aboriginal Health**

Provides students with the theoretical bases for the systematic examination of the cultural contexts of health. The primary focus will be on Aboriginal health issues. The interactions between the western medical model and the traditional health model will be explored.
**Prerequisite(s):** NURS 329 or permission of the instructor.
**Prerequisite(s) or Corequisite(s):** For NEPS students only: Enrolment in year 1 NEPS.

**NURS 484.3**
**Primary Health Care Practice**

Provides students with opportunities to apply and integrate primary health care concepts in an area of nursing practice: direct care, administration, education, or research.
**Prerequisite(s) or Corequisite(s):** NURS 318, 413 and 448.
**Note:** Students wishing to take NURS 484 in term 2 must register by November 1. Students wishing to take NURS 484 in spring must register by April 1.

**NURS 486.3**
**Forensic Nursing in Secure Environments**

Provides opportunities for students to examine the role of the nurse in the provision of health care to offender populations in secure environments. Selected clinical issues will be explored to illustrate the knowledge, skills, and clinical judgment required of this specialty area.
**Prerequisite(s):** NURS 329.
**Prerequisite(s) or Corequisite(s):** For NEPS students only: Completion of year 2 NEPS.

**NURS 491.3**
**Research in Nursing**

Provides opportunities for students to become informed consumers of research and apply the process of systematic investigation to nursing problems and community issues. Research concepts, methods and issues will be examined with an emphasis on critical appraisal of published research.
**Prerequisite(s) or Corequisite(s):** 3 credit units in Statistics.

**NURS 498**
**Special Topics**

Provides opportunities for students to increase their knowledge and skills related to a special topic area in nursing.

# NUTR — NUTRITION

Division of Nutrition & Dietetics, College of Pharmacy and Nutrition

**NUTR 120.3 — 1/2(3L)**
**Basic Nutrition**

An introduction to nutrition and health. The concepts of recommended nutrient intakes and dietary guidelines are introduced. The major nutrients and their functions in the body are outlined. Nutrition issues facing the general public are presented.

**NUTR 221.3 — 2(3L-.5T)**
**Advanced Nutrition Micronutrients**

This is an advanced nutrition course with emphasis on the underlying physiological and biochemical roles of the micronutrients (vitamins and minerals). The principles of digestion, absorption, transport, and metabolism will be discussed as will food sources and dietary recommendations.
**Prerequisite(s) or Corequisite(s):** NUTR 120, BIOC 211 and HSC 208 or permission of the Division.

**NUTR 230.3 — 1(3L/S)**
**Professional Practice I**

An introduction to the profession of dietetics. Review of historical, political, social aspects of health care; health care structures; and current issues relating to the nutrition discipline and the dietetics profession.
**Prerequisite(s):** First-year standing in the B.Sc.(Nutr.) program.

**NUTR 280.1 — 1/2(1S)**
**Nutrition Competency Completion**

The special topics course enables students who require a specific course for the B.Sc.(Nutr.) program, and who have a similar course from another institution or program, but are missing a key Nutrition component of the required course, to undertake readings and assignments, such that the deficiency is cleared.

**NUTR 305.3 — 2(3L)**
**Research Methods**

A study of research methods in science and nutrition. Focuses on interpreting, evaluating, applying and communicating scientific research.
**Prerequisite(s) or Corequisite(s):** NUTR 220; PLSC 314; or equivalent, or permission of the Division.

**NUTR 310.3 — 2(3L-2P/T)**
**Food Culture and Human Nutrition**

The course examines food and food systems, with a focus on human diversity and culture. The impact of factors that affect food availability, accessibility, adaptability, production, preparation, processing, distribution and consumption will be studied in relation to contemporary food and nutrition issues in Canada.
**Prerequisite(s):** NUTR 221 or permission of the Division.

**NUTR 321.3 — 1(3L-1.5P)**
**Advanced Nutrition Macronutrients and Energy**

This is an advanced nutrition course designed to provide a scientific framework for the study of macronutrient nutrition and energy needs of humans. This course places emphasis on carbohydrate, fat, and protein metabolism and includes fibre, fatty acids, cholesterol, amino acids and energy. Foods sources and dietary recommendations are also discussed.
**Prerequisite(s) or Corequisite(s):** NUTR 120, BIOC 211 and HSC 208 or permission of the Division.

**NUTR 322.3 — 1(3L)**
**Nutrition Throughout Lifespan**

An application of the principles of nutrition to nutritional demands, nutrition assessment and nutrition education throughout the lifespan. The approach will focus on nutrition during pregnancy, lactation, infancy, childhood and adolescence as well as in the elderly.
**Prerequisite(s):** NUTR 221 or permission of the Division.

**NUTR 330.3 — 1&2(1.5P/T)**
**Professional Practice II**

Begins the process of enabling students to articulate and document the required competencies for entry-level dietetic practice, based on experiences obtained in the Nutrition Resource and Volunteer Centre (N.R.V.C.). Introduction to self-directed learning; preparation of learning contracts outlining experiences to be completed to meet specific course objectives.
**Prerequisite(s):** NUTR 230 and second year standing in the B.Sc.(Nutr.) program.

**NUTR 350.3 — 2(3L)**
**Introduction to Community Nutrition**

Introduction to the field of community nutrition and its role in health and health care. The focus is on the process and theoretical foundations of nutrition education and the theories, methods and research perspectives applicable to nutrition education. The role of the community nutritionist in determining, delivering and managing community nutrition services is emphasized along with the tools, skills and techniques necessary for developing effective services.
**Prerequisite(s) or Corequisite(s):** NUTR 322.

**NUTR 365.3 — 2(3L-3P)**
**Quantity Food Production and Service**

Studies the management responsibilities in quantity food production with emphasis on

menu planning, purchasing, service, preparation for quality, cost and sanitation control.
**Prerequisite(s):** NUTR 216 or permission of the Division.

**NUTR 420.3 — 2(3L)**
**Current Issues in Nutrition**

An in-depth examination of contemporary issues such as diet and heart disease, influence of lifestyle factors on nutrition, nutrition labelling and health claims, and nutraceuticals. Controversies in nutrition and cultural aspects of food are also discussed.
**Prerequisite(s) or Corequisite(s):** NUTR 425 and 440, or permission of the Division.

**NUTR 425.3 — 1(3L-1.5T)**
**Nutritional Assessment**

Theory and methods of nutritional assessment for individuals and groups, including methods for assessment of dietary intake, biochemical, anthropometric and clinical evaluation.
**Prerequisite(s):** Minimum third-year standing in the B.Sc.(Nutr.) program.

**NUTR 430.3 — 1&2(1.5P/T)**
**Professional Practice III**

Builds on NUTR 330 by continuing the process of enabling students to articulate and document the required competencies for entry-level dietetic practice, based on experiences obtained in both formal learning and work/volunteer activities. Students are expected to complete a wide variety of increasingly challenging experiences, either through the N.R.V.C. or other agencies and organizations, aimed at meeting the specific objectives of the course.
**Prerequisite(s):** NUTR 330 and third year standing in the B.Sc.(Nutr.) program.

**NUTR 440.6 — 1&2(3L-3.5P)**
**Clinical Nutrition**

A discussion of the role of nutrition in the etiology, pathophysiology, treatment and prevention of human disease. Principles underlying nutritional care will be emphasized.
**Prerequisite(s) or Corequisite(s):** NUTR 425.

**NUTR 450.3 — 1(3L/P)**
**Nutrition Program Planning and Evaluation**

Provides an understanding of the theories, principles, and techniques involved in planning and evaluating nutrition programs. Students will work together to plan a nutrition program for a local agency or organization.
**Prerequisite(s):** NUTR 350.

**NUTR 466.3 — 2(3L)**
**Organization and Management of Service Systems**

A study of philosophy and functions of management as applied to food services, principles of organization, human resource management, work improvement, utilization of resources and labour-management relations.
**Prerequisite(s) or Corequisite(s):** NUTR 365; COMM 101 or 102; minimum fourth year standing or the permission of the Division.

**NUTR 480.3 — 1/2(6P/R) or 1&2(3P/R)**
**Directed Studies in Nutrition**

Provides individual students with an opportunity to undertake independent and advanced study in nutrition. Projects may involve laboratory or field work and/or library research. The student must choose the project in consultation with a faculty member.
**Prerequisite(s):** Permission of the course coordinator and supervising faculty member.
**Note:** Students with credit for NUTR 481 may not take this course for credit.

**NUTR 481.6 — 1&2(6P/R)**
**Directed Studies in Nutrition**

Provides individual students with an opportunity to undertake independent and advanced research in nutrition. Projects will involve laboratory or field work and library research. The student must choose the project in consultation with a faculty member.
**Prerequisite(s):** Permission of the course coordinator and supervising faculty member.
**Note:** Students with credit for NUTR 480 may not take this course for credit.

**NUTR 530.33 — 1&2(C/T)**
**Professional Practice IV**

Thirty-six week practice-based experience with either Saskatoon Health Region or Regina Qu'Appelle Health District (plus experiences in other health regions and Tribal Councils in the province). The course provides students with opportunities to acquire the knowledge, skills and behaviors required to practice as a dietitian. All areas of entry-level practice will be experienced across the spectrum of nutritional care.
**Prerequisite(s):** Completion of all required courses from Years 1, 2, and 3; criminal records check..
**Note:** The 36-week practice-based experience includes a 2-week break.

# OBGY — OBSTETRICS AND GYNECOLOGY

Department of Obstetrics, Gynecology & Reproductive Sciences, College of Medicine

**OBGY 501.6 — PD**
**Obstetrics and Gynecology**

Provides final year medical students with direct clinical experience and participation in management of gynecologic and obstetric problems. The clinical teaching will take place in a teaching hospital affiliated with the University of Saskatchewan. Regular seminars, ward rounds, and departmental rounds will be used for teaching, as well as direct patient care, in both disciplines.
**Prerequisite(s):** Enrolment in the College of Medicine.
**Note:** Six-week course.

# OM — OPERATIONS MANAGEMENT

Department of Finance & Management Science, College of Commerce

**OM 400.6 — 1&2(3S)**
**Honours Seminar in Operations Management**

Directed readings and individual research in the area operations management. The major course requirement involves the preparation of an honours research paper under the supervision of one or more faculty in the particular area of specialization. The resulting honours paper is normally presented at a department seminar.
**Prerequisite(s):** Permission of the department.

# PATH — PATHOLOGY

Department of Pathology, College of Medicine

**PATH 201.3**
**General Pathology**

An overview of the general pathological conditions and principles common to underlying systemic afflictions of the body as applicable to the real life practices of medicine and dentistry. The role of the laboratory in the day to day clinical management of patients in relation to systemic and oral pathologies will be explored. Students will be engaged actively in a variety of instructional experiences that will help interweave the threads of understanding which link the pathology of diseases through multiple disciplines.
**Note:** This course is restricted to students enrolled in the Colleges of Medicine and Dentistry.

**PATH 204.2**
**Immunology**

Outlines the basic principles of immunology and the application of these principles to the understanding of infection and immunity, mechanisms of immune injury, and autoimmune disease.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine and the College of Dentistry.

**PATH 205.3 — 1/2(3L)**
**Survey of Pathology**

General and special pathology for pharmacists and physical therapists.
**Prerequisite(s):** Restricted to students enrolled in Pharmacy and Nutrtion or Physiology, or permission of the department.

**PATH 301.6**
**General Pathology**

Lectures, gross and microscopic demonstrations, and seminars for second year dental and medical students, dealing with the general pathological conditions common to all systems of the body. An introduction to systemic pathology is also included.
**Note:** This course is restricted to students enrolled in the College of Medicine and Dentistry.

**PATH 302**
**Systemic Pathology**

Study of the pathogenetic mechanisms and pathology involved in clinical disease processes as applied to patient management.
**Note:** This course is restricted to students enrolled in the College of Medicine and Dentistry.

**PATH 303.6**
**Microbiology and Infectious Diseases I**

Outlines the characteristics of microorganisms and emphasizes basic microbiologic principles. Incorporates both the etiologic approach to the teaching of medical microbiology and the systems approach to the teaching of infectious disease. Patient management problems stress the clinical approach to patients with

infectious disease. Laboratory sessions emphasize the role of the laboratory in the diagnosis of infectious disease.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine

**PATH 305.6 — 1(7L/P/T)**
**Human Oral Infectious Diseases**

Consists of didactic lectures, laboratory exercises, and clinical microbiology conferences, part of which are taken in conjunction with the College of Medicine. Deals with the general principles of medical bacteriology, mycology, virology, parasitology, and the organisms involved in systemic infections in general and oral infections in particular. Complications of systemic infections with oral manifestations or oral infections resulting from dental procedures are discussed. The role of the medical laboratory in the diagnosis of infectious diseases is also discussed together with consideration of antimicrobial therapy in relation to both systemic and oral infections.
**Prerequisite(s):** Restricted to students enrolled in the College of Dentistry.

**PATH 403.3**
**Microbiology and Infectious Diseases II**

PATH 303 and 403 cover the management of human infectious diseases, including diagnosis and treatment, and the underlying microbiological principles, using a largely case based format, with many small group sessions. The topics are scheduled over the available 6 months to complement the Systems approach to medical teaching.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine.

# PBIO — PALAEOBIOLOGY

Department of Geological Sciences, College of Arts and Science

**PBIO 250.3 — 1(3L)**
**World of Dinosaurs**

A survey of the Mesozoic world - its geography, climates, plants and vertebrate faunas. Particular attention will be given to the history of discovery, and growth of understanding of, the dinosaurs; but attention will also be given to the other terrestrial reptiles, the marine and flying reptiles, and the early mammals and birds. Questions of evolution and extinction will be considered.
**Prerequisite(s):** 6 credit units 100-level science.

**PBIO 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PBIO 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PBIO 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PBIO 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PBIO 488.3 — 1/2(1S)**
**Palaeobiology Research**

A field or laboratory research project conducted under the supervision of a faculty member. A written report will be submitted to the supervisor. The student will then present to an examining committee an oral account of the research.
**Prerequisite(s):** Open to Palaeobiology students, normally in their fourth year of studies, with written permission of the Chair of the Palaeobiology Administrative Committee.

**PBIO 489.6 — 1&2(1S)**
**Palaeobiology Research**

A field or laboratory research project conducted under the supervision of a faculty member. A written report will be submitted to the supervisor in the form of an honours thesis. The student will then present to an examining committee an oral account of the research.
**Prerequisite(s):** Open to Palaeobiology students, normally in their fourth year of studies, with written permission of the Chair of the Palaeobiology Administrative Committee.

**PBIO 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PBIO 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# PCOL — PHARMACOLOGY

Department of Pharmacology, College of Medicine

**PCOL 301.9 — 1&2(1L-1T)**
**Medical Pharmacology**

Students will learn the scientific rationale for the use of drugs. Lectures are followed by case-based tutorials. The objective is to provide a sound knowledge of pharmacologic concepts and principles.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine or the College of Dentistry.

**PCOL 350.6 — 1&2(3L-3T alt weeks)**
**General Pharmacology**

Deals with the pharmacokinetics, pharmacodynamics, therapeutic uses and toxicity of drugs. Pharmacological methods and principles are illustrated and discussed in case-based tutorial sessions.
**Prerequisite(s):** HSC 208 and BIOC 211, or their equivalents.

**PCOL 432.6**
**Special Topics**

Work in selected areas of pharmacology may be undertaken by advanced students with the consent of the Head of the Department of Pharmacology. Generally, the student will work directly with a selected supervisor (i.e. a faculty member with expertise in the area selected. An Advisory Committee may also be established (optional) to include resource faculty, also with expertise in the area of interest. The student will be assigned topics to be researched and will be required to prepare reports, in the form of quality scientific reviews. The supervisor may also choose to supplement assigned topics with a series of laboratory exercises.
**Prerequisite(s):** Enrolment in a B.Sc. Honours or Four-year program in the College of Arts & Science.

# PEDS — PEDIATRICS

Department of Pediatrics, College of Medicine

**PEDS 302.3 — 1/2(1L)**
**Medical Genetics**

Students gain an appreciation of 'genetic' factors involved in determining the health and illness of individuals and the population at large. Applies basic scientific principles and knowledge of genetics. Lectures are followed by practical and clinical demonstrations, problem solving, case studies.

**PEDS 501.6 — PD**
**Pediatrics**

Provides final year medical students with direct clinical experience and participation in management of neonatal/pediatric problems. The clinical teaching will take place in a teaching hospital affiliated with the University of Saskatchewan. Regular seminars, ward rounds and department rounds are used for teaching as well as direct patient care.
**Note:** Six-week course.

# PGCL — POST GRADUATE CLINICAL

College of Medicine

**PGCL 600.0**
**Residency**

Postgraduate medical education for postgraduate medical education students. Programs are approved by the College of Family Physicians of Canada or the Royal College of Physicians and Surgeons of Canada.

**PGCL 601.0**
**Residency**

Postgraduate dental education for postgraduate students in the Doctor of Dental Medicine Degree program.

# PHAR — PHARMACY

Division of Pharmacy & Nutrition, College, College of Pharmacy and Nutrition

**PHAR 200.1 — 1&2**
**Pharmacy Skills I**

Provides an introduction to the profession of Pharmacy and the Pharmacy program with emphasis on necessary learning skills and the educational outcomes of the program. Students will also begin development of library (including online resources) and computer skills necessary for the pharmacist's role as a drug information provider, as well as career paths available to Pharmacy graduates.
**Prerequisite(s) or Corequisite(s):** Completion of pre-Pharmacy courses, acceptance into the Pharmacy program; PHAR 201, 203, 216 and 280.

**PHAR 201.5 — 1(5L-3P)**
**Foundations of Pharmacy I**
**Physicochemical Principles of Drugs**

One of three foundation courses in Pharmacy, this course provides a link between the principles of basic chemistry and those of pharmaceutical chemistry. Modules deal with the chemical properties of drugs, an introduction to pharmacokinetics (how drugs are handled in the body), analytical procedures used to determine drug levels in body fluids and to assess quality assurance of drugs, and the pharmaceutical calculations associated with these concepts.
**Prerequisite(s) or Corequisite(s):** Completion of pre-pharmacy courses, registration in first-year Pharmacy; CHEM 112, 250 and 255.

**PHAR 203.5 — 2(6L-3P)**
**Foundations of Pharmacy III**
**Pharmaceutical Dosage Forms and Dispensing I**

An introduction to the design and preparation of dosage forms for drugs, especially solutions, dispersions and solids such as tablets and capsules. This course will extend the discussions of the physicochemical principles of drugs introduced in PHAR 201 as they relate to the development of dosage forms. Students will also begin to develop their skills in the dispensing of prescriptions including the application of appropriate laws and standards of practice, and in the extemporaneous compounding of drug products and relevant pharmaceutical calculations.
**Prerequisite(s) or Corequisite(s):** Completion of pre-pharmacy courses, registration in first-year Pharmacy; PHAR 201 and 216.

**PHAR 216.2 — 1(3L-1.5T alt weeks)**
**Foundations of Pharmacy II**
**Introduction to Pharmacy and the Health Care System**

An introduction to the profession of Pharmacy and the Canadian health care system, including the social, behavioural and economic aspects of pharmacy practice.
**Prerequisite(s) or Corequisite(s):** Completion of pre-Pharmacy courses; registration in first-year Pharmacy; PHAR 201, 203, 200 and 280.

**PHAR 280.2 — 1&2(75C)**
**Structured Practical Experience I**

To gain an appreciation of what care means to individuals, students will complete 60 hours of service-learning in a health care setting, or with a health care or service organization.
**Prerequisite(s) or Corequisite(s):** Completion of pre-Pharmacy courses, registration in first-year Pharmacy; PHAR 200 and 216.

**PHAR 300.1 — 1&2**
**Pharmacy Skills II**

Will continue the development of necessary learning skills and those required for drug information retrieval and dissemination. Students will also develop skills in public speaking and in written communication.
**Prerequisite(s) or Corequisite(s):** Completion of first year Pharmacy, registration in second-year Pharmacy; PHAR 303, 307, 365, 372, and 380.

**PHAR 303.4 — 1(6L,3P)**
**Pharmaceutical Dosage Forms and Dispensing II**

An extension of PHAR 203, this course continues the discussion of the design and preparation of dosage forms for drugs, especially semi-solids and other topical dosage forms, devices and modified release dosage forms and includes discussion of bioequivalence. This course will also extend the discussions of the physicochemical principles of drugs introduced in PHAR 201 as they relate to the development of dosage forms. Students will also continue to develop their skills in the dispensing of prescriptions including the application of appropriate laws and standards of practice, and in the extemporaneous compounding of drug products and relevant pharmaceutical calculations.
**Prerequisite(s) or Corequisite(s):** Completion of first-year Pharmacy, registration in second-year Pharmacy, PHAR 203, 216; 307, 365, and 372.

**PHAR 307.2 — 1(3L-1.5)**
**Pharmacokinetics and Biopharmaceutics**

A study of the physicochemical, pathologic and pharmaceutical factors affecting the absorption, distribution, and elimination of drugs from the body. The use of pharmacokinetic principles to design dosage regimens which optimize therapeutic effects and minimize toxicity will be discussed. The concepts of bioequivalence of drug products will also be covered.
**Prerequisite(s) or Corequisite(s):** Completion of first-year Pharmacy, registration in second-year Pharmacy; PHAR 201, 303, 372, 365 and MATH 115.

**PHAR 365.5 — 2(6L-3P/1.5T alt weeks)**
**Patient Care I**

An introductory course in patient care, especially the areas of health promotion, disease prevention and self-care, and the role of the pharmacist in these areas. The treatment or prevention of various self-limiting health problems will be discussed. Students will begin to develop skills in patient care through interviewing and other communication skills activities.
**Prerequisite(s) or Corequisite(s):** Completion of first -year Pharmacy, registration in second-year Pharmacy; PHAR 303, 372, 307 and 380.

**PHAR 372.2 — 2(3L-1.5T alt weeks)**
**Research Methods and Evidence Based Practice**

An introduction to research design and the critical appraisal of published research results in the pharmacy and medical literature. It is expected that students will apply knowledge of statistics to the field of pharmacy and biomedical research.
**Prerequisite(s) or Corequisitie(s):** Completion of first-year Pharmacy, registration in second-year Pharmacy; PHAR 200, STAT 246 or equivalent, PHAR 307 and 300.

**PHAR 380.4 — SP/SU**
**Structured Practical Experience II**

A structured practice experience after completion of second year which will provide an opportunity for students to apply their technical skills and introduce them to patient care activities.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy; PHAR 280, 365, 300 and 303.
**Note:** 160 hours over 4 weeks after completion of all other second-year requirements.

**PHAR 400.1 — 1&2**
**Pharmacy Skills III**

Continues the development of necessary learning skills and those required to provide drug information to consumers through introductory experiences in the Drug Information Centre. Students will also complete a first aid course and an in-depth workshop to further their skills in interviewing and assessing individual patients about their drug therapies.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 408, 409, 417, 418, 472, 455, 456, 465 and 480.

**PHAR 408.3 — 1(3L-3P)**
**Pharmaceutical Dosage Forms and Dispensing III Sterile Dosage Forms**

An introduction to the design and preparation of sterile dosage forms, including parenteral preparations. This course will also extend the discussions of the physicochemical principles of drugs introduced in PHAR 201 as they relate to the development of sterile dosage forms. Students will develop their skills in the preparation and dispensing of sterile dosage forms including the application of standards of manufacture and practice and relevant pharmaceutical calculations.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 203, 303 and 307.

**PHAR 409.3 — 2(3L-3P alt weeks)**
**Pharmaceutical Biotechnology**

An introduction to the principles of biotechnology as they apply to the development of pharmaceutical products. Discussions will also focus on the uses of these products in the treatment of various conditions, the pharmacist's role in their provision, and the legal, ethical and economic issues associated with pharmaceutical biotechnology.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 201, 203, 303, 307 and 408.

**PHAR 415.3 — 1(3L)**
**Community Pharmacy Management**

A study of the problems which must be met in the successful operation of a community pharmacy practice including: selection of organizational structures, location, analysis, purchasing and financing a community pharmacy, risk management and insurance, inventory purchasing procedures and inventory management, pricing decisions, advertising, sales promotion and salesmanship, security and general business policies.

**PHAR 417.4 — 1&2(3L-1.5T alt weeks)**
**Management in Pharmacy**

An introduction to management principles and how they apply to practice management in pharmacy, and to the principles and issues associated with safe and appropriate drug distribution in various practice settings.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 300, 303, 365, 380 and 418.

**PHAR 418.2 — 1&2(1.5L/T)**
**Issues in Pharmacy I**

A study of the ethical aspects of pharmacy practice and issues related to the professional responsibilities of the pharmacist including drug misuse and abuse and an introduction to toxicology.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 417, 472 and 465.

**PHAR 421.3 — 1(3L-3P)**
**Forensic Toxicology**

Deals with the analytical procedures involved in the detection of chemicals and drugs in body tissues and fluids and the identification of drugs of abuse. Appropriate instrumentation for analysis is discussed and employed in the practical component of the course.

**PHAR 455.7 — 1(8L-3P/1.5T alt weeks)**
**Pharmacotherapeutics I**

The first of three courses involving the study of the clinical application of drug therapy in various disease states, including discussion of relevant principles of medicinal chemistry, applied pharmacokinetics, adverse effects or interactions, and toxicology.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 400, 465 and 472.

**PHAR 456.7 — 2(8L,3P,1.5T alt weeks)**
**Pharmacotherapeutics II**

The second of three courses discussing the clinical application of drug therapy in various disease states, including discussion of relevant principles of medicinal chemistry, applied pharmacokinetics, adverse effects or interactions, and toxicology.
**Prerequisite(s) or Corequisites(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 400, 455, 465 and 472.

**PHAR 462.3 — 1(3L-3T)**
**Hospital Pharmacy Practice**

Introduction to the role of the pharmacist as a member of the health care team in the provision of health services in the hospital. Emphasis will be placed on the elements of hospital pharmacy practice and the skills required to work as a pharmacist in the hospital setting. Students will have the opportunity to observe and practice various hospital pharmacy activities in a Saskatoon hospital.

**PHAR 465.2 — 1&2(1.5L-2P)**
**Patient Care II**

The second of three courses dealing with Patient Care activities, including discussion of alternative or complimentary health care practices and the development of skills in providing pharmaceutical care to patients.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 365, PHAR 455, PHAR 456.
**Note:** Lab taken with PHAR 455 and 456.

**PHAR 472.2 — 1(3L-1.5T alt weeks)**
**Evidence Based Practice**

An extension of PHAR 372, continuing the development of skills in drug literature evaluation and the application of research findings to patient care situations or the development of standards of care.
**Prerequisite(s) or Corequisite(s):** Completion of second-year Pharmacy, registration in third-year Pharmacy; PHAR 200, 300, 372, 455, 456, and 465. and 400.

**PHAR 480.4 — SP/SU**
**Structured Practical Experience III**

A structured practice experience after completion of third year which will provide an opportunity for students to expand their technical, professional and patient care skills in a practice setting.
**Prerequisite(s):** Completion of second- and third-year Pharmacy; PHAR 280, 380, 455, 456, 465 and 418.
**Note:** 160 hours in 4 weeks after completion of all other third year requirements.

**PHAR 500.1 — 1(3T)**
**Pharmacy Skills IV**

This course will continue the development of necessary learning skills and those required to provide drug information to health professionals through additional experiences in the Drug Information Centre. Students will also complete a CPR course and an in-depth workshop to further their problem-solving skills in the area of drug information retrieval and provision.
**Prerequisite(s) or Corequisite(s):** Completion of third-year Pharmacy, registration in fourth-year Pharmacy; PHAR 200, 300, 400, 518, 557, 565 and 580.

**PHAR 518.2 — 1(3L)**
**Issues in Pharmacy II**

A study of pharmacoepidemiologic and pharmacoeconomic issues affecting health care and pharmacy practice.
**Prerequisite(s) or Corequisite(s):** Completion of third-year Pharmacy, registration in fourth-year Pharmacy; PHAR 417, 418, 500, 557, 565 and 580.

**PHAR 532.3 — 1(3L)**
**Drug Design**

The principles of rational design of new compounds for pharmacological evaluation will be given with special reference to the postulated mode of action at the cellular level.
**Prerequisite(s):** PHAR 455 and 456 or permission of the department.

**PHAR 557.6 — 1(8L-2P/1.5T)**
**Pharmacotherapeutics III**

The third of three courses discussing the clinical application of drug therapy in various disease states, including discussion of relevant principles of medicinal chemistry, applied pharmacokinetics, adverse effects or interactions, and toxicology.
**Prerequisite(s) or Corequisite(s):** Completion of third-year Pharmacy, registration in fourth-year Pharmacy; PHAR 455, 456, 500, 518, 565 and 580.
**Note:** Practicum/Lab and Tutorial taken with PHAR 565.

**PHAR 565.2 — 1(3L/ P/ T)**
**Patient Care III**

The third of three Patient Care courses, this course involves the study of drug therapy considerations for specific patient populations such as the elderly, neonates, infants, children and pregnant women. New strategies for disease management (e.g., care plans, ambulatory care clinics) will also be covered.
**Prerequisite(s) or Corequisite(s):** Completion of third-year Pharmacy, registration in fourth-year Pharmacy; PHAR 365, 465, 455, 456, 500, 518, 557 and 580.

**PHAR 575.3 — 1(3L/T)**
**Complex Cases in Pharmacy Practice**

This course provides students with the opportunity to use their knowledge of advanced pharmacotherapy to determine how to approach and manage complex clinical cases involving patients in both ambulatory and acute care settings.
**Note:** Fourth year Pharmacy students only.

**PHAR 580.16 — 2(C)**
**Structured Practical Experience IV**

Structured practice experiences will provide an opportunity for students to expand their technical, professional and patient care skills in practice settings, including both a community pharmacy and hospital. Students will also have the opportunity to select an additional practice site to gain further professional experience.
**Prerequisite(s) or Corequisite(s):** Completion of third year and all courses in the first term of fourth year.
**Note:** 16 weeks or 640 hours of structured practical experiences.

**PHAR 591.3 — 1/2(6R) or 1&2(3R)**
**Directed Thesis**

On the basis of library research, the student will prepare a 40-60 page thesis on a subject related to pharmacy. The subject is chosen in consultation with a faculty member who will also supervise preparation of the manuscript. The thesis will be graded by two faculty members.
**Prerequisite(s):** Permission of the supervising faculty member.

**PHAR 592.3 — 1/2(6P) or 1&2(3P)**
**Directed Research**

The student will complete a research project under the supervision of a faculty member. A report to be submitted at the completion of the project, will be graded by two faculty members. The report should include a suitable literature review, a description of research methodology and a discussion of the results of the project.
**Prequisite(s):** Permission of the supervising faculty member.

**PHAR 598.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# PHIL — PHILOSOPHY

Department of Philosophy, College of Arts and Science

**PHIL 110.6 — 1&2(3L)**
**Introduction to Philosophy**

An introduction to the perennial issues in Western philosophy which arise out of the search for truth and meaning in life: good and evil, appearance and reality, the rational grounds for belief in God, scepticism and knowledge, social justice. Emphasizes critical thinking and the development of understanding through reasoned argument.
**Note:** No previous training in philosophy is required or presupposed. Students with credit for PHIL 120 or 133 may not take this course for credit. Students with credit for PHIL 120 or PHIL 133 should take the one they are missing for equivalency to PHIL 110.

**PHIL 120.3 — 1/2(3L)**
**Knowledge Mind and Existence as Introductory Topics in Philosophical Problems**

Introduces students to philosophy by exploring fundamental problems about reality, the limits of human knowledge, and

the nature of the mind. Topics include whether we have free will, whether there are grounds for doubt about the basic beliefs about other people or the world, and the nature and role of cognition in the composition of a human being.
**Note:** Students with credit for PHIL 110 may not take this course for credit.

**PHIL 133.3 — 1/2(3L)**
**Introduction to Ethics and Values**

Introduces students to value theory by exploring fundamental problems about morality, justice, beauty, and the problems posed by the purported relativity of value to personal taste and cultural context. Will include topics such as what makes a society just, whether we have any moral obligations, and whether humour is objective.
**Note:** Students with credit for PHIL 110 may not take this course for credit.

**PHIL 140.3 — 1/2(3L)**
**Critical Thinking**

An introduction to essential principles of reasoning and critical thinking, designed to introduce the students to the analysis of concepts, to enhance their ability to evaluate various forms of reasoning and to examine critically beliefs, conventions and theories, and to develop sound arguments. Topics include fundamentals of logic and analysis, definition, logical fallacies, and conceptual analysis.
**Note:** Students with credit for PHIL 240, 241, 243 or CMPT 260 may not take this course for credit. To receive credit for both PHIL 140 and CMPT 260, students must take PHIL 140 prior to CMPT 260. Students may not take PHIL 140 concurrently with PHIL 240 or PHIL 241 or PHIL 243 or CMPT 260.

**PHIL 202.3 — 1/2(3L)**
**Philosophy of Religion Introduction**

The concept of religion; different theories explaining the origin of religion; the philosophical conception of religion in contrast to mythology, ideology, magic, superstition and theology; God: mystery or problem; different ways to approach the mystery of God, the meaning of religious terms and language, varieties of atheism and unbelief; the problem of evil.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 204.3 — 1/2(3L)**
**Philosophy of Religion Christian Tradition**

An introduction to major constructive thinkers of the Christian tradition. Clarifies the differences between Christian philosophy, theology and philosophy of religion by explaining how distinctively philosophical questions arise out of the context of Christian belief and practice. Thinkers to be studied will range from the patristic period to the 20th century.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 208.3 — 1/2(3L)**
**Ancient Philosophy Presocratics to Plato**

A study of the origins of philosophical reasoning in ancient Greece to its most extensive development in the philosophy of Plato. Classical views of the ultimate nature of reality, the scope and limits of human knowledge, and the grounds for aesthetic and moral evaluations will be examined.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 209.3 — 1/2(3L)**
**Ancient Philosophy Aristotle to Plotinus**

The development of philosophy in ancient Greece and Rome from the time of Aristotle to the emergence of Christianity. In addition to a survey of several of the most important aspects of Aristotle's philosophy, this course will examine such schools of thought as Stoicism, Epicureanism, and Neoplatonism.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credits at the university.

**PHIL 210.3 — 1(3L)**
**Medieval Philosophy I**

The study of major thinkers of the early middle ages, including Augustine, Boethius, Eriugena, Anselm, and Abelard. Background will be provided to Neoplatonic themes that shape this period. Topics include free will, happiness, the existence of God, theories of truth, and the problem of universals.
**Prerequisite(s):** 6 credit units in philosophy.

**PHIL 211.3 — 2(3L)**
**Medieval Philosophy II**

The study of major Jewish, Muslim, and Christian thinkers of the high middle ages, including Moses Maimonides, Avicenna, Averroes, Bonaventure, Thomas Aquinas, Duns Scotus, and William of Ockham. Background to Aristotle and his tradition will be provided. Topics include the relation of faith and reason, existence and nature of God, human nature, voluntarism, and the critique of metaphysics.
**Prerequisite(s):** 6 credit units in philosophy.

**PHIL 212.3 — 1/2(3L)**
**Medieval Intellectuals**

An interdisciplinary examination of major intellectual figures in their historical and philosophical contexts from late antiquity to the end of the middle ages. Themes include the liberal arts tradition, the relation of faith and reason, the emergence of mediaeval science, the rise of Scholasticism, the mystical tradition, and the classical revival.
**Prerequisite(s):** 6 credit units of 100-level History or Philosophy.

**PHIL 213.3 — 1/2(3L)**
**17th Century Philosophy**

Early modern philosophy: Cartesianism, rationalism, empiricism, and the development of metaphysics and epistemology. Authors to be studied may include Hobbes, Descartes, Malebranche, Locke, Spinoza and Leibniz.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 120.

**PHIL 214.3 — 1/2(3L)**
**18th Century Philosophy**

The continued development of modern philosophy before Kant; idealism and skepticism, and the advancement of moral sentiment. Authors to be studied may include Berkeley, Hume, Reid, and Rousseau.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 120.

**PHIL 215.3 — 1/2(3L)**
**19th Century European Philosophy**

A survey of authors or themes central in the development of modern philosophy in Continental Europe and Britain in the 19th Century, including Hegel and Marx, and topics such as the theory of the state, the nature of human will, moral theory, and the origins of sociological thought.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 120.

**PHIL 218.3 — 1/2(3L)**
**Existentialism**

An introduction to 19th and 20th Century existentialist thought from Kierkegaard and Nietzsche to Sartre. Issues to be explored concern the human quest for meaning in existence and include the nature of the human self, truth, freedom, mortality, the significance of God, and the possibility of interpersonal relations.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 219.3 — 1/2(3L)**
**Phenomenology**

A survey of phenomenological thought, primarily of the early 20th C. This course will include authors such as Husserl, Heidegger, and Merleau-Ponty.
**Prerequisite(s):** 6 credit units in philosophy.

**PHIL 224.3 — 1/2(3L)**
**Philosophy of Sexuality**

A philosophical examination of the fundamental assumptions about the nature of sexuality. Philosophical theories about natural or proper male and female roles, mental and physical sexual distinctions and the sexual aspects of rationality and emotion will be examined along with their implications for such topics as work, marriage, love, friendship, communication, and politics.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 226.3 — 1/2(3L)**
**Environmental Philosophy**

A philosophical study of moral, social and political issues concerning the environment, whether natural or constructed. Topics may include: the nature of Nature, nonanthropocentric ethics, animal rights, political and cultural roots of environmental abuse, evolutionary perspectives, the Gaian hypothesis, ecotopias, environmental aesthetics, the place of environment in the Good Life.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 227.3 — 1/2(3L)**
**Introduction to Feminist Philosophy**

Examines ways feminist philosophers have critiqued traditional western philosophy. Looks at feminist criticism of major positions in recent philosophy as well as the rich variety of constructive responses to these critiques. Introduces students to a number of feminist positions.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 231.3 — 1/2(3L)**

**Ethical Problems**

Contemporary ethical problems such as the morality of human sexuality, abortion, euthanasia, manipulation of human beings, war and revolution, environmental ethics, prejudice and discrimination.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 233.3 — 1/2(3L)**
**Ethical Theory**

An introduction to the meta-ethical issues important to an understanding of historically important ethical theories, together with an examination of those theories. Philosophers studied may include Socrates, Aristotle, Aquinas, Hobbes, Kant, and Mill, among others.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 133.

**PHIL 234.3 — 1/2(3L)**
**Biomedical Ethics**

An examination of contemporary biomedical ethical issues such as the definition of a person, determination of life and death, euthanasia, abortion, prenatal diagnosis and intervention, problems in the physician-patient relationship, reproductive technologies, genetic engineering and accessibility to health care.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 235.3 — 1/2(3L)**
**Ethical Issues in Business and Professions**

Introduces ethical issues that are related to business enterprises and professional practices such as the questions of striking and advertising; preferential hiring; responsibility to society; the organization and the profession. It will also consider theoretical questions about free enterprise, socialist politics, and government controls and regulations.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 236.3 — 1/2(3L)**
**Ethics and Technology**

An overview of ethical issues related to the impact of modern technology on scientific research and the activities of corporations and professionals. Topics include: moral responsibility in the age of technology, genetic engineering of plants and animals, environmental ethics, privacy in the computer age, and ethical issues in international markets.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 237.3 — 1/2(3L)**
**Law and Morality**

An introduction to philosophical issues regarding law and its relation to morality. Issues to be explored concern the nature and validity of law and the law's proper limits in relation to topics such as freedom of expression, pornography, the definition of family and marriage, civil disobedience, abortion and capital punishment.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 238.3 — 1/2(2L-1T)**
**Ethical Issues in Scientific Research**

Introduction to ethical issues related to scientific research requiring institutional ethics review and approval. Theoretical approaches in ethics and their relationship to national and institutional guidelines governing research protocol compliance are considered. Topics include Aristotelian, Kantian and Utilitarian ethics, ethical standards in designing research protocols, and protection of research subjects.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the univeristy.

**PHIL 240.3 — 1(3L)**
**Aristotelian Logic**

The meaning of concept, term, judgement and proposition, categorical and hypothetical reasoning and induction; mathematical logic (Venn diagrams, truth trees, elementary deductions, syllogism). Frequent exercises will be assigned.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 241.3 — 1/2(3L)**
**Introduction to Symbolic Logic I**

An introduction to modern logic. Truth-functional statement logic and first order predicate logic. Formalization of natural language statements and arguments.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.
**Note:** Students with credit for PHIL 243 may not take this course for credit, nor may students take PHIL 241 and 243 concurrently. To receive credit for both PHIL 241 and 243 students must take PHIL 241 prior to PHIL 243.

**PHIL 243.3 — 1/2(3L)**
**Introduction to Symbolic Logic II**

A continuation of the propositional and monadic logic covered in PHIL 241. A brief review, followed by polyadic predicate logic with identity and various operators; definite descriptions, adverbial modifications, quantification over properties; introduction to modal logics and their philosophical significance.
**Prerequisite(s):** PHIL 241 or CMPT 260.
**Note:** Students with credit for PHIL 242 may not take this course for credit.

**PHIL 251.3 — 1/2(3L)**
**Philosophy of Science**

An introduction to the nature, extent and significance of scientific knowledge. Problems about the nature of scientific theories and models, scientific explanation and prediction, scientific growth, and issues about the relationship between science, religion and morality will be discussed.
**Prerequisite(s):** 6 credit units in philosophy or 12 credit units in a natural science.

**PHIL 262.3 — 1/2(3L)**
**Social and Political Philosophy**

An examination of philosophical theories of political organization. Such issues as justice and power, rights, freedom and the public good will be discussed.
**Prerequisite(s):** 6 credit units in philosophy, history or a social science.

**PHIL 265.3 — 1/2(3L)**
**Decision and Choice Theory**

An examination of rational choice in individual and collective decision-making. Topics include: decisions under certainty, risk and uncertainty, and probability, belief and value as utilized in choice principles. The course will explore maximization of expected utility, minimal loss/regret, optimism-pessimism, basic game theory and applications in moral, social and political decision-making.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 271.3 — 1/2(3L)**
**Aesthetics**

An introduction to philosophical problems related to the arts; such as the nature of art, meaning, expression, and the nature of critical and evaluative judgments.
**Prerequisite(s):** 6 credit units in philosophy, fine arts or literature.

**PHIL 281.3 — 1/2(3L)**
**Theory of Knowledge**

Examines the status and extent of our knowledge of the world, of ourselves, and other people. Problems about the nature of knowledge, the justification of claims of knowledge, the relationship of knowledge to belief and truth, perception, and the viability of scepticism will be discussed.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 120.

**PHIL 285.3 — 1/2(3L)**
**Persons Minds and Bodies**

An introduction to the Philosophy of Mind. Topics include: consciousness, thought, intentionality, emotions, action and the will, other minds (human and artificial), the concept of the self and theories about the nature of the mind.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 292.3 — 1/2(3L)**
**Introduction to Metaphysics**

Surveys the principal types of theories of reality that have been produced in western philosophy, e.g., materialism, idealism, dualism, monism, atomism, and investigates major problems and concepts in metaphysics, e.g., time, space, substance, essence, free will and determinism, causality, the nature of the self and the problem of universals.
**Prerequisite(s):** 6 credit units in philosophy or PHIL 120.

**PHIL 294.3 — 2(3L)**
**Philosophy of Human Nature**

A philosophical examination of whether there is a human nature, through both historical and contemporary discussions. Will include topics such as the importance of narrative, biology and evolution, selfishness, gender, race, freedom, and personhood.
**Prerequisite(s):** 6 credit units in philosophy or completion of 24 credit units at the university.

**PHIL 296.3 — 1/2(3L)**
**Nature of Material Reality**

A study of the philosophy of nature which examines ancient and modern views on the material constitution of bodies, organisms, and persons. Major topics include the nature of substance, the distinction between properties and substances,

artifacts and natural things, and the mind-body problems.
**Prerequisite(s):** 6 credit units in philosophy or 12 credit units in natural science.

**PHIL 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHIL 299.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHIL 302.3 — 1/2(3L)**
**Contemporary Philosophy of Religion**

A study of major topics in recent analytic and/or continental philosophy of religion. Topics include the rationality of religious belief, the nature of God, religious language, the problem of evil, critiques of religion, and the interface of major world religions.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 312.3 — 1/2(3S)**
**Great Philosophers I Historical Figures**

Detailed reading in the work of a major philosopher such as Aristotle, Hume or Russell.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 313.3 — 1/2(3S)**
**Great Philosophers II Contemporary Figures**

Consists of detailed reading in the work of some major philosopher.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 314.3 — 1/2(3S)**
**Kant**

A study of Kant's Critical Philosophy, with emphasis on the Critique of Pure Reason.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 315.3 — 1/2(3S)**
**Hegel**

A study of Hegel's approach and contributions to philosophy through a detailed reading of some of his major works.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 319.3 — 1/2(3S)**
**Topics in Recent Continental Philosophy**

Examines specific issues or authors in current continental philosophy. Areas of discussion might include critical theory, aesthetics, or hermeneutics, and authors such as Foucault, Habermas, Derrida, or Gadamer.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 320.3 — 1/2(3S)**
**Studies in Philosophy**

The topic, movement or philosophers studied will vary from year to year.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 333.3 — 1/2(3L)**
**Metaethics**

Concerned with topics such as the cognitive status of judgements about what is right and good, about the grounds of ethical judgement and the logic of ethical argument, and about the role of rules and principles in ethical dispute.
**Prerequisite(s):** 12 credit units in philosophy including one of 231, 233, 234 or 235.

**PHIL 337.3 — 1/2(3S)**
**Philosophy of Law**

A critical examination of attempts to provide theories of the nature of law. This course will examine the debate between legal positivists and natural law theorists, as well as the reaction to this debate (e.g. Dworkin, legal realists, critical legal theorists, and feminists).
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 343.3 — 1/2(3S)**
**Philosophical Logic**

An introduction to basic topics in philosophical logic such as propositions and the problem of abstract entities, necessity, analycity and the a priori, theories of truth, theories of meaning and reference, existential commitment and presupposition, essentialism, entailment.
**Prerequisite(s):** PHIL 241 or CMPT 260 and 9 credit units in philosophy.

**PHIL 347.3 — 1/2(3S)**
**Philosophy of Mathematics**

Introduces basic topics in the philosophy of mathematics, investigating the nature of mathematical truth, knowledge, and reality, and the application of mathematics to the world and its use in science and computation. Views about the foundations of mathematics including Platonism, logicism, intuitionism, and formalism are also examined.
**Prerequisite(s):** 12 credit units in philosophy, or 6 credit units in philosophy and 12 credit units in mathematics.

**PHIL 362.3 — 1/2(3S)**
**Topics in Political Philosophy**

The topic, political philosopher, movement or theories studied will vary from year to year.
**Prerequisite(s):** 12 credit units in philosophy or PHIL 262 or POLS 235.

**PHIL 396.6 — 1&2(3L)**
**Metaphysics**

Study of philosophical attempts to achieve knowledge of reality beyond the empirical; approached historically in terms of ancient, medieval, modern and contemporary theory; and problematically-in terms of present day concerns, such as space, time, motion, nature, existence, essence, God, soul, mind, idea, freedom, person, death, anxiety and art.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHIL 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHIL 404.3 — 1(3L)**
**Advanced Problems in Philosophy and Theology**

Philosophical aspects of contemporary psychological and theological problems treated at an advanced level. Selected readings in Freud, Jung, Ryle, Merleau-Ponty, Marcel, Ricoeur and others.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 412.3 — 1/2(3S)**
**Philosophy of Thomas Aquinas I**

The philosophy of Aquinas considered in the areas of philosophical theology, metaphysics, and philosophy of nature.
**Prerequisite(s):** 18 credit units in philosophy.

**PHIL 413.3 — 1/2(3S)**
**Philosophy of Thomas Aquinas II**

The philosophy of Aquinas considered in the areas of human nature, epistemology, and ethics.
**Prerequisite(s):** 18 credit units in philosophy.

**PHIL 418.3 — 1/2(3S)**
**Advanced Analytic Philosophy**

Studies developments in analytic philosophy examining representative works of the period including those of such philosophers as Russell and Moore, Carnap, Wittgenstein, Ryle, Austin, Ayer, Quine, Davidson, Nagel, Strawson, Dummet, Putnam, Kripke and Rorty.
**Prerequisite(s):** PHIL 241 or CMPT 260 and 9 credit units in philosophy.

**PHIL 420.3 — 1/2(3S)**
**Honours Seminar**

An advanced seminar in contemporary philosophy primarily for honours students. Focuses on a recent important book or a set of related journal articles on a central philosophical subject. Emphasis will be on student presentations and discussion.
**Prerequisite(s):** 15 credit units in philosophy.

**PHIL 433.3 — 1/2(3S)**
**Topics in Ethics**

An advanced course in value theory. The topic, ethical philosopher, movement or theories studied will vary from year to year.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 446.3 — 1/2(3S)**
**Philosophy of Language**

An introduction to philosophical problems about language and linguistic approaches to philosophy. How language represents reality; how language colours our thoughts about reality; language as a vehicle of communication. Traditional accounts of truth, meaning, reference, predication and expression will be discussed, as well as methodology in language study and linguistic philosophy.
**Prerequisite(s):** PHIL 241 or CMPT 260 and 9 credit units in philosophy.

**PHIL 451.3 — 1/2(3S)**
**Topics in History and Philosophy of Science**

Examines current epistemological, ontological, methodological, conceptual and/or historical topics in the philosophy of the natural or biological sciences. Will treat issues such as the nature and extent of scientific rationality and objectivity, feminist critiques, social constructivism and sociology of knowledge, empiricism, scientific realism, explanation, prediction, and historical studies of science.
**Prerequisite(s):** PHIL 251, or 12 credit units in philosophy, or 6 credit units in philosophy and 12 credit units in a science, social science or history.

**PHIL 455.3 — 1/2(3S)**
**Philosophy of Social Science**

Examines current conceptual, ontological, epistemological, and methodological issues in philosophy of social science; generalization and prediction in the social sciences, reasons vs. causes, interpretation and meaning of social phenomena, intentionality, explanation of action, reductionism, supervenience, individualism vs. holism, objectivity, realism, constructivism, relativism, facts vs. values, feminism, postmodernism, sociology of knowledge.
**Prerequisite(s):** PHIL 251 or 12 credit units in philosophy, or 6 credit units in philosophy and 12 credit units in a social science or history.

**PHIL 481.3 — 1/2(3S)**
**Topics in Epistemology**

Advanced topics in Epistemology; topics such as the nature of belief, perception, justification, truth and knowledge.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 485.3 — 1/2(3S)**
**Topics in Philosophy of Mind**

Advanced Topics in the Philosophy of Mind: topic will vary from year to year, and will include issues such as meaning and mental representation, intentionality, phenomenal consciousness and qualia, folk psychology and propositional attitudes, supervenience and reduction, mental imagery, other minds and personal identity.
**Prerequisite(s):** 12 credit units in philosophy or PHIL 285.

**PHIL 492.3 — 1/2(3S)**
**Topics in Metaphysics**

Advanced topics in Metaphysics; topics such as the nature of metaphysics, personal identity, universals, skepticism, substance, properties and relations, and necessity and possibility.
**Prerequisite(s):** 12 credit units philosophy.

**PHIL 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHIL 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# PHSI — PHYSIOLOGY

Department of Physiology, College of Medicine

**PHSI 202.9**
**Physiology**

An introduction to the basis mechanisms underlying the functions of the major organs and organ systems in mammals and the ways that these functions are controlled and coordinated in the normal, healthy state.
**Prerequisite(s):** Restricted to students enrolled in the College of Medicine or the College of Dentistry.

**PHSI 334.6 — 1&2(6-8P)**
**Experimental Basis of Physiology**

A laboratory course on the various approaches and techniques commonly used to investigate physiological phenomena and to study their underlying mechanisms.
**Prerequisite(s):** BIOC 200 and 211, HSC 208, PHYS 111.
**Note:** Enrolment is limited; students wishing to take this course are advised to contact the department early.

**PHSI 336.3 — 1(3L)**
**Excitable Cells**

The integrated study of bioelectrical mechanisms of cellular excitability and excitation coupled functions including contraction, secretion and signal transduction.
**Formerly:** PHSI 335.
**Prerequisite(s):** HSC 208 or ACB 200.
**Note:** Students with credit for PHSI 335 may not take this course for credit.

**PHSI 337.3 — 2(3L)**
**Cellular Basis of Physiological Function**

Cellular mechanisms underlying physiological functions in mammals. Topics include mechanisms of communication between cells, uptake and secretion of water, ions, nonelectrolytes and macromolecules, and integration of cell functional and metabolic activities.
**Formerly:** PHSI 335.
**Prerequisite(s):** BIOC 200, 211, HSC 208.
**Note:** Students with credit for PHSI 335 may not take this course for credit.

**PHSI 346.3 — 1(3L)**
**Cardiovascular Physiology**

Functions and controls of the heart and blood vessels in humans and other mammals, and the mechanisms regulating arterial pressure, blood volume and blood flow.
**Prerequisite(s):** HSC 208, PHYS 111.
**Note:** Offered next in 2007/2008, then in alternate years (2009/2010, etc.).

**PHSI 347.3 — 1(3L)**
**Respiratory Physiology**

Mechanisms of respiratory gas exchange at lungs and tissues, gas transport in the blood, and the regulation of the respiratory system at rest and during exercise.
**Prerequisite(s):** HSC 208, PHYS 111.
**Note:** Offered next in 2006/2007, then in alternate years (2008/2009, etc.).

**PHSI 348.3 — 2(3L)**
**Endocrinology**

Hormonal control mechanisms. Topics include neuroendocrinology and examples of hormonal control in reproduction, metabolism, growth, calcium homeostasis and gastrointestinal function.
**Prerequisite(s):** HSC 208, BIOC 200 and 211, completion of or enrollment in PHSI 336 and 337 (or 335).
**Note:** Offered next in 2007/2008, then in alternate years (2009/2010, etc.).

**PHSI 432.6 — 1&2(10P)**
**Physiological Research**

Advanced work in a selected area of physiology. This normally consists of a laboratory research project done under the direct supervision of a faculty advisor.
**Prerequisite(s):** PHSI 334, 336, 337 (or 335).
**Note:** Usually restricted to students in the Honours program in physiology but under special circumstances may be offered to fourth-year physiology majors.

**PHSI 434.3 — 1(2L,1S)**
**Environmental Physiology**

An organism's phenotype is defined by both genetic and environmental influences. The organism presents an open system which presents special problems for the preservation of an interior environment within narrow limits in the face of variations in external conditions. This course examines how humans and other mammals, sense, interact and adapt to changing environments.
**Prerequisite(s):** PHSI 336, 337, 334 and 6 credit units from PHSI 346, 347, 348 and HSC 350.
**Note:** Students with credit for PHSI 433 may not take this course for credit.

**PHSI 436.3 — 2(3L)**
**Physiological Genomics**

The main objective is to enhance understanding of the link between genetics and physiology. The course will review a wide variety of studies from human and model systems linking genotype and phenotype. An interdisciplinary approach will investigate genome function and gene - environment interactions.
**Prerequisite(s):** PHSI 434. BIOL 211 and BIOC 230 recommended.

**PHSI 490.0**
**Seminar in Physiology**

Students in the fourth year of the Four-year or Honours program in physiology are required to attend departmental seminars and to participate in the presentation and discussion of papers in the departmental journal club.
**Prerequisite(s):** PHSI 334 , 336, 337 (or 335) and registration in the fourth year of a major or Honours program in physiology.

# PHYS — PHYSICS

Department of Physics & Engineering Physics, College of Arts and Science

**PHYS 111.6 — 1&2(3L-2.5P-1T)**
**General Physics**

Emphasizes the basic principles of Physics and their applications to the various

scientific fields. Also gives the students an insight into the benefits and problems of technology. Topics are mechanics, wave motion and sound, heat, electricity and magnetism, light and modern physics.
**Prerequisite(s):** Mathematics B30 and C30 (Algebra 30 and Geometry-Trigonometry 30), Physics 30.
**Note:** Students with credit for PHYS 121 may not take this course for credit.

**PHYS 121.6 — 1&2(3L-3P)**
**General Physics**

A calculus based one year survey course in physics. Topics include: mechanics, waves and optics, electricity and magnetism, quantum physics and special relativity.
**Prerequisite(s):** MATH 110, and 116 or 112 (may be taken concurrently); Physics 30.
**Note:** Meets requirements for a chemistry program; an honours program in physics, chemistry, geophysics or mathematics; majors in physics or chemistry; or further physics courses. Students with credit for PHYS 111 may not take this course for credit.

**PHYS 128.3 — 2(3L-1.5P)**
**Contemporary Physics**

Introduces students to recent discoveries in physics. As well as the traditional topics of Modern Physics, Relativity and Quantum Theory, students will learn about recent developments in Nuclear, Atomic, Molecular and Particle Physics as well as Solid State Physics and Optics.
**Prerequisite(s):** Physics 30, MATH 110.
**Note:** Students may receive credit for PHYS 128 and for PHYS 111 or 121. Physics majors may receive physics credit for PHYS 128. PHYS 128 may be used toward the natural science requirement in the B.Sc. and B.A. degree programs. Only 6 credit units in a subject may be used for distribution in Requirement 1 in Program Type C.

**PHYS 155.3 — 2(3L-1.5P)**
**Introduction to Electricity and Magnetism**

Begins with an introduction to electricity: elementary electric charge, Coulomb's law, concepts of electric field and electrostatic potential, work, energy and capacitance, and dielectrics. The second part of the class is devoted to circuit analysis: voltage, current, resistance, power, Ohm's law, DC series/parallel circuits, Kirchhoff's laws, circuits with capacitors and R-C transients. The third part of the class focuses on concepts of electromagnetism: magnetic field and magnetic flux, forces acting on a charge and current carrying conductor, and analysis of series magnetic circuits.
**Formerly:** EP 155.
**Prerequisite(s):** GE 124 and MATH 110 (taken).
**Note:** Students with credit for EP 155 may not take PHYS 155 for credit.

**PHYS 223.3 — 2(3L)**
**Mechanics I**

The motion of a particle in one, two and three dimensions; the motion of a system of particles; dynamics of the motion of rigid bodies; statics, gravitation.
**Prerequisite(s):** PHYS 111 or 121; MATH 223 or 225 or 276; MATH 224 or 226 or 238 (may be taken concurrently).

**PHYS 229.3 — 2(3L-3P)**
**Introductory Electromagnetism and AC Circuits**

The first half is introductory electromagnetism: electric field and voltage, Gauss' Law, capacitance, magnetic fields, forces and torques, Ampere's law, Faraday's laws, generators, motors, inductance.The second half is AC circuit analysis: RMS voltage and current, impedance, admittance, series and parallel networks, network theorems, AC power, series and parallel resonances.
**Prerequisite(s):** PHYS 111 or 121, or GE 125 and PHYS 155 (or EP 155); MATH 223 or 225 or 276; MATH 224 or 226 or 238 (may be taken concurrently).

**PHYS 251.3 — 1(3L-3P)**
**Relativistic Mechanics and Quantum Physics**

Introduction to frames of reference and the variation of mass, length and time with relative velocity; the atomic theory of matter and a historical introduction to quantum mechanics leading to Schrodinger's Equation. Many of the laboratory experiments illustrate the early development of quantum mechanics.
**Prerequisite(s):** PHYS 111 or 121, or GE 125 and PHYS 155 (or EP 155).

**PHYS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**PHYS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**PHYS 322.3 — 2(3L)**
**Introduction to Atmospheric Science and Meteorology**

An introduction to the processes underlying observed weather phenomena. Topics include thermodynamic processes; stability and convection; radiation and heat budget. The dynamics of the atmosphere and its circulation are described, and related to synoptic meteorology. Weather forecasting is discussed. There are projects on weather observation and forecasting.
**Prerequisite(s):** MATH 223 or 225 or 276; PHYS 111 or 121, or GE 125 and PHYS 155 (or EP 155).

**PHYS 323.3 — 2(3L)**
**Mechanics II**

Newton's laws for the general motion of particles in non-inertial reference systems. Other topics include Hamiltonian systems, Langrange's equations, rotation of rigid bodies and the theory of small vibrations.
**Prerequisite(s):** PHYS 223 or GE 226.

**PHYS 356.3 — 2(3L)**
**Intermediate Electromagnetism**

Vector analysis, electrostatics, electric fields in matter, magnetostatics and magnetic fields in matter. Electrodynamics: Faraday's law of induction. Displacement current and the Ampere-Maxwell equation. Maxwell's equations in differential and integral form. Special theory of relativity: magnetism as a relativistic phenomenon.
**Formerly:** EP 356.
**Prerequisite(s):** PHYS 227 or 229.
**Corequisite(s):** MATH 338.
**Note:** Students with credit for EP 356 may not take PHYS 356 for credit.

**PHYS 371.3 — 1/2(3L)**
**Statistical and Thermal Physics**

Following a brief introduction to basic probability concepts the course applies statistical ideas to systems of particles in equilibrium so as to develop the basic notions of statistical mechanics. Macroscopic and microscopic aspects are discussed and illustrated in detail. Topics covered include partition functions, specific heats of molecules, effusion, quantum statistics of ideal gases, systems of interacting particles and chemical equilibrium.
**Prerequisite(s):** PHYS 381 (may be taken concurrently); EP 271.

**PHYS 381.3 — 1(3L-3P)**
**Quantum Mechanics I**

The Schrodinger equation is studied and applied to a number of phenomena including one-dimensional bound states, barrier penetration, scattering, angular momentum and spin, the one-electron atom and atomic structure.
**Prerequisite(s):** PHYS 227or 229, 251; MATH 338 (may be taken concurrently).

**PHYS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHYS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHYS 402.3 — 1(3L)**
**Techniques of Theoretical Physics I**

Designed to develop those mathematical skills which are required for solving physical problems. Emphasis is placed on the various initial value and boundary value problems occurring in physics and engineering. This course requires that students do a large number of homework problems.
**Prerequisite(s):** PHYS 381; EP 356 or PHYS 356; MATH 338 and 379.

**PHYS 403.3 — 2(3L)**
**Techniques of Theoretical Physics II**

Some special techniques of mathematical physics are dealt with in detail. The subjects covered include integral equations, calculus of variation, and the application of group theory to physical problems.
**Prerequisite(s):** PHYS 402.

**PHYS 404.3 — 2(1L-5P)**
**Techniques of Experimental Physics**

Intended to make the student familiar with a variety of modern techniques in Experimental Physics including physical properties of materials and their use in the laboratory, radiation sources and radiation detection, vacuum techniques and cryogenics.
**Prerequisite(s):** STAT 241 or 245 or GE 210.

**PHYS 452.3 — 2(3L)**
**Subatomic Physics**

This course will introduce students to various topics in nuclear and particle physics. A selection could include: NN forces; deuteron properties; shell model of nuclei; deformed nuclei; collective motion

in nuclei; mesons, baryons and leptons; quantum numbers; strong, weak and electromagnetic interactions; SU(3) classification; QCD; and valence quark models of hadrons.
**Prerequisite(s):** PHYS 381.

**PHYS 470.3 — 2(3L)**
**Solid State Physics**

Covers perturbation theory, crystal structure and binding of solids, lattice vibrations, electrons in crystaline lattices, magnetic and transport properties of solids, and superconductivity.
**Prerequisite(s):** PHYS 371, PHYS 381.

**PHYS 471.3 — 1/2(3L)**
**Synchrotron Physics**

Provides an introduction to the physics of synchrotrons and their applications. The first part introduces accelerator physics, synchrotron radiation and its sources, and beamline optics. The second part discusses X-ray spectroscopy with synchrotrons as well as elastic and inelastic scattering.
**Prerequisite(s):** PHYS 356, 381.

**PHYS 481.3 — 1(3L)**
**Quantum Mechanics II**

Linear vector spaces and quantum mechanics; hermitian and unitary linear operators; Schrodinger equation in various representations; the operator method as applied to the harmonic oscillator and to angular momentum eigenvalues; the spin statistics theorem; minimal coupling of hamiltonian and electromagnetic fields; time independent perturbation theory and applications.
**Prerequisite(s):** PHYS 381; MATH 264 or 266, 338.

**PHYS 482.3 — 2(3L)**
**Quantum Mechanics III**

Continues PHYS 481 and begins with an extensive discussion of time dependence in quantum mechanics. Exactly solvable problems such as spin-magnetic resonance are used to illustrate the time-dependent perturbation series. Applications include emission and absorption of radiation, multipole selection rules, and electron scattering from atoms and nuclei; Further topics discussed in detail are symmetry in quantum mechanics, rotation matrices and applications, many particle systems, collision theory, and variational methods including Hartree-Fock theory.
**Prerequisite(s):** PHYS 481.

**PHYS 490.0 — 1&2(1S)**
**Physics Seminars**

Students are required to attend both Departmental seminars and special student seminars. In each case the seminar material is intended to introduce students to some of the new developments in Physics and Engineering Physics.
**Prerequisite(s):** Minimum 9 credit units of 300-level PHYS or EP courses.
**Note:** Required for Engineering Physics, Physics Honours and Physics Four-year programs.

**PHYS 491.3 — 1/2(6P)**
**Physics Research Project**

The student will work on an advanced research project in Physics under the supervision of a faculty member in the department specializing in the selected area. The project will be evaluated by a committee (including the supervisor) on the basis of oral and written reports.
**Prerequisite(s):** Permission of the department and registration in the final-year Physics Honours program.

**PHYS 492.3 — 1/2(8P)**
**Career Experience Project in Physics**

Students gain work experience through a physics-related project. The project will be supervised by the host organization (such as an industry, business or government agency), but a Physics & Engineering Physics faculty member will be assigned to provide additional support and to supervise any academic portions of the project. The project will be evaluated by a departmental committee on the basis of oral and written reports.
**Prerequisite(s):** Permission of the department and registration in the final-year Honours or Four-year program in Physics.

**PHYS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PHYS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# PLSC — PLANT SCIENCE

Department of Plant Sciences, College of Agriculture

**PLSC 41.6 — 1(3L-2P)**
**Introductory Plant Science**

An introduction to the basic principles of plant anatomy, morphology, physiology, growth and development in relation to crop production. The course also addresses the responses of plants to their environment, including interactions with, and the effects of, factors such as competition (crop plants and weeds), temperature, moisture, nutrients, diseases and insects. Crop production management practices and their impact on crop productivity are also considered.
**Prerequisite(s):** Restricted to students enrolled in the Diploma in Agriculture program.

**PLSC 50.6 — 2(3L-2P)**
**Integrated Weed Management**

Considers the nature of annual, winter annual and perennial weed infestations in various types of crops. It describes weed growth and development, factors affecting the spread of weeds, and the nature and extent of losses due to weeds. Both chemical and non-chemical weed control methods are outlined and the factors that determine their effectiveness are discussed. Emphasis is placed on the development of weed control programs that are agrnomically, environmentally and economically sound. Herbicide mode of action and the development of herbicide resistance in weed species are considered.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 56.3 — 2(3L)**
**Environmental Studies**

This is an introductory course on the basic principles of ecology. It relates us to the world environment, emphasizing our dependence on the interrelationships between solar energy, air, water, soil and living organisms. Topics discussed include the functioning of ecological systems such as fields, lakes and forests, the meaning of air and water pollution and ecotoxicity, and the impact of agriculture and population increases on the environment.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 58.3 — 2(3L-2P)**
**Forage Crops**

Introduces students to the production, handling and marketing of forage crops. A number of native and introduced plants used for pasture, hay and silage are discussed. Topics addressed include sustainable production and goals, selection and production of cultivated plants, the care of native species, and forage economics.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 59.6 — 2(3L-2P)**
**Cereal Crops**

Focuses on the various market classes of cereal crops produced in Western Canada including wheat, rye, triticale, corn, rice, wild rice and canary seed. It considers the importance of cereals domestically and internationally. Consideration is given to important grain quality characteristics and how these factors fit with market demands and utilization of the various types of of cereals, including rice, corn, sorghum and millet. Agronomic characteristics, pest control and production practices which will maximize quality and productivity are discussed.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 63.3 — 1(3L-2P)**
**Pedigreed Seed Production**

Outlines the basic principles and practices involved in the Canadian pedigreed seed system. Practical aspects of seed production are considered, with emphasis on the scientific principles behind the regulations. Various groups and agencies and their roles in seed production are described. The development, evaluation, registration and release of new cultivars are also considered, including hybrids and synthetics. Plant breeder's rights and patents are also discussed.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 66.6 — 1(3L-2P)**
**Horticulture Crops**

Introduces students to the production, marketing and utilization of horticulture crops adapted to the Canadian prairies including fruit, vegetables, greenhouse crops, wildcrafting, herbs and medicinals. Farm operations varying from hobby gardens through to commercial scale will be used to illustrate course concepts.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 73.3 — 2(3L-2P)**
**Rural Landscaping**

Introduces students to plant materials, the theory and utility of plant use, and the economics and esthetic benefits of landscaping. Students will gain the ability to identify landscape plants and incorporate them effectively into a landscape. Plants considered will be prairie-hardy evergreen and deciduous trees, shrubs, and annual and perennial flowers.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 74.6 — 2(3L-2P)**
**Oilseed and Pulse Crops**

The chemical, physical, and nutritional characteristics of fats and oils are discussed, with emphasis on similarities and differences among the oils produced by the various oilseed crops. Oilseed crops important to western Canada are discussed with respect to agrnomic and quality characteristics, growth and development, and production practices to maximize grain quality and crop yield. The nutritional and agrnomic characteristics of grain legume crops are discussed with major emphasis on those adapted to Western Canada. Growth and development characteristics of species and cultivars are considered in relation management practices presently used in western Canadian agriculture. Control of weeds, insect pests and diseases is also considered.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**PLSC 88**
**Special Topics**

These courses are offered occasionally in special situations to students enrolled in the Diploma in Agriculture program in the College of Agriculture. Interested students should contact the Department of Plant Sciences for more information.

**PLSC 89**
**Special Topics**

These courses are offered occasionally in special situations to students enrolled in the Diploma in Agriculture program in the College of Agriculture. Interested students should contact the Department of Plant Sciences for more information.

**PLSC 213.3 — 1(3L-3P)**
**Principles of Plant Ecology**

Designed for students in the College of Agriculture. It considers the nature of ecosystems and of processes associated with energy flow and material cycling within them. Particular attention is given to ecosystems of Western Canada and the effect that man exerts on them, especially through agricultural practices.
**Note:** Students with credit for BIOL 253 may not take this course for credit.

**PLSC 220.3 — 1(3L-2P)**
**Fundamentals of Horticulture**

An introduction to the economic, nutritional and aesthetic value of horticulture emphasizing its importance and impact. Consideration is given to vegetable, fruit, turf grasses, nursery, and greenhouse production as well as landscaping, herbs, and medicinal plants. Emphasis is placed on Saskatchewan production in relation to regional, national and international markets. Laboratories consist of four Saturday field trips and hands-on exercises at the beginning of the term.
**Prerequisite(s):** BIOL 110.

**PLSC 222.3 — 2(3L-3P)**
**Introduction to Field Crops**

Introduction to field crops from the perspectives of resource availability, management of the crop life cycle and field environment. Prairie crops are used to establish main principles, supplemented with examples from other areas of the world. Laboratories combine trips to local grower and industry sites with exercises on crop morphology and quality.
**Prerequisite(s):** AGRC 111 or permission of the instructor.

**PLSC 234.3**
**Weed Control in Organic Agriculture**

The principals and practices of weed control in organic agriculture will be covered. Students will learn the application of cultural, mechanical and biological techniques to control weeds within an integrated organic weed control system. Basic weed ecology and weed identification skills will also be learned.
**Prerequisite(s):** Introductory course in BIOL or permission of the instructor.
**Note:** This course is only offered online.

**PLSC 240.3 — 1(3L)**
**Plant Metabolism**

An introductory plant biochemistry course focusing on photosynthetic and mitochondrial metabolism, with emphasis given to interaction between these processes. The integration of amino acid and lipid biosynthesis, as well as nitrogen and sulfur metabolism, is also examined.
**Prerequisite(s):** BIOL 110 and one of CHEM 250 or BIOC 220.
**Formerly:** BIOC 220.

**PLSC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PLSC 311.3 — 2(3L)**
**General Apiculture**

Introduction to the science and practice of beekeeping. Subjects include the morphology and physiology of the honey bee, beekeeping equipment, manipulation of bees, swarm control, increase, honey production, bee diseases and wintering.

**PLSC 314.3 — 1/2(3L-2P)**
**Statistical Methods**

An introduction to statistical methods and their application to experiments. Includes probability, means and variances, t tests, analysis of variance, experimental designs, simple regression and correlation, and chi-square tests. Designed for students in the biological sciences.
**Note:** Students wishing to use this course for Arts & Science credit should refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

**PLSC 330.3 — 1(3L-2P)**
**Ornamental Plants**

Studies the identification of ornamental trees, shrubs, perennials, biennials, and annuals commonly grown in Saskatchewan. Consideration is also given to culture, propagation and use.

**PLSC 335.3 — 1(3L)**
**Integrated Pest Management**

The principles of Integrated Pest Management and their application to pest control in agricultural crops will be examined. Integration of strategies for assessment of pest occurrence and crop loss, and for pest control to maintain pest damage below economic threshold levels will be discussed.
**Prerequisite(s):** BIOL 202, 211 or permission of the instructor.

**PLSC 340.3 — 1(3L-2P)**
**Weed Biology and Ecology**

Growth, reproduction and spread of weeds, influence of agronomic and edaphic factors on weed community structure, weed-crop competition, and biological and mechanical control of weeds. Concludes with a discussion of the use of combined control methods (biological, mechanical and chemical) in integrated weed management.
**Prerequisite(s):** AGRC 111, AGRC 112, or at least one 200-level botany course (e.g., BIOL 202 or 205).

**PLSC 345.3 — 2(3L-2P)**
**Pesticides and Crop Protection**

The use of herbicides for weed control, factors affecting herbicide activity and fate of herbicides in the environment are discussed. Includes the biological activity of soil and foliar applied herbicides, herbicide modes of action and resistance, and dissipation of herbicides in soil. Herbicide registration, environmental legislation and residue tolerance levels in various products are also discussed.
**Prerequisite(s):** BIOL 110, PLSC 335, CHEM 250 or permission of the instructor.

**PLSC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PLSC 401.3 — 1(3L-3P)**
**Sustainable Crop Production**

Components of sustainable crop production systems will be examined from an ecological perspective. Students will evaluate the sustainability of cropping systems and develop crop production systems with greater ecological and economic sustainability. Laboratories will teach techniques used in crop scouting and diagnostics. This course will be offered for the first time in 2006/2007.
**Prerequisite(s):** AGEC 320 or permission of the instructor.

**PLSC 405.3 — 2(3L-2P)**
**Genetics of Plant Populations**

Application of the principles of Mendelian, population and quantitative genetics to plant evolution and improvement, and conservation of genetic resources. The role of genetic mechanisms in the micro-evolutionary process and their relevance to natural and directed plant evolution and conservation of plant genetic resources is examined.
**Prerequisite(s):** BIOL 211.

**PLSC 411.3 — 2(3L-3P)**
**Plant Breeding**

Familiarizes students with the fundamental aspects of plant breeding, including applied plant genetics, breeding objectives and methods, selection theory and practice, and modern genetic techniques. Labs involve hands-on plant breeding activities.
**Prerequisite(s):** PLSC 405 or permission of the instructor.

**PLSC 416.3 — 2(3L-2P)**
**Applied Plant Biotechnology**

Introduces techniques of biotechnology which have the potential to be utilized in plant improvement. Includes wide hybridization, cytoplasmic male sterility, tissue and cell culture, protoplast fusion and gene transfer at the DNA level.
**Prerequisite(s):** BIOC 220, BIOL 202 and 211.

**PLSC 417.3 — 1(3L-3P)**
**Crop Physiology**

An outline of interrelationships between physiological activity and crop growth with emphasis on energy conversion and analysis of autotrophic growth in an agrnomic environment. Germination, growth integration, flowering and senescence are also to be considered. Physiological responses to environmental stresses such as water, temperature, salinity, nutrients and disease are related to crop productivity.
**Prerequisite(s):** BIOL 331.

**PLSC 418.3 — 2(3L)**
**Management of Arable Grassland**

Physiology and growth analysis of the more important pasture species. Effect of climate, soil type and fertilizers on yield. Influence of grazing on composition and yield. Establishment and maintenance of temporary, short rotation and permanent pasture. Irrigation in pasture management. Weed control. Plot techniques used in pasture analysis.

**PLSC 420.3 — 1(3L)**
**Grain Chemistry and Technology**

Chemical composition, processing and utilization of the principal starch, sugar, oil, protein and fiber crops of the world. The effects of variations in seed characteristics and composition on the quality of the final food, feed and industrial products is emphasized.

**PLSC 422.3 — 1(3L-2P)**
**Rangeland Ecology and Management**

Principles of managing rangeland to ensure sustained productivity and multiple-uses. Inventory, evaluation and planning for multiple-use management. Plant morphology and physiology, palatability, energy flow, nutrient cycling and the hydrologic cycle are integrated and discussed in relation to impacts of grazing on the soil-plant-animal system and development of grazing systems.
**Formerly:** PLSC 322.
**Prerequisite(s):** BIOL 253 or PLSC 213.

**PLSC 423.3 — 2(3L-2P)**
**Landscape Ecology and Vegetation Management**

Current theories relating to structure, functioning, and composition of landscapes and human impacts on natural ecosystems, landscape-level processes and patterns, and succession. Developing management plans for natural and remnant landscape elements, and inducing successional changes, and monitoring impacts will be covered. Field trips will be required.
**Prerequisite(s):** BIOL 253 or GEOG 270 or PLSC 213 or permission of the instructor.

**PLSC 425.3 — 2(3L-3P)**
**Forest Ecology**

Study of tree physiology, the forest environment, dynamics of the composition, structure and functioning of forest ecosystems at multiple spatial and temporal scales. Emphasis is placed on forest ecosystems of Canada.
**Prerequisite(s):** PLSC 213, BIOL 253 or GEOG 270.

**PLSC 433.3 — 2(3L-2P)**
**Greenhouse Structures and Crops**

Review of greenhouse construction and plant operation. The commercial production, timing, harvesting, diseases and pests of vegetable and floriculture crops are discussed.
**Prerequisite(s):** PLSC 220.

**PLSC 435.3 — 2(2L-2P)**
**Landscape Design**

An introduction to the principles and practices of landscape design. A variety of landscape settings are considered with emphasis on residential properties.
**Prerequisite(s):** PLSC 220 and 430, or permission of the instructor.

**PLSC 441.3 — 2(3L-2P)**
**Fruit Science**

Fundamentals of commercial fruit production including environmental adaptation, breeding, site development, marketing, cultural management, tree fruits, small fruits, tropical fruits, harvesting, diseases and pests.
**Prerequisite(s):** PLSC 220.

**PLSC 451.3 — 1(3L-2P)**
**Vegetable Science**

Principles of production and management of vegetable crops are reviewed with illustrations from contemporary research literature. The content is focused on crops, production situations and limitations encountered in Saskatchewan. Local field trips are planned.
**Prerequisite(s):** PLSC 220.

**PLSC 452.3 — 2(3L)**
**Current Issues in Crop Science**

Designed to ensure that graduates in crop science are familiar with the current issues and problems in the field of their specialization and are aware and knowledgeable of recent technological advances. Topics will vary from year to year but in all cases will relate to practical aspects of crop productivity.
**Prerequisite(s):** PLSC 301, 331, 340, 411, 418.

**PLSC 461.3 — 2(3L)**
**Post Harvest Management of Horticultural Crops**

Principles of storage and handling of horticultural crops are reviewed with illustrations from contemporary research literature. Physiological processes underlying management practices are examined. The focus is on commodities and practices of local importance.
**Prerequisite(s):** PLSC 220 or permission of the department.

**PLSC 470.3 — 1(3L-2P)**
**Plant Propagation and Nursery Management**

The principles and the commercial practices of multiplication of plants by seeds and asexual methods, cultural practices, storage and sale station operation. Local field trips are planned.
**Prerequisite(s):** PLSC 220.

**PLSC 492.3 — 1&2**
**Literature Thesis in Plant Sciences**

Students will investigate a problem or issue in Plant Sciences and present their findings as a written thesis and as a seminar. Technical writing and thesis preparation skills will be addressed in a series of lectures at the beginning of term 1.
**Prerequisite(s):** Completion of 81 credit units toward the B.S.A. Plant Sciences major.

**PLSC 494.6 — 1&2**
**Research Thesis in Plant Sciences**

Provides students with an opportunity to conduct original research in plant sciences in association with a research supervisor. Students will be given guidance on hypothesis development, experimental design, research, analysis and presentation. Students will present their results in a written thesis and in a conference format.
**Prerequisite(s):** Completion of 81 credit units toward the B.S.A. Plant Sciences major and a cumulative average of at least 70%.

**PLSC 498**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# POLS — POLITICAL STUDIES

Department of Political Studies, College of Arts and Science

**POLS 111.3 — 1/2(3L)**
**Democracy in North America**

An introduction to the study of politics through an examination of contemporary issues and ideas that arise in and between the democratic systems of Canada, the United States and Mexico, including democracy, sovereignty, aboriginal issues, NAFTA, globalization, identity, rights, representation and political participation.

**POLS 112.3 — 1/2(3L)**
**Political Ideas and Change in Global Era**

An introduction to political ideas and change in a global era. The course explores themes such as nationalism, ideology, development, democratization, globalization, sovereignty, conflict and human rights.

**POLS 204.3 — 1/2(3L)**
**Governance of Canada**

Introduces students to the main structures and processes of Canada's national government, including the Constitution and federalism, the Crown, the Prime Minister, the Cabinet, Parliament and the courts.
**Formerly:** POLS 203
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 203 may not take this course for credit.

**POLS 205.3 — 1/2(3L)**
**Politics in Canada**

Introduces students to the societal context of, and individual and group participation in, Canadian political life. Covers the Canadian political culture, the politics of regionalism, language, ethnicity and federalism, and the main processes of political participation, including political parties, elections, pressure groups, and the mass media.
**Formerly:** POLS 203
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 203 may not take this course for credit.

**POLS 222.3 — 1/2(3L)**
**Aboriginal Governance and Politics**

An analysis of existing and emerging systems of Aboriginal governance and politics at the local, regional, provincial and national levels in Canada.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 225.3 — 1/2(3L)**
**Canadian Public Administration**

An introduction to the basic structures, processes, and principles of public administration at the national and sub-national level within the Canadian political system. Special attention is devoted to the various policy-making, regulatory, management, and administrative components of the various public administrative systems. Students will learn why the various components of the administrative system exist, how they operate, and what implications they have both for governmental and non-governmental agencies and actors within the political system.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLST 220 may not take this course for credit.

**POLS 226.3 — 1/2(3L)**
**Canadian Public Policy**

An introduction to the basic conceptual frameworks for describing and analyzing the nature, determinants, and effects of public policy within the Canadian political system at the national and sub-national levels. Special attention is devoted to the fundamental nature of policies such as health, education, welfare, family, immigration, intercultural relations, language, environmental, and Aboriginal, as well as other policies of interest and importance at the time the course is offered.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLST 220 may not take this course for credit.

**POLS 236.3 — 2(3L)**
**Classical Medieval and Renaissance Political Thought**

Examines the political theories of such classical, medieval and renaissance philosophers as Socrates, Plato, Aristotle, Cicero, Augustine, Aquinas and Machiavelli.
**Formerly:** POLS 235.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 235 may not take this course for credit.

**POLS 237.3 — 2(3L)**
**Modern Political Theory**

Examines the works of such modern political theorists as Hobbes, Locke, Jefferson, Smith, Bentham, Kant, Marx and Mill.
**Formerly:** POLS 235.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 235 may not take this course for credit.

**POLS 240.6 — 1&2(3L)**
**West European Politics**

An examination of major political systems and policy processes in Western Europe, including the European Union.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 242.6 — 1&2(3L)**
**Government and Politics of United States**

An examination of American political institutions and processes, and of important elements of American political thought and culture.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 246.6 — 1&2(3L)**
**Politics of Third World**

An examination of the political processes and structures within developing countries with primary emphasis on states in sub-Saharan Africa and the South Pacific. Topics covered include the colonial period, the rise of nationalist parties, ideology and political leadership, the roles of traditional and modern groups, and problems of development and underdevelopment.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 247.6 — 1&2(3L)**
**Comparative Politics of Latin America**

An examination of problems of development and change in Latin America with emphasis on comparative analysis of the politics and political systems of different states in the region.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 250.3 — 1/2(3L)**
**The Political Sociology of the State and Society**

Offers a study of the state and its larger societal environment to determine how they mutually shape one another. Also to be studied are Habermas's attempt to reconcile systems and action theory and the issue of whether globalization has rendered states powerless.
**Formerly:** POLS 252.
**Prerequisite(s):** 6 credit units 100-level POLS or SOC 110.
**Note:** Students with credit for POLS 252 may not take this course for credit.

**POLS 251.3 — 1/2(3L)**
**The Political Sociology of Political Change**

Examines the forces that contribute to political stability and change. It will examine the role of civil society and the mass media in fostering stability or change, and social movements and revolutions as means of change.
**Prerequisite(s):** 6 credit units 100-level POLS or SOC 110.
**Note:** Students with credit for POLS 252 may not take this course for credit.

**POLS 256.3 — 1/2(3L)**
**Methods of Political Research**

An introduction to selected methods of conducting political science research. Course investigates logical and systematic strategies for analyzing political phenomena.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 255 may not take this course for credit.

**POLS 260.6 — 1&2(3L)**
**International Relations**

An examination of the major features of international relations, including the nature and evolution of international actors, the issues and ideas which motivate them, and their policies and actions in world politics.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**POLS 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**POLS 305.3 — 1/2(3L)**
**Provincial Politics**

An examination of the institutions and processes of Canadian provincial political systems with particular emphasis on Saskatchewan.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 306.3 — 1/2(3L)**
**Local Government**

An examination of various aspects of local government in Canada, including the evolution of the structures, functions, finances and powers of local government, and the purposes and politics of various contemporary reform issues.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 307.3 — 1/2(3L)**
**Topics in Canadian Politics**

An examination of major issues of contemporary concern in Canadian politics, such as constitutional and environmental issues and issues affecting women. The content of the course varies from year to year, but is announced in advance of registration deadlines.
**Prerequisite(s):** 6 credit units of 100-level POLS or 30 credit units at university level.

**POLS 322.3 — 1/2(3L)**
**Aboriginal Management and Administrative Systems**

An examination of current and emerging systems of management and administration at the local, regional, provincial and national levels within the Aboriginal sector in Canada.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 323.3 — 1/2(3L)**
**Aboriginal Policies and Programs**

An examination of government policies and programs within the Aboriginal sector in Canada, including those established by the federal and provincial governments as well as those developed by Aboriginal communities themselves.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 326.3 — 1/2(3L)**
**Introduction to Comparative Public Policy**

Introduction to the approaches and methods for comparing the public policies of various countries. Introduction to the nature and determinents of the

similarities/differences in the substance of their respective policies, and the structures and processes used to produce them.
**Prerequisite(s):** 6 credit units 100-level POLS and 30 credit units at the university level.

**POLS 328.3 — 1/2(3L)**
**Public Policy Analysis**

An introduction to the purposes, approaches, methods, ethics and politics of public policy analysis. It is designed to provide an understanding of how to produce and analyze documents needed for policy-making and decision making purposes in various organizational settings both in the governmental sector and in the non-governmental sector.
**Prerequisite(s):** 6 credit units 100-level POLS and 30 credit units at university level.
**Note:** Students with credit for POLS 327 may not take this course for credit.

**POLS 336.3 — 1/2(3L)**
**Contemporary Political Thought**

An examination of important theoretical trends in contemporary political thought, including existentialism, communitarianism, neoliberalism, neoconservatism and feminism.
**Prerequisite(s):** POLS 236 and 237 or (POLS 235); or PHIL 262.

**POLS 337.3 — 1/2(3L)**
**Topics in Political Thought**

An examination of thinkers, issues, or approaches in political philosophy that are not covered in other political philosophy courses offered by the department.
**Prerequisite(s):** POLS 236 and 237 (or POLS 235); or PHIL 262.

**POLS 342.3 — 1/2(3L)**
**Russia and Former Soviet Union Politics of Change**

Examines the process of transition in Russia and the other post-Soviet states with special emphasis on nation building, economic restructuring, democratic reform, the emergence of civil society, and geopolitical adaptation.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 343.3 — 1/2(3L)**
**Politics of Change in Post Soviet Ukraine**

An examination of the process of institution-building in post-Soviet Ukraine, including the effects of political innovations as well as those of social and economic policies.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 346.3 — 1/2(3L)**
**Topics in Governance of the Developing World**

An analysis of governance in the developing world, focussing on topics such as leadership, democratization, ethnicity and women, and institution-building.
**Prerequisite(s):** POLS 246 or 247 or permission of the department.

**POLS 348.6 — 1&2(3L)**
**Topics in Comparative Politics**

An analysis of politics in selected countries or areas. Emphasis is on political culture, political structures and political processes.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 352.3 — 1/2(3L)**
**Women Political Participation and Public Policy**

An analysis of women's participation in formal democratic processes, with emphasis on how and why women participate in politics.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 356.3 — 1/2(3L)**
**Methods of Election**

An examination of the principal methods of election in democratic states. Included are plurality methods (Canada), the alternative vote (Australia) and proportional representation (Germany, Ireland). Proposals for electoral reform in Canada are also considered.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 358.3 — 1/2(3L)**
**Political Leadership in Western Democracies**

A comparative analysis of political leadership in western democracies with particular reference to the selection of party leaders and the characteristics of those who lead political parties.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 360.6 — 1&2(3L)**
**International Conflict**

An analysis of theories of the causes, dynamics, and termination of international conflict. Included are analyses of international strategy and diplomacy, contemporary international conflicts, and conflict resolution.
**Prerequisite(s):** POLS 260.

**POLS 362.3 — 1/2(3L)**
**International Political Economy**

The international economy is increasingly governed by a complex set of arrangements between nation states, international governmental organizations, firms and various non-governmental authorities. Examines the theories of international political economy and applies them to problems of managing change resulting from technological advancement (e.g., biotechnology).
**Prerequisite(s):** 12 credit units POLS or 60 credit units at university level.

**POLS 363.3 — 1/2(3L)**
**Regional Organizations in Contemporary World Politics**

An examination of regional organizations in the twenty-first century, such as the European Union, NAFTA, OAS and NATO.
**Prerequisite(s):** POLS 240 or 260.

**POLS 364.3 — 1/2(3L)**
**International Terrorism**

Examines the goals, strategies and actions of international terrorist groups, the efforts of governments to combat terrorism, and the effect of international terrorism on contemporary international relations. Special attention is given to philosophies of violence and to ethical issues surrounding terrorist and counter-terrorist actions.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 367.3 — 1/2(3L)**
**International Organizations**

An examination of universal and regional international organizations - with emphasis on the United Nations and affiliated institutions such as the International Monetary Fund, World Bank and International Court of Justice and an assessment of the extent to which they have been effective in promoting international peace and security, and global economic development.
**Prerequisite(s):** POLS 260.

**POLS 368.3 — 1/2(3L)**
**Ideology and American Foreign Policy**

An examination of American foreign policy since 1945, with an emphasis on how American ideological perspectives affect American political, economic, and military objectives and strategies. Major attention is given to imagery in the post-Cold War period and to American efforts to promote democracy and human rights.
**Prerequisite(s):** POLS 260.

**POLS 370.3 — 1(3L)**
**War Peace and International Order**

Seeks to identify and assess those issues that historically have generated conflict and examines the various political and diplomatic efforts that followed epochal wars to create international orders and mechanisms that would manage, control or prevent future international conflicts.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 371.3 — 1/2(3L)**
**International Conflict I Cold War**

Critically assesses, by way of theory, the nature of the Cold War as a system of international relations, including its rise and demise.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 372.3 — 2(3L)**
**International Conflict II Beyond Cold War**

Examines and assesses in theoretical terms the new developments in the post-Cold War period, highlighting trends and patterns that might lead to greater conflict.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 375.3 — 1/2(3L)**
**Canada and the World**

Introduction to Canada's role in the world, studying the factors that continue to shape Canada's position on global issues and the processes by which Canadian foreign policy is made.
**Prerequisite(s):** 6 credit units 100-level POLS.
**Note:** Students with credit for POLS 365 may not take this course for credit.

**POLS 376.3 — 1/2(3L)**
**Issues in Canadian Foreign Policy**

Introduces students to contemporary themes and issues in Canadian foreign policy, including the future of multilateralism in Canadian foreign policy, the relevance of the Middle Power concept for Canada, public influences on foreign policy, and the evolving dynamics of Canada-US relations.
**Prerequisite(s):** POLS 375.
**Note:** Students with credit for POLS 365 may not take this course for credit.

**POLS 382.6 — 2**
**Saskatchewan Legislative Internship**

The study of Saskatchewan's provincial political institutions, politics, public policies, public management and public administration through a combination of direct observations, directed readings, and research and analysis.

**POLS 383.3 — 1/2(9P)**
**Career Internship**

Designed to provide students with an opportunity to study policy, management, and administrative matters of importance to organizations in Saskatchewan through a combination of direct observations, directed readings, and research and analysis.
**Prerequisite(s):** 60 credit units at university level.

**POLS 384.3 — 1/2(1.5S-5P)**
**Aboriginal Administrative Internship**

Provides an opportunity for students involved in the Aboriginal Administrative Internship to deepen their understanding of various governance, policy, management and administrative issues in the Aboriginal sector, through a combination of direct observations, directed readings and research and analysis.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 385.3 — 2(3L)**
**Topics in Central American Politics**

Part of the La Antigua, Guatemala Study Term Abroad. An analysis of the contemporary politics of Central America. Topics include democracy, development, integration, inter-American relations, and political processes. Includes guest lecturers from the region and field trips within Guatemala.
**Prerequisite(s):** 6 credit units 100-level POLS.

**POLS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**POLS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**POLS 404.3 — 1/2(3S)**
**Issues in Canadian Federalism**

An examination of Canadian federalism that deals with enduring and contemporary issues such as the constitutional division of powers, intergovernmental relations, fiscal federalism, the federal spending power, regionalism, the role of Quebec in the federal system, and constitutional change.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 405.3 — 1/2(3S)**
**Political Representation in Canada**

An examination of issues relating to the institutions and processes of political representation in Canada such as Parliament, political parties, interest groups, social movements, courts, and the electoral process.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 422.3 — 1/2(3S)**
**Aboriginal Development Strategies**

Examines Aboriginal development strategies in Canada with particular attention to Aboriginal Nations in Saskatchewan. Attention is devoted to cultural, economic and political development. The course examines the various factors that foster or inhibit the various types of development within Aboriginal communities. It is designed to provide students with a an academic basis for analyzing existing development strategies in Aboriginal communities.
**Prerequisite(s):** POLS 111 and 112 and permission of the department.

**POLS 424.3 — 1/2(3S)**
**New Public Management in Canada**

An analysis of recent developments in public management, administration and policy through an examination of the development and implementation of various public programs, services, and the utilization of human and financial resources of the federal, provincial, territorial, and municipal governments in Canada.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 425.3 — 1/2(3S)**
**Governance and Management Partnerships**

An analysis of the growth and importance of partnerships between governmental and non-governmental organizations in developing and implementing programs and services within various jurisdictions in Canada.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 431.3 — 1/2(3S)**
**Contemporary Problems in Political Philosophy**

An analysis of particular contemporary problems in political philosophy.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 434.3 — 1/2(3S)**
**Politics and Literature**

An introduction to the role of literature and other art in the appreciation and understanding of the nature and dilemmas of politics. The course first examines theoretical issues concerning the place of politics in literature and the place of literature in politics and then examines some classic works of literature.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 441.3 — 1/2(3S)**
**Themes and Issues in Democratic Thought**

An examination of current topics in democratic thought, including group-specific rights, direct democracy and more participatory politics.
**Prerequisite(s):** 6 credit units 100-level POLS and permission of the department.

**POLS 442.3 — 1/2(3S)**
**Comparative Government Bureaucracy**

An examination of major issues in the study of bureaucracy in the modern state, which an emphasis on the functioning of government bureaucracies in Western Europe and North America.
**Prerequisite(s):** 6 credit units from POLS 222, 225, 226, 240, 322, 323, 328 and permission of the department.

**POLS 443.3 — 1/2(3S)**
**Comparative Public Policy**

An examination of public policy from a comparative perspective, with a focus on policy making and policy content in Western Europe and North America. Such policy areas as education, health, economic policy, taxation, income maintenance, environment, housing and urban planning are included.
**Prerequisite(s):** 6 credit units from POLS 222, 225, 226, 240, 322, 323, 328 and permission of the department.

**POLS 446.3 — 1/2(3S)**
**Democracy in Africa Challenges and Prospects**

An assessment of the prospects for multi-party democracy in Africa. Special attention is given to issues of re-democratization since 1989 and to the setbacks which have resulted from military interventions or from autocratic rulers manipulating their instruments of power to block a successful political transition.
**Prerequisite(s):** One of POLS 246, 247 or IS 200, and permission of the department.

**POLS 447.3 — 1/2(3S)**
**Ethnicity and Governance in Selected Third World Countries**

An examination of ethnicity and politics in the Third World, with an emphasis on the role of political and ethnic leadership, party formation and competition, policy formation and implementation, electoral competition, government formation and multi-ethnic relations.
**Prerequisite(s):** One of POLS 246, 247 or IS 200, and permission of the department.

**POLS 460.3 — 1/2(3S)**
**International Ethical Thought**

An examination of major traditions and ideas concerning the nature and role of ethics in international relations, including, among others, Realism, Marxism, Feminism and Liberalism, as well as the Natural Rights, Just War, and International Law traditions. Attention is also given to terrorist justifications for their actions.
**Prerequisite(s):** POLS 260 and permission of the department.

**POLS 462.3 — 1/2(3S)**
**Ethical Issues in International Relations**

An examination of specific issues in contemporary international politics about which difficult ethical choices have been made or about which there is ethical controversy, including international intervention, threatened use of weapons of

mass destruction, terrorism, sanctions, and promotion of international human rights.
**Prerequisite(s):** POLS 460 and permission of the department.

**POLS 464.6 — 1&2(3S)**
**Seminar in International Relations**

An analysis of selected issues in international relations.
**Prerequisite(s):** POLS 260 and permission of the department.

**POLS 465.3 — 1/2(3S)**
**Nationalism and the International System**

An introduction to the role of nationalism in the formation and development of the modern international system, both in shaping international society as well as in threatening its security. The future and continuing relevance of nationalism in the post-modern world is also considered.
**Prerequisite(s):** POLS 260 and permission of the department.

**POLS 466.3 — 1/2(3S)**
**Ethnic Conflict and Democracy**

An introduction to the problem of ethnic conflict in international society, with emphasis on special challenges to democracy in ethnically divided societies, and on legal, political and moral issues associated with external efforts to resolving ethno-political conflicts and disputes.
**Prerequisite(s):** POLS 260 and permission of the department.

**POLS 471.3 — 1/2(3S)**
**Globalization and Challenges**

An examination of the impact of globalization, with emphasis on groups such as labour, women, and the poor, and on the effects of particular transnational processes such as environmental degradation, refugee flows and the spread of ethnic conflicts.
**Prerequisite(s):** POLS 260 and permission of the department.

**POLS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**POLS 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

## PSIA — PSYCHIATRY

Department of Psychiatry, College of Medicine

**PSIA 501.6 — PD(6 weeks)**
**Psychiatry**

A Clinical Clerkship in which the student will gain experience with inpatient, outpatient, and emergency consultations. Students will be expected to take part in the night call rotation as well. There is a seminar series.
**Prerequisite(s):** Enrolment in the College of Medicine.
**Note:** Six-week course.

## PSY — PSYCHOLOGY

Department of Psychology, College of Arts and Science

**PSY 110.6 — 1&2(3L)**
**General Psychology**

An introduction to the scientific study of human behaviour, dealing with the essential problems of psychology, the methods of investigation, and the advances which have been made in some of the major fields such as motivation, perception, learning and personality.
**Note:** Most students in PSY 110 will be asked to participate in research studies conducted within the Department of Psychology. Research participation is desirable both as a means of advancing the science of human behaviour and as a means of providing the introductory student with first-hand educational experience in psychological research.

**PSY 211.3 — 1/2(3L)**
**Introduction to Psychological Tests and Measurements**

Principles of psychological measurement including: sources of test information; quantitative concepts with applications to test construction; factors influencing test performance; uses and misuses of tests in counselling, educational and industrial settings.
**Prerequisite(s):** PSY 110.

**PSY 213.3 — 1/2(3L)**
**Child Development**

An examination of the social, emotional, moral, cognitive and physical development of typical children from conception to late childhood. Individual development is considered from a psychological perspective within the contexts of family and culture.
**Prerequisite(s):** PSY 110.

**PSY 214.3 — 1/2(3L)**
**Adolescent Development**

An introduction to theories and research methods in adolescent development. Attention is given to normative development in physical, cognitive, social and emotional domains. Students will obtain an understanding of factors that influence normative trajectories and processes; basic theory underlying adolescent research; and strengths and weaknesses of methods in this area.
**Prerequisite(s):** PSY 110.

**PSY 216.3 — 1/2(3L)**
**Psychology of Aging**

The study of normal psychological development through maturity to old age. Topics include: consideration of critical issues of research methods; problems of adjustment of the aged such as physical decline, retirement, aloneness, disengagement; the needs and care of the aged, antecedents of successful aging; the psychology of dying and death; theories of aging.
**Prerequisite(s):** PSY 110.

**PSY 222.3 — 1/2(3L)**
**Personality**

A systematic survey of basic principles of motivation, learning, conflict and problem solving as applied to the study of personality. Major problem areas and contemporary theories of personality are reviewed.
**Prerequisite(s):** PSY 110.

**PSY 223.3 — 1/2(3L)**
**Abnormal Psychology**

Major patterns of abnormal behaviour are reviewed and studied with respect to origins, course and treatment. The focus is upon understanding abnormal behaviour with an integrated knowledge of basic principles of general psychology.
**Prerequisite(s):** PSY 110, PSY 222 recommended.

**PSY 224.3 — 1/2(3L)**
**Introduction to Culture and Psychology**

A survey of theory and research on cultural issues in psychology, including developmental, cognitive and social psychology. By the end of the course, the student will be able to demonstrate an understanding of fundamental concepts and theoretical perspectives pertinent to the study of culture and human behaviour, knowledge of the findings of relevant classic and contemporary empirical studies, and familiarity with methodological issues pertaining to research in this area.
**Prerequisite(s):** PSY 110.

**PSY 225.3 — 1/2(3L)**
**Group Dynamics and Intergroup Relations**

Designed to give the student a broad overview of an important area of social psychology. Group dynamics and inter-group relations will be covered through lectures, readings, and assignments on topics such as group decision-making, leadership, conflict and cooperation, collective behaviour, prejudice, and minority-majority relations.
**Formerly:** PSY 221
**Prerequisite(s):** PSY 110.
**Note:** Students with credit for PSY 221 cannot take PSY 225 for credit.

**PSY 226.3 — 1/2(3L)**
**Intrapersonal and Interpersonal Processes**

Focuses on social psychological phenomena internal to the individual, such as social cognition, emotion, the self, and attitudes. It also considers issues associated with relations between individuals, such as altruism, aggression, attraction and social influence. Students who wish to pursue further studies in social psychology are encouraged to take both this course and PSY 225 (Group Dynamics and Intergroup Relations).
**Formerly:** PSY 221.
**Prerequisite(s):** PSY 110.
**Note:** Students with credit for PSY 221 cannot take this course for credit.

**PSY 230.3 — 1/2(3L)**
**Criminal Behaviour**

The application of psychological theories to the understanding of criminal behaviour. An overview of assessment and treatment issues as these apply to specific types of criminals (e.g., sexual offenders, psychopathic offenders) will also be provided.
**Prerequisite(s):** PSY 110.
**Note:** PSY 222 or 223 or 257 is recommended.

**PSY 233.3 — 1/2(3L-1P)**
**Statistical Methods in Behavioural Sciences**

The role of statistics in research including: statistical concepts and models, estimation, simple tests of significance, linear

regression and correlation, and introduction to analysis of variance. The laboratory component will consist of training in the utilization of statistical software.
**Prerequisite(s):** PSY 110.
**Note:** Refer to Statistics Course Regulations in the Arts & Science section of the Calendar if intending to use for Arts & Science credit.

**PSY 234.3 — 1/2(3L-1P)**
**Statistical Methods in Behavioural Sciences**

A continuation of the role of statistics in research covering methods of analysis of variance including cross-classification, introduction to multiple comparisons, factorials, multiple regression and covariance. The laboratory component will consist of training in the utilization of statistical software.
**Prerequisite(s):** PSY 233. Four-year and Honours students should take PSY 235 concurrently.
**Note:** Refer to Statistics Course Regulations in the Arts & Science section of the Calendar if intending to use for Arts & Science credit.

**PSY 235.3 — 1/2(3L-1P)**
**Research Methods and Design**

Introduces students to both experimental and non-experimental research methods and designs used in psychology. The course focuses on the interplay between research questions, theory, the selection of appropriate research procedures and resulting conclusions. The laboratory component will consist of practical training and application of the concepts discussed in class.
**Formerly:** 372.6
**Prerequisite(s):** PSY 233. Four-year and Honours students should take PSY 234 concurrently.
**Note:** Students with credit for PSY 232 or 372 cannot take this course for credit.

**PSY 242.3 — 1/2(3L)**
**Physiological Psychology**

An introduction to the language, techniques, concepts and general subject matter of physiological psychology. Topics will include: sensory processes, motor systems, the brain, memory and learning. This core knowledge will be useful to those wanting an exposure to the biological study of behaviour, or to those wanting a primer for more advanced study.
**Prerequisite(s):** PSY 110.

**PSY 243.3 — 1/2(3L)**
**Evolutionary Psychology**

The human mind and the behaviour that emerges as products of the mind, will be considered as the outcome of a large number of adaptations brought about by natural selection. The possibility of, and evidence for, a universal human nature at the level of evolved psychological mechanisms will be presented. The evolutionary significance of altruism, cooperation and conflict, morality, deceit, self-deception and illness will be examined.
**Formerly:** PSY 244.
**Prerequisite(s):** PSY 110.
**Note:** Students with credit for PSY 244 cannot take this course for credit.

**PSY 246.3 — 1/2(3L)**
**Introduction to Human Neuropsychology**

An introduction to research and theory on the topic of human brain function. Topics include research techniques and strategies, developmental neuropsychology, localization and lateralization of function, recovery of function, and deficits associated with lesions of the neocortex.
**Prerequisite(s):** PSY 110.

**PSY 252.3 — 1/2(3L)**
**Perceptual Processes**

A brief survey of the principles that have emerged from the empirical investigation of perception, with special reference to vision and hearing. An examination of the factors which underlie such fundamental features of behaviour as the perception of objects and of three-dimensional space and the maintenance of perceptual constancy.
**Prerequisite(s):** PSY 110.

**PSY 253.3 — 1/2(3L)**
**Introduction to Cognitive Psychology**

An introduction to research and theory on the topic of human cognitive functioning. The course will explore how humans attend to, encode and remember their experiences, communicate using both written and spoken language, and engage in higher order processes such as reasoning, problem solving, and decision making.
**Prerequisite(s):** PSY 110.

**PSY 255.3 — 1/2(3L)**
**Human Memory**

An introduction to research and theory on the structures and processes involved in human memory. Topics include the evidence for distinct sensory, short-term, and long-term memory stores, the format of representation in memory, and the determinants of effective memory performance.
**Prerequisite(s):** PSY 110.

**PSY 256.3 — 1/2(3L)**
**Psychology of Language**

Explores and evaluates theories and research involving the psychology of language. Broadly defined, the topics will include visual and auditory language issues regarding: encoding, representation, comprehension, production, acquisition, biological foundations, dysfunction, and cultural influences. Students will also learn about current research projects, and the preparation of research papers.
**Prerequisite(s):** PSY 110.

**PSY 257.3 — 1/2(3L)**
**Clinical and Counselling Psychology**

Review of the relevant topics in clinical and counselling psychology including psycho diagnostic testing, and the major approaches to therapeutic change.
**Prerequisite(s):** PSY 110.

**PSY 258.3 — 1/2(3L)**
**Industrial Psychology**

The application of psychological theory and methods to problems and processes concerning the human aspects of industry. Important areas include: selection, training, attitudes and motivation, psychological factors in organizational work, and consumer behaviour.
**Prerequisite(s):** PSY 110.

**PSY 260.3 — 1/2(3L)**
**Health Psychology**

Focuses on psychological theories and research related to the development, prevention and treatment of illness. Topics covered will include the effects of stress on health, coping with pain, the physician-patient relationship, patient non-compliance, and a variety of risky health behaviours such as substance abuse.
**Prerequisite(s):** PSY 110.
**Note:** Students who have taken PSY 360 may not take this course for credit.

**PSY 261.3 — 1/2(3L)**
**Community Psychology**

Introduces psychological theories and research on the effects of the physical and social environments on human behaviour and on the design and evaluation of changes which might promote adaptive behaviour.
**Prerequisite(s):** PSY 110.
**Note:** Students who have taken PSY 360 may not take this course for credit.

**PSY 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PSY 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PSY 315.3 — 1(1.5L-1.5P)**
**Advanced Development I Social and Emotional**

Introduces students to the theoretical foundations, research designs, and methods used to study social and emotional development. The course will involve lectures and a lab component. In the lab component, students will participate in a collaborative research project.
**Formerly:** PSY 314.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level Psychology including one of PSY 213, 214, or 216; and PSY 233 and 235.

**PSY 316.3 — 2(3P)**
**Advanced Development II Social and Emotional Research**

Students will develop independent research projects designed to answer an empirical question in the domain of social and emotional development. Each student will be responsible (either individually or as a member of a small group) for designing a study, testing participants, analyzing data, and writing up a research report.
**Formerly:** PSY 314.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235, and 315.

**PSY 317.3 — 1(1.5L-1.5P)**
**Cognitive Development I**

Introduces students to an in-depth study of major content areas, theoretical orientations, and research methods which are necessary to advance knowledge in the study of cognitive development. Students will learn about the special features of the cognitive developmental perspective and will conduct research projects in the laboratory component of the course.
**Formerly:** PSY 314.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 213, 214, or 216; and PSY 233 and 235.

**PSY 318.3 — 2(3P)**
**Cognitive Development II Research**

Students will develop independent research projects designed to answer an empirical question in the domain of cognitive development. Each student will be responsible (either individually or as a member of a small group) for designing a study, testing participants, analyzing data, and writing up a research report.
**Formerly:** PSY 314.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235, and 317.

**PSY 323.3 — 1(1.5L-1.5P)**
**Qualitative Study of Lives and Social Practices**

Qualitative approaches to understanding lives and social practices will be introduced. Topics include: an overview of non-positivist epistemologies and methodologies and an introduction to methods such as narrative analysis, grounded theory, ethnography and discourse analysis.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level Psychology, including 3 credit units from Group 1; and PSY 233 and 235.

**PSY 324.3 — 2(3P)**
**Research in Qualitative Study of Lives and Social Practices**

A research course linked to Qualitative Study of Lives and Social Practices (PSY 323). Students participate in the design, data collection, analysis and write up of one group research project. A variety of data gathering approaches (e.g. archival searches, interviewing, observational field work) and methods of analysis (e.g. thematic analysis, narrative analysis, grounded theory, ethnography, discourses analysis) are used.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235 and 323.

**PSY 325.3 — 1(1.5L-1.5P)**
**Research Methods in Social Psychology**

Students will be introduced to the variety of research methods used in social psychology through one or more content areas determined by the instructor (e.g., prejudice, discrimination, attitude change, interpersonal conflict, impression management, aggression, media violence, prosocial behaviour, conformity, group processes, attraction, applying social psychology to the law, workplace, health problems, etc.).
**Formerly:** PSY 321.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 225 or 226; and PSY 233 and PSY 235.

**PSY 326.3 — 2(3P)**
**Observation, Interview and Questionnaire Methods in Social Psychological Research**

Students will research social interactions using observation, interview and/or questionnaire methods. Within a full-semester research project (conducted individually or in small groups), students will choose a research question, review the relevant literature, obtain ethical approval, design and conduct the study, analyze data and write a research report.
**Formerly:** PSY 321.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235 and 325.

**PSY 328.3 — 2(3P)**
**The Experimental Method in Social Psychological Research: An Independent Project**

Provides an opportunity to research social psychological phenomena using the experimental method. Within a full-semester research project (conducted individually or in small groups), students will choose a research question, review the relevant literature, obtain ethical approval, design and conduct the study, analyze data and write a research report
**Formerly:** PSY 321.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235 and 325.

**PSY 343.3 — 1(1.5L-1.5P)**
**Laboratory in Behavioural Neuroscience**

An introduction to the techniques, theory and methods in behavioural neuroscience. The focus will be upon brain and behaviour and the techniques used to study nervous system function. The lab and seminar components will include a series of experiments to be carried out by the students.
**Formerly:** PSY 342.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 242, 246; and PSY 233 and PSY 235.

**PSY 344.3 — 2(3P)**
**Research in Behavioural Neuroscience**

A laboratory course in behavioural neuroscience. The course will provide students with the opportunity to conceptualize, design, and implement an independent research project in the area of behavioural neuroscience. Emphasis will be placed on brain and behaviour and the techniques used to study nervous system function.
**Formerly:** PSY 342.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235, and 343.

**PSY 347.3 — 1(1.5L-1.5P)**
**Advanced Human Neuropsychology**

Introduces the student to the theoretical and methodological issues in the study of the structure and function of the human neocortex. The course will involve lectures, seminars, and a lab component in which a series of experiments will be carried out by the students.
**Formerly:** PSY 346.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 242 or 246; and PSY 233 and PSY 235.

**PSY 348.3 — 2(3P)**
**Research in Human Neuropsychology**

A laboratory course concerned with the concepts, theories, and experimental investigation of the structures and functions of the human neocortex. The course will provide the students with the opportunity to conceptualize, design, and implement an independent research project to answer an empirical question related to experimental neuropsychology.
**Formerly:** PSY 346.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235, and 347.

**PSY 353.3 — 1(1.5L-1.5P)**
**Advanced Cognitive Science I Basic Cognitive and Perceptual Processes**

This lecture and laboratory course exposes students to current theory and research methods in the study of cognitive and perceptual processes. Students will be expected to review, design, conduct, analyse and report a series of class experiments. Topics may include perception, sensory memory, attention, pattern recognition and word recognition.
**Formerly:** PSY 352.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 252, 253 or 256; and PSY 233 and PSY 235.

**PSY 355.3 — 1(1.5L-1.5P)**
**Advanced Cognitive Science II Memory Thinking and Problem Solving**

This lecture and laboratory course exposes students to current theory and research methods in higher-order cognitive processes. Students will be expected to review, design, conduct, analyse and report a series of class experiments. Topics may include human memory, reasoning, thinking, and problem solving.
**Formerly:** PSY 352.
**Prerequisite(s):** Permission of the department and 12 credit units of 200-level psychology, including one of PSY 253, 255 or 256 and PSY 233 and PSY 235.

**PSY 356.3 — 2(3P)**
**Advanced Cognitive Science III Independent Research Projects**

In this laboratory course students develop independent experimental research projects in some area of cognitive science. Each student (either individually or as a member of a small group) is responsible for designing a study, testing participants, analysing the data, and writing up a research report following American Psychological Association style conventions.
**Formerly:** PSY 352.
**Prerequisite(s):** Permission of the department and PSY 233, 234, 235 and one of PSY 353 or 355.

**PSY 361.3 — 1&2(.5L-1P)**
**Advanced Community Psychology**

Introduces and gives opportunity for practicum experience in the theory and practical aspects of community based helping strategies. One third of the course involves lectures/seminars and two thirds involves application of learned material in an applied volunteer setting in collaboration with workers in that setting.
**Prerequisite(s):** Permission of the department and PSY 257 (preferred for those taking course option A) or PSY 261 (preferred for those taking course option B) and 9 credit units 200-level Psychology.

**PSY 380.3 — 1/2(1L-2S)**
**Issues in Traditional Health and Healing**

Exposes the student to critical scholarly perspectives on contemporary issues in traditional or alternative approaches to health and healing. While there will be a focus on the Aboriginal peoples of North America, there will also be exposure to traditional forms of healing from other parts of the world.
**Prerequisite(s):** Permission of the department and PSY 110 and 12 credit units at the 200-level in Psychology, Native Studies, Anthropology or Sociology.

**PSY 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PSY 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PSY 401.3 — 1/2(3S)**
**Historical and Philosophical Foundations of Psychology**

The major theories of psychology will be presented in such a way that the student can evaluate their strengths and weaknesses with respect to their application in fields such as education and psychotherapy.
**Formerly:** PSY 400.
**Prerequisite(s):** Permission of the department and 6 credit units of 300-level psychology.

**PSY 418.3 — 1/2(3S)**
**Advanced Seminar in Developmental Psychology**

An advanced seminar focussed on theoretical and empirical analyses of human development. A set of original research articles covering diverse areas of developmental psychology (e.g., behavioural genetics, development and psychopathology, cognitive development, social development, aging) will be assigned, read, and discussed by the class.
**Prerequisite(s):** Permission of the department and 6 credit units from PSY 213, 214, 216, 315, 317.

**PSY 425.3 — 1/2(3S)**
**Advanced Group Dynamics and Intergroup Relations**

Designed to give the student an in-depth knowledge of the social psychology of group dynamics and intergroup relations. Therefore, the course covers both the major theories and research in this area. Students will study important contemporary primary source articles. They will also give in-class presentations on selected topic areas. The course is designed to allow students to study this topic at an advanced level.
**Formerly:** PSY 420.
**Prerequisite(s):** Permission of the department and PSY 225 and one of PSY 226, 323 or 325.

**PSY 426.3 — 1/2(3S)**
**Advanced Seminar in Intrapersonal and Interpersonal Processes**

This advanced seminar examines social psychological phenomena internal to the individual, such as social cognition, motivation, emotion, the self, and attitudes and attitude change. It also considers issues associated with relations between individuals such as altruism, aggression, affiliation and social influence processes.
**Formerly:** PSY 420.
**Prerequisite(s):** Permission of the department and PSY 226 and one of 225, 323 or 325.

**PSY 444.3 — 1/2(3S)**
**Advanced Seminar in Evolutionary Basis of Behaviour**

Using a seminar format, this course will examine the possibility that human behaviours such as mate selection, parenting, and cooperation are still influenced by our evolutionary past. The primary objective of the course is to demonstrate the value of integrating evolutionary and psychological theory when explaining individual and group behaviour.
**Formerly:** PSY 440.
**Prerequisite(s):** Permission of the department and 6 credit units from PSY 242, 243, 246, 343, 347.

**PSY 448.3 — 1/2(3S)**
**Advanced Seminar in Neuroscience**

Using a seminar format, this course will survey selected topics in neuroscience. The topics covered may include neuropsychopharmacology, the neural bases of: memory, language, emotion, attention, consciousness, plasticity phenomena, spatial abilities; or other topics of interest to the faculty and students.
**Formerly:** PSY 440.
**Prerequisite(s):** Permission of the department and 6 credit units from PSY 242, 246, 343, 347.

**PSY 456.3 — 1/2(3S)**
**Advanced Seminar in Cognitive Science**

An advanced seminar focussed on theoretical and experimental analyses of human perception, cognition, and performance. A set of original research articles covering diverse areas of cognitive science (e.g., basic perception, memory, language comprehension, human reasoning) will be assigned, read, and discussed by the class.
**Prerequisite(s):** Permission of the department and 6 credit units from PSY 252, 253, 255, 256, 353, 355.

**PSY 472.6 — 1&2(1L-2P)**
**Honours Thesis**

Students will carry out a major project under the supervision of a faculty member, and report the project in the form of an honours thesis. The project will usually involve empirical research.
**Prerequisite(s):** Enrolment in honours program or written permission of the department.

**PSY 480.3 — 1/2(3S)**
**Aboriginal Mental Health and Illness**

The goals of this seminar course are twofold: first, to provide detailed knowledge about contemporary Aboriginal mental health issues; second, to develop a critical perspective on the theoretical and methodological issues pertaining to research in Aboriginal mental health. Material from the fields of psychology, psychiatry and anthropology will be in integrated to provide an interdisciplinary perspective. Examples will be drawn from both the United States and Canada.
**Prerequisite(s):** Permission of the department and 6 credit units in a 300-level Psychology, Anthropology, Native Studies or Sociology.

**PSY 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**PSY 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# PTH — PHYSICAL THERAPY

College of Physical Therapy

**PTH 205.3 — 2(4L-1.5P)**
**Cardio Respiratory System I**

Study of the etiology, pathophysiology, clinical features, medical, surgical and physical management of various cardiovascular and respiratory conditions is commenced in this course. Emphasis is on understanding and application of the assessment process and basic treatment approaches. A lecture/ laboratory/case-study/computer-assisted learning format is employed.

**PTH 222.3 — 1(3L-2P)**
**Therapeutic Movement I**

Theory and application of therapeutic positioning and movement; exercise prescription; equipment prescription and use.

**PTH 223.3 — 2(3L-2P)**
**Therapeutic Movement II**

Theory and application of therapeutic positioning, therapeutic movement, re-education of basic motor skills and neuromuscular facilitation are studied in lectures and laboratories.

**PTH 225.3 — 1(2.5L-.5P)**
**Foundations of Exercise and Work Physiology for Physical Therapists**

An introduction to exercise/work physiology for physical therapists. The course will examine the physiological foundations from which activity/exercise assessment, and treatment are derived. Labs and tutorials will focus on examination of the physiological responses to physical activity with discussion of altered responses in clinical populations and changes in techniques and approach required for monitoring and evaluating those clinical populations.

**PTH 236.3 — 2(3L-2P-1T)**
**Clinical Kinesiology I**

A lecture and laboratory course which examines the theory underlying therapeutic and assessment methods by the application of the principles of biomechanics and functional anatomy. Also included is a detailed study of surface anatomy.

**PTH 240.3 — 1/2(2L-1.5P)**
**Electro Physical Agents in Physical Therapy I**

The physical principles, physiological effects and therapeutic uses of various heating, cooling and mechanical modalities, are covered in this theoretical and practical course. A mastery learning approach is taken to enable students to develop competence in the use of hot and cold treatments, wax, infrared, diathermy and therapeutic ultrasound.

**PTH 264.3 — 1(3L-.5C-.5T)**
**Introduction to Physical Assessment and Treatment Planning**

A lecture, tutorial and case study course with clinical facility visits, introducing the basic framework for physical therapy assessment, program planning, and treatment. A general approach to client assessment and determination of treatment plans will consider all body systems, and will integrate subjective and objective evaluation, differential diagnosis, holistic goal setting, discharge planning, and outcome measurement. Documentation formats common to physical therapy settings will be reviewed, and emphasis placed on medico-legal requirements of client record-keeping, use of standardized World Health Organization terminology.

**PTH 276.6 — 3(37.5C)**
**Clinical Applications of Basic Skills**

Consists of a five week, full-time period of clinical education in the spring following the first year. Placements are in Saskatchewan centres.

**PTH 283.3 — 1(3L)**
**Physical Therapist as Health Educator**

A theoretical and practical course in the principles of learning and instruction which can be applied in clinical treatment, the design, implementation and evaluation of patient education programs, instruction of relatives or other health care personnel on patient management and in clinical teaching and supervision of students.
**Note:** Students with credit for PTH 482 may not take this course for credit.

**PTH 301.3 — 1(2L-4P)**
**Musculo Skeletal Assessment and Treatment I**

A lecture and laboratory course in the biomechanical assessment and treatment of the upper quadrant. Includes subjective assessment, objective assessment scans, contractile and inert tissue differentiation, capsular and non capsular patterns, principles of manual therapy for treating pain and stiffness, indications and contraindications of treatment.

**PTH 302.3 — 2(2L-4P)**
**Musculo Skeletal Assessment and Treatment II**

A lecture and laboratory course in the biomechanical assessment and treatment of the lower quadrant. A continuation of PTH 301, and will cover similar assessment procedures, and principles of treatment as appropriate for the lower quadrant.

**PTH 303.3 — 1(5L-1.5P)**
**Nervous System I**

Normal motor control, motor learning theory, and abnormalities of movement resulting from lesions of the nervous system are studied as a basis for developing appropriate physical therapy assessment and treatment methods. Application of these methods to the management of adult hemiplegia completes course content.

**PTH 304.3 — 2(4.5L-1.5P)**
**Nervous System II**

Continues the study of the physical therapy assessment and treatment methods for neurological conditions including adult hemiplegia, brain injury, spinal cord injury, Parkinson's disease, multiple sclerosis, post-polio syndrome, and Guillain Barre Syndrome.

**PTH 306.3 — 1(4L-.75T-.75P)**
**Cardio Respiratory System II**

Study of diseases affecting the respiratory and cardiovascular systems is continued in lecture/ laboratory/self-study format.

**PTH 308.3 — 1/2(4L)**
**Lifespan Nutrition and Pharmacology in Physical Therapy**

Covers theory and clinical management related to physical therapy assessment and treatment through the lifespan. Various health professionals will present topics including, growth and development, women's health issues, gerontology, pain, pharmacology and nutrition.

**PTH 311.3 — 1/2(4.5L-.5T)**
**Musculo Skeletal System I**

The etiology, pathology, bone and soft tissue healing, medical, surgical and physical therapy management of trauma, repetitive strain injury and other conditions affecting the musculo-skeletal system, including: fractures; dislocations and subluxations, mechanical derangements, peripheral nerve injuries, burns and frostbite, and lesions in soft tissues, are presented in lectures and case study.

**PTH 312.3 — 1/2(4.5L-.5P)**
**Musculo Skeletal System II**

The epidemiology, etiology, pathology, and clinical features of common rheumatic diseases and amputations are presented. Management of these disorders includes assessment, medication, surgery, and therapeutic intervention.

**PTH 337.3 — 1(2L-2P-1T)**
**Clinical Kinesiology II**

A continuation of PTH 236. Examines the body regionally with respect to biomechanics, common pathomechanics, and physical therapy methods of measurement. Analysis of movement with special attention to gait. Continues the detailed study of surface anatomy.

**PTH 341.3 — 1/2(2L-3P)**
**Electro Physical Agents in Physical Therapy II**

The physical principles, physiological effects and therapeutic uses of diagnostic and therapeutic electrical stimulation and various forms of phototherapy, are covered in this theoretical and practical course. A mastery learning approach is taken to enable students to develop competence in electro-diagnostic testing, the use of various electrotherapeutic currents, ultraviolet light and laser biomodulation.

**PTH 367.3 — 2(2L-1C-1T)**
**Clinical Assessment**

Combines lectures, clinical assessment assignments and tutorials, providing opportunity for application of assessment theory and skills in a variety of clinical settings. Tutorials analyze the assessment experience and data. Lectures prepare the student for full-time clinical practicums.

**PTH 378.12 — 3(37.5C)**
**Clinical Practicum I**

A ten-week, (normally 2 x 5 weeks), full-time period of clinical education following the second term of second year. The last five weeks may be completed in an out-of-province placement, part of the out-of-province experience required from this course or PTH 462.

**PTH 403.3 — 1(4L)**
**Research Methodology**

The primary emphasis of this class will be on theoretical discussion and practical activities which contribute to the development of research skills applicable to evidence-based practice of physical therapy. Using research reports pertaining to physical therapy found in the medical literature, students will apply research theory to classify research design, identify design elements, apply methodological analysis tools, evaluate internal and external validity of research and determine the implications for clinical practice.

**PTH 421.3 — 1(4.5L-.5P-.5T)**
**Exercise Testing and Prescription for Special Populations**

The pathophysiologic and theoretical basis of exercise testing and prescription for rehabilitation programs for various conditions are studied.

**PTH 439.3 — 1(3L-2P)**
**Therapeutic Exercise Manual Therapy and Integrated Management Orthopedic and Sports Physical Therapy**

Covers the assessment and treatment of common musculoskeletal conditions and sport related injuries, including manual therapy techniques and selected manipulation techniques. Advanced therapeutic exercise prescription, functional screening evaluation, goal setting and outcome measurement in the musculoskeletal area will also be emphasized. Course content will be covered in lecture and practical sessions.

**PTH 440.3 — 1(3L-1.5P)**
**Advanced Neurological and Cardiorespiratory Systems**

A final year course including neurological and cardiorespiratory topics for physical therapists. The neurological component includes study of normal sensori-motor development during the first 18 months of life, assessment and treatment of cerebral palsy, and assessment and treatment of other selected neurological conditions. The cardiorespiratory component will focus on the assessment and management of cardiorespiratory sequelae of common progressive neuromuscular conditions, high level spinal cord injuries, and selected restrictive lung disorders. Issues, approaches, outcome measures and resources inherent to ICU, community-based and direct access physical therapy clinic settings will be discussed.

**PTH 462.15 — 2(37.5C)**
**Clinical Practicum II**

Consists of a 16 week, (normally 2 x 5 weeks, 1 x 6 weeks), full-time period of clinical education in the second term of the final year. Normally, two rotations are spent in Saskatchewan, and one rotation in out-of-province centres.

**PTH 490.3 — 1(2L-2S)**
**Professional Issues**

Study of the legal, ethical, social and economic factors which affect the role of the physical therapist and the principles of departmental organization and management.

# RLST — RELIGIOUS STUDIES

Department of Religious Studies & Anthropology, College of Arts and Science

**RLST 110.6 — 1&2(3L)**
**World Religions**

A critical survey of the history, sources and chief characteristics of major world religions, including, in particular, Hinduism, Buddhism, Taoism, Confucianism, Islam, Judaism and Christianity. Particular attention will be given to an investigation of the phenomenon called religion, and to the relationships between religion and culture.

**RLST 211.3 — 1/2(3L)**
**Hindu Religious Tradition**

A study of the historical, social, doctrinal, and ritual aspects of Hinduism.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 214.3 — 1/2(3L)**
**Introduction to Philosophies of India**

An introduction to the philosophical thought of India with special reference to early speculations on the nature of human reality, God, world, and human destiny.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 217.3 — 1/2(3L)**
**Buddhist Religious Tradition**

An examination of Buddhist religious history with emphasis on its socio-cultural dimensions. Topics include early Buddhism and its Indian evolution; culture contact and the spread of Buddhism to southeast Asia, China, Japan and Tibet;

Buddhism and change in modern Asia and the west.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 218.3 — 1/2(3L)**
**Developments in Buddhist Thought**

An introduction to Buddhist philosophy and the development of its major schools of religious thought: Theravada, Mahayana and Vajrayana. Buddhist views of the interdependence of morality, knowledge and liberation will be studied in their historical and contemporary contexts.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 219.3 — 1/2(3L)**
**Bible and Western Culture**

Explores the influence of the Bible on the culture of the west, ancient and modern, with a particular focus on the role of biblical themes, symbols and characters in art, literature, music and popular culture.
**Prerequisite(s):** 6 credit units in RLST or 24 credit units at the university level.

**RLST 220.3 — 1/2(3L)**
**Women in Western Religious Traditions**

Study of women in major western religious traditions: influence of conceptual systems and language; women's embodiment and religion, feminine spirituality, women's contributions to western faiths, and feminine aspects of divinity.
**Formerly:** RLST 325.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.
**Note:** Students with credit for RLST 325 may not take this course for credit.

**RLST 221.3 — 1/2(3L)**
**Introduction to Christianity**

A systematic examination of the foundations of belief in the major divisions of Christianity - Orthodoxy, Roman Catholicism, and Protestantism - with emphasis on various theories of revelation, religious authority and public worship.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 222.3 — 1/2(3L)**
**Introduction to Christian Contemplative Tradition**

Introduces Christianity from the perspective of the contemplative tradition. Commencing with the pre-Christian Greek heritage the course examines the early Christian period of the desert contemplative life in various mystical writings and contemporary expressions of Christian contemplation.
**Prerequisite(s):** RLST 110 or completion of 30 credit units at the university level.

**RLST 223.3 — 1/2(3L)**
**Fundamental Teachings of Christianity**

A study of the fundamental teachings of Christianity - the Trinity, creation, redemption, and sanctification - with an examination of the forms of worship and theories about morality, both individual and social, as these are found in the various sectors of contemporary Christianity.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 224.3 — 1/2(3L)**
**Introduction to Christian Ritual and Worship**

Examines Christian ritual and worship through historical and comparative approaches. Special emphasis will be placed on the role of the rites of initiation and Eucharist. Students will examine the contemporary practices of Orthodox, Roman Catholic and Protestant Churches.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 225.3 — 1/2(3L)**
**Perspectives on Jesus**

The findings of modern biblical and historical research will be applied to the figure of Jesus as presented in the New Testament, and to the development of doctrine in Christianity.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 227.3 — 1/2(3L)**
**Introduction to Judaism**

An introduction to basic Jewish ideas, beliefs, and practices from the biblical times to the present.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 228.3 — 1/2(3L)**
**Jewish Religious Thought**

An introduction to Jewish theology and treatment of the concepts of God, Torah, and Israel by major Jewish philosophers.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 230.3 — 1/2(3L)**
**Mysticism Metaphysics and Magic in Taoism**

A survey of the Taoist tradition in its various dimensions: mystical (meditation, inner alchemy, sexuality and immortality), metaphysical (the philosophy of the Way), and magical (the magic powers of the Taoist priesthood). All these aspects will be studied in their own terms and related to the overall cultural heritage of China.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 231.3 — 1/2(3L)**
**Confucianism Continuity and Change**

Explores the significance and changing role of the Confucian tradition by an introduction to ancient roots in China, historical elaboration and expansion, and relevance for personal and social vision today.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 234.3 — 1/2(3L)**
**Chinese Folk Religion and Folk Culture**

Study of the religious world view inherent in the folklore tradition of China and of folk religious concepts and practices including mythology, divination, magic, and communal worship.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 240.3 — 1/2(3L)**
**Introduction to Islam**

A study of Islam focusing on the religion's origin and development, its basic beliefs and practices, and its influence in defining Muslim cultures.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 253.3 — 1/2(3L)**
**Introduction to Old Testament**

A basic introduction to the Old Testament, focussing on the historical, literary and theological characteristics of the various writings. Scholarly methods by which they are studied, and their relationship to the history of Israel will also be examined.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.
**Note:** Students with credit for RLST 250 may not take this course for credit.

**RLST 254.3 — 1/2(3L)**
**Introduction to New Testament**

A basic introduction to the New Testament, focussing on the historical, literary and theological characteristics of the various writings. Scholarly methods by which they are studied, and their relationship to Christianity will also be examined.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.
**Note:** Students with credit for RLST 252 may not take this course for credit.

**RLST 280.3 — 1/2(3L)**
**Methodologies and Approaches to Study of Religions**

An introduction to theories and approaches in the academic study of religion. Origins and development of social scientific, historical, phenomenological and comparative approaches will be examined.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 282.3 — 1/2(3L)**
**Religious Perspectives on Death and Dying**

Examines how various world religions have understood the significance of death and dying.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 283.3 — 1/2(3L)**
**Comparative Mysticism**

An examination of the theoretical and methodological issues involved in a systematic study of mysticism in world religions. Topics include the nature, theories, and typologies of mysticism, and techniques of mystical experience.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 284.3 — 1/2(3L)**
**Religions and Non Violence**

An examination of the ideal of non-violence according to the scriptures of the world religions, with examples of historical and contemporary application in Asia and the west.
**Prerequisite(s):** RLST 110 or 24 credit units at the university level.

**RLST 285.3 — 1/2(3L)**
**Religions and Ethnicity**

A systematic exploration of the contribution of religion to ethnic identification and ethnic community organization.
**Formerly:** RLST 381.

**Prerequisite(s):** RLST 110 or 24 credit units at the university level.
**Note:** Students with credit for RLST 381 cannot take this course for credit.

**RLST 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RLST 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RLST 303.3 — 1/2(3L)**
**Goddesses in Myth and History**

Investigates the role of goddesses in religion from prehistory to the present, east and west. Combines historical and thematic approaches, focussing on the many roles of the female divine. Ancient goddesses, goddess worship in world religions, and contemporary feminist goddess spirituality, including Wicca, will be examined.
**Prerequisite(s):** 6 credit units in RLST or 48 credit units at the university level.

**RLST 314.3 — 1/2(3L)**
**Contemporary Catholic Thought**

An analysis of contemporary Roman Catholic thought with emphasis on the second Vatican Council (1962-1965) and its effects. Themes include identity of and membership in the church, liturgical renewal, post-concilliar forms of spirituality and community, social doctrine, and moral issues.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 315.3 — 1/2(3L)**
**Eastern Christian Thought First Millennium**

A survey of individuals and movements that shaped and influenced the development of Eastern Christianity during the first millennium.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 316.3 — 1/2(3L)**
**Eastern Christianity in Second Millennium**

A survey of individuals and movements that shaped Eastern Christianity from the conversion of the Slavs to the present-day diaspora.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 320.3 — 1/2(3L)**
**Contemporary Protestant Thought**

Analysis of 20th-century Protestant thought. Special emphasis given to problems of religious knowledge and to the stance of Christianity in the modern world. Relationship to Roman Catholic thought is included.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 321.3 — 1/2(3L)**
**Gender and God Talk**

An overview of feminist theological perspectives, both as critiques of traditional culture and theology and as constructions of new visions and ways of religious life.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 326.3 — 1/2(3L)**
**Christian Thought in Art**

Introduction to iconography in Christianity with emphasis on exploring the relationship between uniquely Christian themes and art as a bearer of meaning. Attention will be given to the historical and doctrinal developments relating to icons and their use in worship and reflection in early Christianity and the Eastern Christian Churches.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.
**Note:** Students with credit for RLST 226 cannot take this course for credit.

**RLST 328.3 — 1/2(3L)**
**Jewish Christian Relations in Historical Perspective**

Christianity emerged out of Judaism, and this course examines the relationships that have existed between the two religions through the ages. Both Christian and Jewish sources will be examined to develop a critical perspective on this important aspect of western religious heritage.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 329.3 — 1/2(3L)**
**Studies in Bhagavad Gita**

Students will be reading the Bhagavad Gita in translation along with some of the commentarial literature to acquire a critical understanding of fundamental philosophical assumptions of Hinduism. Primary approach being textual study, the course will also attempt to draw upon the Hindu hermeneutical tools in search for the meaning structures in the Bhagavad Gita.
**Prerequisite(s):** 6 credit units in RLST or 24 credit units at the university level.

**RLST 330.3 — 1/2(3L)**
**Taoist Philosophy**

Intensive reading and discussion of major texts (in translation) of Taoism: Tao Te Ching, Chuang-tzu, Lieh-tzu, and Huai-nan-tzu. Compares Taoism and some other major schools of Chinese thought: Confucianism and Buddhism.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 331.3 — 1/2(3L)**
**Neo Confucian Thought**

Reading and discussion of major Neo-Confucian texts in translation. The focus will be on the interpretive communities in which Confucian classics were understood as living spiritual wisdom in dialogue with Buddhists and Taoists.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 341.3 — 1/2(3S)**
**Bodhisattva Doctrine in Buddhism**

The Buddhist view of human perfection is epitomized in the concept of the bodhisattva. Explores the origins and development of the bodhisattva ideal and examines its role in Asian cultural history.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 342.3 — 1/2(3L)**
**Tibetan Buddhism**

A survey of Tibetan Buddhism with a focus on its socio-cultural dimensions. Topics include characteristic features of Tibetan culture and Tantric Buddhism, the role of the monastery in religion and society, Buddhist folk religious traditions, and the condition of Tibetan Buddhism in the modern era.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 350.3 — 1/2(3L)**
**Canonical Formation of Hebrew Bible**

A study of the whole Jewish Bible from the perspective of its formation as a canon of scripture in postexilic Judaism. Though designed to be followed by RLST 351, this course may be taken separately.
**Prerequisite(s):** RLST 253 or permission of the department.
**Note:** Students with credit for RLST 250 may not take this course for credit.

**RLST 351.3 — 1/2(3L)**
**Origins and Literary Character of Hebrew Bible**

Consists of two separate sections. The first is a study of the history of ancient Israel, with emphasis on the monarchical period. The second is a study of the whole Jewish Bible, with emphasis on its cultural and religious appropriation in the present.
**Prerequisite(s):** RLST 350.
**Note:** Students with credit for RLST 250 may not take this course for credit.

**RLST 352.3 — 1/2(3L)**
**Christian Origins and New Testament I**

An investigation of Christianity in its formative period (30-100 CE), on the basis of a critical examination of the New Testament and other relevant material. The focus is on the activity of Jesus, the origin of the Christian movement, and the first-century Jewish context.
**Prerequisite(s):** RLST 254 or permission of the department.
**Note:** Students with credit for RLST 252 may not take this course for credit.

**RLST 354.3 — 1/2(3L)**
**Christian Origins and New Testament II**

A further examination of the formative period of Christianity (30-100 CE) based on in-depth study of the New Testament and other related literature. The focus in this course is on the development of the Christian movement, and on resultant issues of unity and diversity.
**Prerequisite(s):** RLST 352.
**Note:** Students with credit for RLST 252 may not take this course for credit.

**RLST 356.3 — 1/2(3L)**
**Synoptic Gospels**

A study of the Gospels of Matthew, Mark and Luke, and of the Synoptic tradition that lies behind them. Attention will be paid to the literary relationships among the Gospels; the written and oral traditions that they incorporate; and the literary and theological characteristics of each Gospel.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 359.3 — 1/2(3L)**
**Women and Bible**

Examines historical, social and theological aspects of women's relationship to the Old and New Testament, the portrayal of women in biblical texts, the interpretation of biblical texts about women, biblical attributions of gender to the divine, the history of women as biblical interpreters, and feminist hermeneutics.
**Prerequisite(s):** A 200-level RLST or WGST course.

**RLST 361.3 — 1/2(3L)**
**Rabbinic Literature**

A study of post-biblical Jewish religious literature, including legal, ethical and theological material. Emphasis will be placed on both methodology and content, with illustrative texts read in English.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university.

**RLST 363.3 — 1/2(3L)**
**Early Christian Literature**

A study of extra-biblical Christian writings up to 150 CE with emphasis on the beliefs of early Christianity, relationship with paganism and Judaism, and the development of internal organizational structures.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university.
**Note:** Students with credit for RLST 309 or 311 may not take this course for credit.

**RLST 365.3 — 1/2(3L)**
**Bible and Film**

An examination of the uses of the Bible in film, including epic films, contemporary retellings of biblical stories, and the use of biblical themes and motifs in cinema. Uncovers the many ways in which biblical-theological themes shape and are shaped by contemporary culture.
**Prerequisite(s):** RLST 110, 253, 254, ENG 298, or 30 credit units at the university level.

**RLST 375.3 — 1/2(3L)**
**Religion and Science**

Investigates the historical and transcultural approach to the relationship between religion and science, beginning with ancient Chinese, Amerindian, and pre-Enlightenment European understandings of the issues. Contemporary approaches to the relationship between religion and science are analyzed with emphasis on the influence of physics, evolutionary biology and ecology.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 382.3 — 1/2(3L)**
**Sex, God and Rock n' Roll Re-Vamping the Sacred**

This course on religion, music, and pop culture will investigate the intimate connections between human musicality and sexuality, and assess their impact on definitions of divinity and the sacred. Theoretical issues include the ideology of sacred/profane dichotomies, musical/sexual taboos, and the politics of gender, race and class as expressed in ritual and liturgy.
**Prerequisite(s):** 200-level RLST course or 48 credit units at the university level.
**Note:** Students with credit for RLST Special Topics: Sex, God and Rock n Roll: Re-Vamping the Sacred may not take RLST 382 for credit.

**RLST 390.3 — 1/2(3S)**
**Readings in Eastern Religions**

A reading course in primary writings in eastern religious traditions such as the Bhagavad Gita, Brahmasutrabhasya, Tao Te Ching, or the Analects of Confucius.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 391.3 — 1/2(3S)**
**Readings in Western Religions**

Exposes the student to primary source materials. Emphasis is placed on individual study and research.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 392.3 — 1/2(3S)**
**Readings in Themes and Methods of Religious Studies**

A reading course dealing with methodological issues or comparative themes in religious studies.
**Prerequisite(s):** A 200-level RLST course or 48 credit units at the university level.

**RLST 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RLST 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RLST 411.3 — 1/2(3S)**
**Seminar in Religions and Literature**

An advanced seminar in religious literature, chosen from either eastern or western religious traditions. Student presentations and discussions are emphasized.
**Prerequisite(s):** 3 credit units 300-level RLST or 18 credit units RLSTor permission of the department.

**RLST 412.3 — 1/2(3S)**
**Seminar in Religions and Culture**

A critical examination of religious ideas, beliefs, and practices in varied cultural contexts.
**Prerequisite(s):** 3 credit units 300-level RLST or 18 credit units RLSTor permission of the department.

**RLST 413.3 — 1/2(3S)**
**Seminar in Religious Thought**

An advanced seminar in contemporary religious thought focusing on an important theme such as the nature of religious belief, the problem of suffering and evil, or religious pluralism.
**Prerequisite(s):** 3 credit units 300-level RLST or 18 credit units RLST or permission of the department.

**RLST 423.3 — 1/2(3S)**
**Comparative Approaches to Study of Religions**

A survey of contemporary theories and methods in the comparative study of religion. Issues and problems in the application of the comparative approach will be examined. Selected readings in major figures in the discipline, including Canadian contributors.
**Prerequisite(s):** 3 credit units 300-level RLST or 18 credit units RLST or permission of the department.

**RLST 425.3 — 1&2(1S)**
**Honours Paper**

Students will carry out a major project under the supervision of a faculty member and present the completed project in the form of a major paper and departmental colloquium.
**Prerequisite(s):** 3 credit units at the 300-level or completion of 18 credit units in religious studies or permission of the department.
**Note:** Required for Honours in Religious Studies.

**RLST 426.0 — 1/2(1S)**
**Honours Colloquium**

Oral presentation of a major paper to a conference of department honours students and faculty. The presentation is normally based on a paper already prepared or in preparation for a 400-level course in religious studies. A requirement for honours and double honours students.
**Prerequisite(s):** Enrolment in a 400-level Religious Studies course.

**RLST 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RLST 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# RUD — REGIONAL AND URBAN DEVELOPMENT

College of Arts and Science

**RUD 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUD 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUD 390.3 — 1/2(1L-2P)**
**Research and Field Methods in Planning**

Applies quantitative and qualitative research methods to selected case study projects. Students will design a research framework, design any needed instruments, gather their data, and present results. Working in small groups, students will collect data using methods such as written surveys, content analysis, focus groups, and participant observation.
**Prerequisite(s):** Registration in the RUD program.

**RUD 398.3 — 1/2(3S)**
**Special Topics**

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**RUD 399**
**Special Topics**

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**RUD 413.0 — (P)**
**Practicum in Planning**

An applied course that provides students with professional experience and the ability to critique urban, rural, regional or community planning standards and procedures. The course must include a work program consisting of 40 hours approved by the Practicum Supervisor.
**Prerequisite(s):** GEOG 342, 346 and permission of the department.
**Note:** Graduation in the program is based on the overall average only.

**RUD 490.3 — 1/2(3S every second week)**
**Regional and Urban Planning Capstone**

Students will focus on identifying a planning problem, identifying options, analyzing those options, and setting up the policies and tools needed to solve the problem. With help from academics and professional planners, students will pull together a comprehensive report that is both academically rigorous and built on sound planning principles.
**Prerequisite(s):** RUD 390 and registration in the RUD program.

**RUD 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUD 499.6 — 1&2(3S)**
**Special Topics**

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# RUSS — RUSSIAN

Department of Languages & Linguistics, College of Arts and Science

**RUSS 114.3 — 1/2(3L-1T)**
**Elementary Russian I**

Develops elementary proficiency in speaking, reading, understanding, and writing Russian. Basic grammatical structures, sound patterns, spelling and vocabulary will be studied. Students will be introduced to Russian life and culture, politics, geography, and society.
**Formerly:** RUSS 115.
**Note:** Students who have completed Russian 20 (Grade 11 Russian) in the past five years or have completed Russian 30 (Grade 12 Russian), regardless of when it was taken, may not take this course for credit. Students who have some background in Russian or who have taken any other courses in Russian and native speakers of Russian are not allowed to register in this course. Students with credit for RUSS 115 may not take this course for credit.

**RUSS 117.3 — 1/2(3L-1T)**
**Elementary Russian II**

A continuation of RUSS 114. It develops elementary proficiency in speaking, reading, understanding, and writing Russian. Basic grammatical structures, sound patterns, spelling and vocabulary will be studied. Students will be introduced to Russian life and culture, politics, geography, and society. Students will develop the ability to understand spoken Russian and respond to it within certain everyday topics.
**Formerly:** RUSS 115.
**Prerequisite(s):** RUSS 114 or equivalent background.
**Note:** Students who have completed Russian 30 may not take this course for credit. Students who have a background in Russian or have taken any other Russian courses, must present themselves to the Department. Native speakers of Russian are not allowed to register in this course. Students with credit for RUSS 115 may not take this course for credit.

**RUSS 210.3 — 1/2(3L)**
**Russian Civilization in English**

A survey of the material, spiritual and intellectual culture of Russia.
**Prerequisite(s):** Completion of 30 credit units at the university.
**Note:** This course cannot be used to fulfill the language requirement. It may be used to fulfill the humanities requirements or as an elective under Requirement 7.

**RUSS 214.3 — 1/2(3L-1T)**
**Intermediate Russian I**

Develops the basic syntactic, morphological, lexical, and phonetic structure of modern Russian, by combining a study of the essentials of grammar with classroom practice in conversation and translation, and through selected readings.
**Formerly:** RUSS 215.
**Prerequisite(s):** RUSS 114 and 117 or equivalent.
**Note:** Native speakers of Russian are not allowed to register in this course. Students with credit for RUSS 215 may not take this course for credit.

**RUSS 216.3 — 1/2(3L)**
**Russian Prose**

A survey of Russian prose from the beginnings to the present.
**Prerequisite(s):** RUSS 214, 217.

**RUSS 217.3 — 1/2(3L-1T)**
**Intermediate Russian II**

A continuation of RUSS 214. Emphasis is placed on improving oral and written communication skills. Selected readings will be used to further develop the essentials of grammar and build vocabulary.
**Formerly:** RUSS 215.
**Prerequisite(s):** RUSS 214 or equivalent.
**Note:** Native speakers of Russian are not allowed to register in this course. Students with credit for RUSS 215 may not take this course for credit. This course is also offered as part of the St. Petersburg Russian Term Abroad Program.

**RUSS 224.3 — 1/2(3L)**
**Russian Drama and Theatre**

A reading and analysis of the Russian 19th and 20th century drama and the emergence of the major professional theatres of Moscow and St. Petersburg, with reinforcement of grammatical concepts through the study of these texts. This course studies the work of some of the major theatre directors, such as: Stanislavsky, Nemirovich-Danchenko, Meyerkhold, Tovstonogov, Tabakov, Liubimov. Course language: Russian.
**Prerequisite(s):** RUSS 214.

**RUSS 226.3 — 1/2(3L)**
**Russian Poetry**

The development of Russian poetry from its beginnings to the present. Works of representative poets in each period are studied.
**Prerequisite(s):** RUSS 214, 217.

**RUSS 234.3 — 1/2(3L)**
**Dostoyevsky and the Russian Idea**

A reading and analysis of Dostoyevsky's political novels: Notes from the Underground, Crime and Punishment, Demons, Brothers Karamazov, The Idiot, in the context of independent Russian thinking of the time (Solovyov, Khomyakov, Berdyeve, Gogol, Tolstoy). Course language: English.
**Prerequisite(s):** RUSS 117, ENG 110, LIT 100.
**Note:** Students with credit for RUSS 334 may not take this course for credit.

**RUSS 261.0 — 1/2(1T)**
**Revolution and Dissidence in Protest Literature**

A tutorial accompanying LIT 261.
**Prerequisite(s):** RUSS 214, 217 taken previously or concurrently.

**RUSS 262.0 — 1/2(1T)**
**Exiles and Emigres in Expatriation**

A tutorial accompanying LIT 262.
**Prerequisite(s):** RUSS 214, 217 taken previously or concurrently.

**RUSS 263.0 — 1/2(1T)**
**Heroines Anti Heroines and Gender Definition in Literature**

A tutorial accompanying LIT 263.
**Prerequisite(s):** RUSS 214, 217 taken previously or concurrently.

**RUSS 264.0 — 1/2(1T)**
**Mephisto and Faust Knowledge Power Damnation and Redemption**

A tutorial accompanying LIT 264.
**Prerequisite(s):** RUSS 214, 217 taken previously or concurrently.

**RUSS 275.3 — 2(5.5L)**
**Conversation and Pronunciation**

Involves the systematic development of conversational ability on various themes: city services, theatre, sport, shopping, in the library, transportation, the educational system, the structure of government, etc. The students will be expected to make oral presentations and to participate in classroom discussions.
**Prerequisite(s):** RUSS 214.
**Note:** Offered only as part of the St. Petersburg Russian Term Abroad Program in St. Petersburg, Russia.

**RUSS 285.3 — 2(4L)**
**Contemporary Russian Authors**

Involves reading and analysis of contemporary Russian authors: Tatyana Tolstaya, Ludmilla Petrushevskaya, Victoria Tokoreva, Venedikt Erofeev, Sergei Dovlatov, Joseph Brodsky, and others, in the context of the cultural changes in the Russian society.

**Prerequisite(s):** RUSS 214.
**Note:** Offered only as part of the St. Petersburg Russian Term Abroad Program in St. Petersburg, Russia.

**RUSS 295.3 — 2(2.5L)**
**Seminar on Visual Arts in Russian Museum**

Involves an extensive study of Russian painting with the purpose of systematic development of conversational ability, lexicon, and understanding of Russian culture through its visual arts. Field trips to the Russian Museum in St. Petersburg are an essential component of this course.
**Prerequisite(s):** RUSS 214.
**Note:** Offered only as part of the St. Petersburg Russian Term Abroad Program in St. Petersburg, Russia.

**RUSS 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUSS 299.6 — 1&2(3L)**
**Special Topics**

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**RUSS 300.3 — 1/2(3L)**
**Studies in Russian Authors**

One Russian author will be studied, such as Gogol, Turgenev, Dostoevsky, Tolstoy, Pasternak, Solzhenitsyn, Pushkin.
**Prerequisite(s):** RUSS 314 and 317 taken previously or concurrently.

**RUSS 314.3 — 1/2(3L-1T)**
**Advanced Russian I**

This course will enable students to function independently within complete immersion in the Russian environment, conduct independent research and study literature in the language. It will continue developing oral and written proficiency. The cultural component will prepare students for complete immersion in the Russian milieu.
**Formerly:** RUSS 315.
**Prerequisite(s):** RUSS 214, 217 or permission of the department.
**Note:** Students with credit for RUSS 315 may not take this course for credit.

**RUSS 317.3 — 1/2(3L-1T)**
**Advanced Russian II**

A continuation of RUSS 314. It will concentrate on dramatic improvement of all four language skills: listening, speaking, reading, and writing. Students will be able to work independently with Russian texts, and will be able to sustain advanced conversation on a wide range of subjects.
**Formerly:** RUSS 315.
**Prerequisite(s):** RUSS 314 or permission of the department.
**Note:** Students with credit for RUSS 315 may not take this course for credit. Also offered as part of the St. Petersburg Russian Term Abroad Program.

**RUSS 334.3 — 1/2(3L-1T)**
**Dostoyevsky**

Analyzes Dostoyevsky's innovation in the realm of artistic form and his contribution into European aesthetics. Course language: Russian.
**Prerequisite(s):** RUSS 317 taken previously or concurrently.
**Note:** Students with credit for RUSS 234 may not take this course for credit.

**RUSS 395.3 — 2(4L)**
**Russian Media**

Involves an extensive study of Russian media and political lexicon and analysis of journalistic texts and Russian newspapers; development of listening comprehension of Russian formal speech through Russian radio and television. Students will be expected to make short presentations at every class.
**Prerequisite(s):** RUSS 214.
**Note:** Offered only as part of the St. Petersburg Russian Term Abroad Program in St. Petersburg, Russia.

**RUSS 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUSS 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUSS 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**RUSS 499.6 — 1&2(3S)**
**Special Topics**

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# SC — SCIENCE

College of Arts and Science

**SC 200.3 — 1/2(3L-2P)**
**Culture and Physical Science**

The nature of the scientific endeavour in the cultural/historical context in which it occurs is investigated. Basic principles and some major discoveries of science are reviewed. Traditional (aboriginal) knowledge is examined where applicable. Aspects of popular and media science are also investigated.
**Prerequisite(s):** 24 credit units at the university level including BIOL 108.6 or equivalent; or permission of the instructor. Restricted to students in the elementary education program at NORTEP, College of Education.
**Note:** Not acceptable for Arts & Science credit.

# SLSC — SOIL SCIENCE

Department of Soil Science, College of Agriculture

**SLSC 41.6 — 1(3L-2P)**
**Fundamentals of Soil Science**

Introduces students to the fundamental principles of soil science. It examines basic physical and chemical properties of soil, soil genesis and classification, soil fertility, and problem soils. Emphasis will be placed on the impact of these characteristics on soil productivity.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**SLSC 52.6 — 2(3L-2P)**
**Soil Fertility and Fertilizers**

Examines major soil fertility issues with emphasis on their application in western Canada. Fundamental issues of soil nutrient status, form and function will be addressed. Fertilizer forms, application methods and behaviour in soil are examined with a view to maximizing their benefits to crop production. Methods of assessing soil fertility and basic fertilizer manufacturing processes will also be investigated.
**Prerequisite(s):** SLSC 41 and enrolment in the Diploma in Agriculture program.

**SLSC 73.6 — 1(3L-2P)**
**Soil Management and Land Evaluation**

Identifies soil quality parameters and discuss land capability classification, mapping, and soil mapping for precision farming. Soil management practices will be discussed for problem soil conditions and also for general conservation and improvement of soil fertility. Soil management practices and their effect on the soil and its environment will be discussed.
**Prerequisite(s):** SLSC 41 and enrolment in the Diploma in Agriculture program.

**SLSC 88.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SLSC 240.3 — 2(3L-2P)**
**Agricultural Soil Science**

Students are introduced to the major physical, chemical and biological properties of soil and the influence of those properties on soil productivity. The relationship of soil to its environment will be investigated as it relates to soil genesis, soil classification and cropping systems. The principles of soil fertility and fertilizer management will be explored with emphasis on cropping systems of Western Canada.
**Prerequisite(s):** AGRC 111.
**Note:** Students may only receive credit for one of EVSC 220, SLSC 220 or 240.

**SLSC 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SLSC 312.3 — 1(3L-2P)**
**Soil Fertility and Fertilizers**

The forms, flows, and transformations of plant nutrients in soils are examined, with emphasis on Western Canadian agricultural systems. The fate of applied nutrients as commercial fertilizers and manure is stressed, especially as to how agrnomic practices affect the utilization of soil and fertilizer nutrients by plants. Techniques for soil fertility evaluation and the development of suitable fertilizer recommendations are covered, along with approaches to fertilizer application.
**Prerequisite(s):** EVSC 220, SLSC 220 or 240.

**SLSC 313.3 — 1(3L)**
**Environmental Soil Chemistry**

The lectures and reading assignments cover the structural and chemical properties of major soil components and the principles

of soil chemical equilibria and kinetics in soil solution and surface chemistry in relation to pedogenesis and physical, chemical and biological properties of soils and environmental protection.
**Prerequisite(s):** CHEM 111 and 251; EVSC 220, SLSC 220 or 240.

**SLSC 322.3 — 1(3L-3P)**
**Applied Soil Physics**

Combines theoretical and experimental elements aimed at providing understanding of the fundamental soil physical properties and processes, as well as the ability to solve practical problems related to agricultural and environmental problems. Topics include a discussion of the solid, liquid, and gaseous phases of the soil and the interactions between the phases, the movement of water, chemicals, air, and heat in soils, and the effects of these on plant growth and the environment. The laboratory involves the measurement of selected properties and their interpretation.
**Prerequisite(s):** EVSC 220, SLSC 220 or 240.

**SLSC 332.3 — 1(3L)**
**Soil Genesis and Classification**

Deals with soil systems and their environments from the perspective of soil development and soil classification. Attention is given to the biotic, geological and physical factors that influence soil formation, and the response of soils to altered environments. The primary emphasis is on Canadian soils and classification, with significant attention to global soils. A one-day field trip takes place early in the term.
**Prerequisite(s):** EVSC 220, SLSC 220 or 240.

**SLSC 343.3 — 2(3L-3P)**
**Soil Microbiology**

Lectures and reading assignments stress microbial population dynamics and activity in soils. The role of soil microorganisms in nutrient cycling and their effects on plant growth are discussed. Introduction to contemporary research problems in soil microbiology. Lab work illustrates and complements the lectures.
**Prerequisite(s):** APMC 212, FAMS 212 or MICR 214.

**SLSC 398.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SLSC 412.3 — 1(2L-3P)**
**Integration and Application of Soil Science**

Integrates soil science principles and applies these principles to agrnomic and environmental problems. Focuses on the field techniques used in soil and land resource science. The specific techniques taught in the course will be applied to current agrnomic and environmental issues.
**Prerequisite(s):** 12 credit units of 300-level SLSC or permission of the instructor.

**SLSC 460.3 — 1(3L)**
**Forest Soils**

Forest soils and forestry practices are discussed, with emphasis on boreal soils. Attention will be given to forest soil development, forest land capability and the effects of management practices (harvesting, fertilization, and site preparation) on soil properties. Interrelationships among natural occurrences (fire), nutrient and carbon cycling and environmental concerns will be examined. A required three-day field trip takes place early in the term.
**Prerequisite(s):** SLSC 332 or permission of the instructor.
**Note:** There will be costs in addition to tuition fees for this course.

**SLSC 480.3**
**Soils and Boreal Landscapes**

A four day field course with a follow-up tutorial to study boreal soils and landscapes the week prior to the fall term. Focus will be on the examination, description and classification of northern soils within various landscapes. This course also provides an introduction to basic air photo interpretation, ecological classification and forest measurements, as well as an artistic interpretation of landscapes.
**Prerequisite(s):** SLSC 332 or permission of instructor.
**Note:** There will be costs in addition to tuition fees for this course.

**SLSC 492.3 — 1&2**
**Research and Term Paper**

A technical writing and communications course in which the student investigates a problem relevant to Soil Science. The focus will be on literature research using electronic and library resources, but original data may be included. A term paper will be written under the guidance of a faculty advisor and results presented in a seminar or as a poster. Communication skills will be addressed in a series of lectures early in the course.
**Prerequisite(s):** Successful completion of 75 credit units towards the B.S.A. Soil Science degree.

**SLSC 494.6 — 1&2**
**Research and Thesis**

Students will investigate a problem in Soil Science using modern laboratory or field methods. An extensive literature review will be prepared utilizing electronic and library resources and a research question will be taken from the literature. The student will then develop a hypothesis, design experiments to test the hypotheses, and analyze and interpret their experimental results. Finally, a comprehensive thesis will be written and findings will be presented in a formal seminar or as a poster. Communication skills will be addressed in a series of lectures at the beginning of the course.
**Prerequisite(s):** Successful completion of 75 credit units towards the B.S.A. Soil Science degree.

**SLSC 498.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# SNSK — SANSKRIT

Department of Religious Studies & Anthropology, College of Arts and Science

**SNSK 101.6 — 1&2(3L)**
**Introduction to Sanskrit**

An elementary course in classical Sanskrit language. Topics include phonology and nagari script; major features of morphology, grammar and syntax; translation practice and reading in narrative literature.

**SNSK 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SNSK 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SNSK 398.3 — 1/2(3S)**
**Special Topics**

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**SNSK 399.6 — 1&2(3S)**
**Special Topics**

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**SNSK 498.3 — 1/2(3S)**
**Special Topics**

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**SNSK 499.6 — 1&2(3S)**
**Special Topics**

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# SOC — SOCIOLOGY

Department of Sociology, College of Arts and Science

**SOC 110.6 — 1&2(3L)**
**Introduction to Sociology**

An introduction to sociological analysis of social institutions, relations, and groups, with emphasis on Canadian society. Contemporary and classical perspectives are used to study social structures and processes such as class, gender, race, ethnicity, community, work, education, justice, conflict, cooperation, and change.
**Note:** SOC 110 is the prerequisite for all 200- and 300-level courses in Sociology.

**SOC 201.3 — 1/2(3L)**
**Economy and Society**

Examination of relationships between economic and social structures in contemporary industrial and pre-capitalist societies. Mode of production and social exchange analysis in study of social reproduction and social crises.
**Prerequisite(s):** SOC 110.

**SOC 203.3 — 1/2(3L)**
**Race and Ethnic Relations in Canada**

An introduction to and general overview of the various theoretical perspectives on race and ethnic relations and ethnicity. Addresses such issues as assimilation, racism, ethnic persistence, multiculturalism, and domination.
**Prerequisite(s):** SOC 110.

**SOC 204.3 — 1/2(3L)**
**Rural Sociology**

Analysis of social change in rural areas with emphasis on links between the social organization of resource-based industries

and the social characteristics of rural communities. Rural Canada is the primary focus but international rural development issues are considered.
**Prerequisite(s):** SOC 110.

**SOC 205.3 — 1/2(3L)**
**Comparative Race and Ethnic Relations**

A comparative sociological analysis of ethnic relations will include discussion of ethnic stratification, separatism, pluralism, and politicization of ethnic minorities in selected societies.
**Prerequisite(s):** SOC 110.

**SOC 206.3 — 1/2(3L)**
**Community**

Communities as forms of social organization, and community as a particular kind of social relationship; power, politics, and resistance in contemporary communities; research problems and case studies.
**Prerequisite(s):** SOC 110.

**SOC 207.6 — 1&2(3L)**
**Family**

Analysis of sex, marriage, family and kinship institutions in contemporary society.
**Prerequisite(s):** SOC 110.

**SOC 212.3 — 1/2(3L)**
**Introduction to Criminology**

An introduction to the study of crime and criminological theories. In addition to developing a basics understanding of criminological theories, students examine the rich and diverse nature of Canadian criminological research. Specific topics may include: women and crime; restorative justice and peacemaking; youth justice; Aboriginal Peoples; and penology.
**Prerequisite(s):** SOC 110.

**SOC 213.3 — 1/2(3L)**
**Immigration and Canadian Mosaic**

Explores the process of immigration and its impact on Canadian society. Topics include theories of immigration, public immigration policies, ideology and acculturation, pluralism and ethnic identity, race relations and immigrant communities.
**Prerequisite(s):** SOC 110; SOC 203 recommended.

**SOC 214.3 — 1/2(3L)**
**Social Control**

The history of social control with a focus on how social, legal and political structures constrain individuals and groups by constructing and regulating morality. Topics include state policy, moral panics, the management of risk and public security, and institutions of control including justice, education, medicine and the media.
**Prerequisite(s):** SOC 110.

**SOC 215.3 — 1/2(3L)**
**Sociology of Work**

A study of work and workers in historical and cross-cultural context. The course examines the social dimensions of various orientations to and kinds of work.
**Prerequisite(s):** SOC 110.

**SOC 217.3 — 1/2(3L)**
**Sociology of Contemporary Religious Movements**

A survey of contemporary religious movements with emphasis upon structural and functional similarities and differences.
**Prerequisite(s):** SOC 110.

**SOC 219.3 — 1/2(3L)**
**Aboriginal Peoples and Justice in Canada**

Examines the causes and consequences of the over- and under-representation of Aboriginal persons in the Canadian criminal justice system. Topics include prevention, policing, sentencing and courts, incarceration and accommodations. The particular impacts on Aboriginal youth and Aboriginal women are also considered.
**Formerly:** NS 219.
**Prerequisite(s):** SOC 110.
**Note:** Students with credit for NS 219 may not take this course for credit.

**SOC 220.6 — 1&2(3L)**
**Sociology and Social Welfare Organization**

The development of organized social welfare as a component of an industrialized society; an investigation of the sociological forces that influenced each developmental stage, resulting in the present social welfare phenomena.
**Prerequisite(s):** SOC 110.

**SOC 222.3 — 1/2(3L)**
**Sociology of Education Institutions and Processes**

An introduction to the sociology of education through an examination of the major theoretical approaches; conflict theory, structural functionalism, and symbolic interactionism. Examines the school as a social institution and a complex organization, and the ethnography of classroom relations between students and teachers.
**Prerequisite(s):** SOC 110.

**SOC 224.3 — 1/2(3L)**
**Collective Behaviour**

The study of social movements, institutional formation, and other collective phenomena such as fads, crazes, manias, panics, rumours, riots and mob outbursts. Collective behaviour theory and related sociological approaches are surveyed and applied.
**Prerequisite(s):** SOC 110.

**SOC 227.6 — 1&2(3L)**
**Critical Issues in Canadian Society**

Canadian social structure and social change will be examined. The topics discussed will include: social class and inequality; elites; poverty; regionalism and separatism; labour; ethnicity; and other relevant social issues.
**Prerequisite(s):** SOC 110.

**SOC 232.3 — 1/2(3L)**
**Methods of Social Research**

Introduces the language of social research; research design; techniques of data collection; methods of measurement, scaling and sampling, and the interpretation and presentation of research findings.
**Prerequisite(s):** SOC 110.

**SOC 233.3 — 1/2(3L)**
**Introduction to Sociological Theory**

An introduction to sociological theory through an examination of the relationship between theory and research, and consideration of some of the better known theoretical models of the middle range (e.g., social structure and anomie, reference group theory, etc.).
**Prerequisite(s):** SOC 110.

**SOC 234.3 — 1/2(3L)**
**Sociology of Law**

An introduction to the sociological study of law. Topics include the organization and processes of law and legal institutions; the legal profession; dispute resolutions; law and social control; law and social change.
**Formerly:** SOC 330.
**Prerequisite(s):** SOC 110; open to Law students.
**Note:** This course is open to students in the College of Law. Students with credit for SOC 330 may not take SOC 234 for credit.

**SOC 235.3 — 1/2(3L)**
**Sociology of Aging**

Provides an introductory sociological analysis of aging and old age. Issues will include demographic changes; theoretical approaches to old age; changing family systems and old age; work, leisure and retirement; socio-economic aspects and selected social policy issues. Course content will emphasize the Canadian situation.
**Prerequisite(s):** SOC 110.

**SOC 237.3 — 1/2(3L)**
**Comparative Social Demography**

An introduction to social demography in comparative perspective. Causes and consequences of rapid population growth, and effectiveness of fertility control in selected countries. The interrelation between the principal demographic variables: fertility, mortality, and migration.
**Prerequisite(s):** SOC 110.

**SOC 238.3 — 1/2(3L)**
**Sociology of Health Illness and Health Care**

Introduction to sociological perspectives on Canadian health care policy and practice, and an examination of various socio-structural determinants of health and illness.
**Prerequisite(s):** SOC 110.

**SOC 240.3 — 1/2(3L)**
**Application of Statistical Techniques in Sociology**

The application of statistical techniques to sociology with an emphasis on the understanding of assumptions, uses, strengths and weaknesses of the various tests of significance and measures of association.
**Prerequisite(s):** SOC 110 and STAT 244.
**Note:** Refer to Statistics Course Regulations in the Arts & Science section of the Calendar if intention is Arts & Science credit.

**SOC 242.3 — 1/2(3L)**
**Introduction to Sociology of Womens Studies**

An introduction to sociological analyses of gender in traditional as well as feminist perspective. Emphasizes gender differentiation and stratification as social processes as well as critical assessment of the assumptions, evidence, and arguments within the various theoretical approaches.
**Prerequisite(s):** SOC 110.

**SOC 244.3 — 1/2(3L)**
**Sociology of Mass Media in Canada**

Introduction to the sociological study of mass media institutions in Canadian society. Primary focus on the theoretical and historical context of print, broadcast and film media. Issues of ownership, regulation and the socialization of media workers will also be discussed.
**Prerequisite(s):** SOC 110.

**SOC 246.3 — 1/2(3L)**
**Ideology and Mass Communication**

Introduction to the study of ways in which doctrines, opinions or ways of thinking of certain individuals or groups come to dominate the content of our mass media. Primary focus on the manufacture of consent in our society through an analysis of media messages about work, consumption and leisure in Canadian society.
**Prerequisite(s):** SOC 110.

**SOC 250.3 — 1(3L)**
**Societies Social Structure and Change**

Explores social structure and change in historic and comparative perspective by surveying the breadth of human societies as these exist, have existed, and have underwent significant changes across space and time.
**Prerequisite(s):** SOC 110.

**SOC 292.3 — 1/2(3L)**
**Biotechnology and Social Change**

Examines the evolution and development of the biotechnology industry, considered as part of the Information Revolution, and its relationship to the processes of social and cultural change. Various issues associated with the development and application of biotechnology are examined along with proposals for their practical management.
**Prerequisite(s):** SOC 110 or 30 credit units university courses.

**SOC 296.3 — 1/2(3L)**
**Analysis of Modernity**

A comprehensive introduction to the history, sociology, and ideas of modern western society, which examines the formation and consolidation of modernity: the development of the modern state; the modern capitalist economy and the industrial revolution; and with an emphasis on the emergence of the Enlightenment and the social sciences.
**Prerequisite(s):** SOC 110.

**SOC 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SOC 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SOC 302.3 — 1/2(3L)**
**Sociology of Agriculture**

Contemporary sociological approaches to the social organization of farming and agribusiness, including property, gender, and work relations, structural and institutional change, and the social ecology of resource management. Emphasis is on North America, with comparison to other regions.
**Prerequisite(s):** 12 credit units SOC including SOC 204, SOC 110 and third-year standing in the College of Agriculture.

**SOC 303.6 — 1&2(3L)**
**History of Sociological Theory**

The development of sociological thought in Europe and America since the 18th century. Description and criticism of principal historical and contemporary contributions to sociological theory.
**Prerequisite(s):** 12 credit units SOC including SOC 233.

**SOC 304.3 — 1/2(3L)**
**Contemporary Marxist Sociology**

An introduction to the study of contemporary Marxist social thought. Focuses specifically on the ontological, conceptual and methodological issues, problems and implications inherent in the divergent schools of Marxist sociology.
**Prerequisite(s):** 12 credit units SOC including SOC 233.

**SOC 305.3 — 1/2(3L)**
**Ethnic Stratification**

The study of the ideology and practice of ethnic stratification from a comparative perspective, and a critical review of theories and research in the area, including analyses of social-psychological approach, colonial model, split labour market, reserve army of labour, slavery, and other models.
**Prerequisite(s):** 12 credit units SOC.

**SOC 306.3 — 1/2(3L)**
**Contemporary Class Structure**

An examination of theoretical models and empirical studies of the structure of social class relations in advanced industrial society. The course will examine patterns of class relations in the western industrialized nations, and will also study selected formally socialist countries.
**Prerequisite(s):** 12 credit units SOC.

**SOC 309.3 — 1/2(3L)**
**Theories of Social Change**

A study of classical and contemporary sociological approaches to social change. The consequences of rapid change in institutional structures.
**Prerequisite(s):** 12 credit units SOC.

**SOC 311.3 — 2(3L)**
**Youth Crime Justice and Social Control**

Designed to provide students with conceptual and practical knowledge in the study of child and youth crime and deviance. The material focuses not only on issues of social justice, but also treatment by institutions of social control including the justice system.
**Prerequisite(s):** SOC 212 or 214.

**SOC 312.3 — 1/2(3L)**
**Current Issues in Criminal Justice**

Analysis of current developments in theories and research on criminogenesis, and the administration of criminal justice. Topics include inequalities of involvement and treatment in the justice system based upon race, class and gender. Developing a general theoretical structure of justice system operation and reform is a key concern.
**Prerequisite(s):** SOC 212 and 234 or 329.

**SOC 313.6 — 1/2(P)**
**Practicum in Criminal Justice I**

An applied course that provides students with professional experience and the ability to critique criminal justice processing and services for aboriginal people. Students are placed in a 12-week work program after consultation with the program co-ordinator.
**Prerequisite(s):** SOC 232, 233 and enrolment in the Aboriginal Justice and Criminology Program.

**SOC 314.6 — 1/2(P)**
**Practicum in Criminal Justice II**

An applied course that provides students with professional experience and the ability to critique criminal justice processing and services for aboriginal people. Students are placed in a 12-week work program after consultation with the program co-ordinator.
**Prerequisite(s):** SOC 313 and enrolment in the Aboriginal Justice and Criminology Program.

**SOC 315.3 — 1/2(3L)**
**Cross Cultural Perspectives on Poverty**

Discussion of the concept and definition of poverty. Structural conditions that produce poverty at national and international levels. Internal and external factors related to the gap between rich and poor nations.
**Prerequisite(s):** 12 credit units SOC.

**SOC 316.3 — 1/2(3L)**
**Sociology of Work Organizations**

An advanced course dealing with work in diverse settings in modern society. It examines the formal and informal structures and processes in work organizations.
**Prerequisite(s):** 12 credit units SOC, including SOC 215.

**SOC 319.3 — 1/2(3L)**
**Aboriginal People in Urban Areas**

Describes and analyzes the growth, distribution and integration of the Aboriginal population in Canadian urban centres as well as the causes and consequences of the urbanization of Canadian Aboriginal people. Issues covered will include education, law, family life and native-white relations.
**Prerequisite(s):** 12 credit units SOC.

**SOC 320.3 — 1/2(3L)**
**Social Welfare and Aboriginal People**

Examines the involvement of Aboriginal people with the structures and processes of the Canadian social welfare system. Investigates the extent to which the program meets the needs of Aboriginal people, and assess the total impact of the welfare system on them and their response to it.
**Prerequisite(s):** 12 credit units SOC.

**SOC 321.3 — 1/2(3L)**
**Sociology of Religion**

An analysis of religion in terms of the processes (e.g., secularization and urbanization), which have affected the religious institutions of the West, and of the social and personality structures which, in interaction, shape religion and are shaped by it.
**Prerequisite(s):** 12 credit units SOC.

**SOC 322.3 — 1/2(3L)**
**Sociology of Education and Labour Markets**

An analysis of the relationship between formal education systems and change in labour markets and work processes. Emphasis is given to theories and research concerning the role of state policy, the degree of fit between education and work, and structured inequalities in the transition from school to work.
**Prerequisite(s):** 12 credit units SOC.

**SOC 323.3 — 1/2(3L)**
**The Public Sphere and Opinion**

Public opinion is a potent political force that affects the nature and pace of social, cultural and technological change. This course explores the relationship between public opinion, the public sphere and democratic will formation and policy-making in contemporary societies with particular reference to biotechnology.
**Prerequisite(s):** 12 credit units SOC or 60 credit units at the university level.
**Note:** Includes focus on Biotechnology Industry.

**SOC 329.3 — 1/2(3L)**
**Penology and Corrections**

An overview of the correctional system; from police, through courts and sentencing, incarceration, release and post-release processes; a look at the key positions and principles involved in custody, punishment and rehabilitation, with an emphasis on the Canadian system, but in a comparative context.
**Prerequisite(s):** 12 credit units SOC including SOC 212.

**SOC 332.6 — 1&2(3L)**
**Principles of Research Design**

Examination of a series of issues to be resolved in formulating a comprehensive research design. Topics include: formulating the problem; plan of data organization; defining and selecting cases; collection of data; organization, analysis and interpretation of data. Each student is expected to develop a number of research projects during the year.
**Prerequisite(s):** 12 credit units SOC including SOC 232, 240 and STAT 244.

**SOC 333.3 — 1/2(3L)**
**Introduction to Qualitative Research**

Provides an introduction to qualitative research. Students will develop an understanding of the theoretical foundations of various forms of qualitative inquiry, as well as knowledge about specific methods. Students will also be expected to apply course materials to their substantive areas of interest.
**Prerequisite(s):** 12 credit units SOC.
**Note:** Students with credit for SOC 498 Special Topics Introduction to Qualitative Research may not take SOC 333 for credit.

**SOC 334.3 — 1/2(3L)**
**Women and Law Historical and Comparative Perspectives**

Locates law in specific socio-economic and political contexts (colonial, local/national and global); it explores the various ways law impacts women's lives and experiences by focusing on women's work and rights (economic, political, and human); and it provides a critical evaluation of feminist theories/practices and their engagement with law and legal processes.
**Prerequisite(s):** SOC 234 and 12 credit units senior sociology; or minimum 48 credit units university courses.

**SOC 340.3 — 1/2(3L)**
**Marriage Family and Society**

Emphasis will be placed on the analysis of changing patterns of marriage and the family within the contemporary social structure and on consequences and resulting trends from such structural changes.
**Prerequisite(s):** 12 credit units SOC including SOC 207.

**SOC 341.3 — 1/2(3L)**
**Institutional Racism and Aboriginal People**

A sociological analysis of various models of institutional racism will be examined, and their applications to Aboriginal experiences will be evaluated. Topics include: colonial domination, Aboriginal reserves, urban Aboriginals, resource development, and welfare services.
**Prerequisite(s):** 12 credit units SOC.

**SOC 342.3 — 1/2(3L)**
**Sociological Theories of Gender Relations**

Provides an in-depth theoretical examination of gender stratification and differentiation. It explores issues such as gender and race, gender and justice, and the gendered body. Issues will be analyzed from feminist perspectives using the theories of Marxism, symbolic interactionism, and post structuralism.
**Prerequisite(s):** 12 credit units SOC including SOC 242, or SOC 110 and WGST 110.

**SOC 344.3 — 1/2(3L)**
**Sociology of Women Gender and Development**

Examines women's place internationally but focuses on women in developing countries and critiques existing development theories, policies and practices. Themes including gender politics, productive and reproductive labour, population policies, sexuality and reproductive rights, environment and sustainable development and health will be explored in view of globalization with an emphasis on the roles of international, transnational, and aid agencies.
**Prerequisite(s):** 12 credit units SOC plus one of SOC 242, POLS 246, POLS 260, WGST 202, ECON 221, IS 200.

**SOC 345.3 — 1/2(3L)**
**Evaluation and Applied Social Research**

Designed to introduce students to the logic, design, conduct and analyses of evaluative and applied social research. Selective case studies of evaluation research will be presented and discussed.
**Prerequisite(s):** 12 credit units SOC including SOC 232 and 240.

**SOC 360.3 — 2(3L)**
**Globalization and Social Justice**

Explores the major theories of globalization, global social stratification and social justice through issues of risks, challenges and opportunities of contemporary social life. Central concerns are the following three themes: what is globalization, what is happening; and what are people doing that is shaping the outcome of the process?
**Prerequisite(s):** SOC 110; SOC 204 and/or SOC 233 and/or SOC 250.
**Note:** Students with credit for SOC 398 Special Topics Globalization and Social Justice cannot take SOC 360 for credit.

**SOC 385.3 — 2(2.5L-1.5S)**
**Selected Topics in Central American Sociology**

Part of the La Antigua, Guatemala study term abroad. Examines selected themes in contemporary Central American sociology. May feature guest lecturers and field trips in neighbouring countries of the region.
**Prerequisite(s):** 6 credit units 100-level SOC.

**SOC 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SOC 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SOC 402.3 — 1/2(3S) or 1&2(1.5S)**
**Advanced Seminar in Sociology of Agriculture**

Theoretical and research approaches to the political and social economy of agriculture. Emphasis is given to contemporary works on agro-industrial reorganization, agro-food technology, sustainability, state intervention, international trade, aid, and agrarian reform.
**Prerequisite(s):** 18 credit units SOC including SOC 204 or 302.

**SOC 405.3 — 1/2(3S) or 1&2(1.5S)**
**Social Change**

The use of various social models in the analysis of social change. Selected theories of and research on change and development.
**Prerequisite(s):** 18 credit units SOC.

**SOC 409.3 — 1/2(3S) or 1&2(1.5S)**
**Sociology of Development**

A review of present theories of development. The main emphasis will be on the search for missing variables in theories of development produced by western social scientists.
**Prerequisite(s):** 18 credit units SOC.

**SOC 411.3 — 1/2(3S) or 1&2(1.5S)**
**Family I Development in Research and Theory**

Selected topics concerning marriage and family behaviour: recent developments in research and theory.

**Prerequisite(s):** 18 credit units SOC including SOC 207.

**SOC 412.3 — 1/2(3S) or 1&2(1.5S)**
**Advanced Seminar in Ethnic Relations**

Theoretical aspects of inter-ethnic processes. Comparative analysis of empirical research on ethnic minorities within Canada and other selected societies.
**Prerequisite(s):** 18 credit units SOC.

**SOC 413.3 — 1/2(3S) or 1&2(1.5S)**
**Seminar in Sociology of Religion**

An advanced seminar in sociological theories of religious behaviour.
**Prerequisite(s):** 18 credit units SOC including SOC 217 or 321.

**SOC 415.3 — 1/2(3S) or 1&2(1.5S)**
**Selected Problems in Social Control**

Theoretical analysis of and empirical research on selected problems in social deviancy and social control.
**Prerequisite(s):** 18 credit units in SOC.

**SOC 416.3 — 1/2(3S) or 1&2(1.5S)**
**Industrialism and Social Welfare**

An advanced course which investigates various theoretical perspectives on social welfare as a social institution in the context of industrialism. Selected issues particularly relevant to Canada, such as resource development and social policy will be included.
**Prerequisite(s):** 18 credit units SOC including one of SOC 220, 215, 315, 316.

**SOC 418.3 — 1/2(3S) or 1&2(1.5S)**
**Advanced Criminology**

An analysis and critique of current developments in Canadian criminological discourse, with an emphasis on the specific research issues and their relation to theoretical and policy developments.
**Prerequisite(s):** 18 credit units SOC including SOC 212, 234 or 329.

**SOC 419.3 — 1/2(3S) or 1&2(1.5S)**
**Justice in Aboriginal Communities**

An advanced course on justice reform, focusing on community development, cultural traditions and implementation of reform proposals. Students will develop an advanced understanding of the meaning of Aboriginal justice systems and an advanced knowledge of the process of justice reform. Focuses on what is being done in Aboriginal communities.
**Formerly:** NS 314
**Prerequisite(s):** 18 credit units SOC including SOC 219.
**Note:** Students with credit for NS 314 may not take this course for credit.

**SOC 420.3 — 1/2(3S) or 1&2(1.5S)**
**Medical Sociology**

Comparative study of health-care systems; the structure and functions of medical institutions; and the relationship between the organization of health-care delivery systems and the medical profession, society and the state.
**Prerequisite(s):** 18 credit units SOC including SOC 238.

**SOC 422.3 — 1/2(3S) or 1&2(1.5S)**
**Social Stratification and Social Mobility**

A review of classical and modern theories of stratification and introduction to methods of studying social mobility. Emphasis on recent developments in models of social stratification and social mobility.
**Prerequisite(s):** 18 credit units SOC.

**SOC 426.3 — 1/2(3S) or 1&2(1.5S)**
**Social Policy: Issues and Analysis**

Examines the formulation, development, management and impact of social policies. Includes analysis and evaluation of social policies in income security, social services, employment, housing and other areas.
**Prerequisite(s):** 18 credit units SOC including SOC 220 or 320.

**SOC 430.3 — 2(3S)**
**Sociology of Science and Knowledge**

The social conditions and consequences of the production, distribution and consumption of scientific and other forms of knowledge are examined in this course. Deploying classical and contemporary theories, specific institutional settings and ongoing debates over concepts and issues such as knowledge society, indigenous knowledge, corporatization of the university, gendered knowledge, etc., are examined.
**Prerequisite(s):** 18 credit units SOC.

**SOC 431.3 — 2(3L)**
**Sociology of Risk**

A critical review of risk. Topics include: theories of risk, risk controversies, risk perception and communication.
**Prerequisite(s):** 18 credit units SOC.

**SOC 435.3 — 1/2(3S) or 1&2(1.5S)**
**New Directions in Sociology of Education**

Critical review and analysis of significant recent developments in sociological theory and research on education.
**Prerequisite(s):** 18 credit units SOC including SOC 222.

**SOC 436.3 — 1/2(3S) or 1&2(1.5S)**
**Advanced Seminar in Sociology of Women and Health**

Examines the relationship between women and the institution of medicine as a social practice. Specifically, it will explore the basis for women's health issues as rooted in their social position.
**Prerequisite(s):** 18 credit units SOC including SOC 242 and 342.

**SOC 439.3 — 1/2(3S) or 1&2(1.5S)**
**First Nations Women and Law**

Accomplishes two broad objectives by critically examining the situation of First Nations women in Canadian law. Students learn the structure of the Canadian legal system while learning legal research skills. Topics examined include statutory discrimination, political rights and the justice system.
**Formerly:** NS 419.
**Prerequisite(s):** SOC 110, 12 credit units in Sociology or 18 credit units in Native Studies.
**Note:** Students with credit for NS 419 may not take this course for credit.

**SOC 442.3 — 1/2(3S) or 1&2(1.5S)**
**Advanced Seminar in Contemporary Developments in Womens Studies**

Theoretical debates regarding the roles and relations of women and men, gender stratification, and the oppression of women, including critiques of traditional sociological theory, discourses on feminist epistemology, and the relationship between research methodology and the development of theory.
**Prerequisite(s):** 18 credit units SOC including SOC 242 and 342.

**SOC 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SOC 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# SPAN — SPANISH

Department of Languages & Linguistics, College of Arts and Science

**SPAN 114.3 — 1/2(3L-1T)**
**Elementary Spanish I**

Introduction to the study of the Spanish language, both oral and written, vocabulary building, essential structures, and basic grammar. The course also provides insight into Hispanic culture through a variety of activities such as readings, music, and videos.
**Formerly:** SPAN 115.
**Note:** Students who have completed Spanish 20 (Grade 11 Spanish) or have completed Spanish 30 (Grade 12 Spanish), may not take this course for credit. Students who have some background in Spanish or who have taken any other courses in Spanish and native speakers of Spanish are not allowed to register in this course. Students with credit for SPAN 115 may not take this course for credit.

**SPAN 117.3 — 1/2(3L-1T)**
**Elementary Spanish II**

A Spanish language course that builds on skills acquired in SPAN 114, completing the study of basic Spanish grammar, with emphasis on oral and written communication. The course aims to develop an appreciation of Hispanic culture.
**Formerly:** SPAN 115.
**Prerequisite(s):** SPAN 114 or equivalent background.
**Note:** Students who have completed Spanish 30 may not take this course for credit. Students who have taken high school Spanish courses or any other Spanish courses and native speakers of Spanish are not allowed to register in this course. Students with credit for SPAN 115 may not take this course for credit.

**SPAN 202.3 — 1/2(4L-1T)**
**Intermediate Spanish I Oral Skills and Cultural Understanding**

Examines readings about Spanish and Latin American cultures, stressing oral composition. Students will have opportunities to develop their oral skills as well as to improve their knowledge of the language through a communicative approach. Regular attendance is required.
**Formerly:** SPAN 200.
**Prerequisite(s):** SPAN 114 and 117 or permission of the department.
**Note:** Native speakers of Spanish are not allowed to register in this course. Students

with credit for SPAN 200 may not take this course for credit.

**SPAN 204.3 — 1/2(4L-1T)**
**Intermediate Spanish II Oral Skills and Cultural Understanding**

A Spanish language course that builds on skills acquired in SPAN 202 or equivalent. Students will continue to strengthen their language proficiency through a communicative approach by reading cultural texts, participating in dialogues, and making oral presentations. Regular attendance is required.
**Formerly:** SPAN 200.
**Prerequisite(s):** SPAN 202.
**Note:** Native speakers of Spanish are not allowed to register in this course. Students with credit for SPAN 200 may not take this course for credit.

**SPAN 214.3 — 1/2(3L-1T)**
**Intermediate Spanish I Grammar Writing Literary Readings**

An intensive study of Spanish grammar, with emphasis on writing skills. Short reading passages will be used to allow students to expand vocabulary and develop oral proficiency.
**Formerly:** SPAN 215.
**Prerequisite(s):** SPAN 114 and 117 or permission of the department.
**Note:** Students with credit for SPAN 215 may not take this course for credit.

**SPAN 217.3 — 1/2(3L-1T)**
**Intermediate Spanish II Grammar Writing Literary Skills**

A Spanish language course that builds on skills acquired in SPAN 214. This course continues with the study of intermediate-advanced Spanish grammar, with a focus on written composition and the study of short literary passages. This course will continue giving the opportunity for oral practice.
**Formerly:** SPAN 215.
**Prerequisite(s):** SPAN 214.
**Note:** Students with credit for SPAN 215 may not take this course for credit.

**SPAN 261.0 — 1/2(1T)**
**Revolution and Dissidence in Protest Literature**

A tutorial accompanying LIT 261.
**Prerequisite(s):** SPAN 214, 217 taken previously or concurrently.

**SPAN 262.0 — 1/2(1T)**
**Exiles and Emigres in Expatriation**

A tutorial accompanying LIT 262.
**Prerequisite(s):** SPAN 214, 217 taken previously or concurrently.

**SPAN 263.0 — 1/2(1T)**
**Heroines Anti Heroines and Gender Definition in Literature**

A tutorial accompanying LIT 263.3.
**Prerequisite(s):** SPAN 214, 217 taken previously or concurrently.

**SPAN 264.0 — 1/2(1T)**
**Mephisto and Faust Knowledge Power Damnation and Redemption**

A tutorial accompanying LIT 264.3.
**Prerequisite(s):** SPAN 214, 217 taken previously or concurrently.

**SPAN 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SPAN 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SPAN 305.3 — 1(3L)**
**Representative Works in Spanish Peninsular Literature**

An introduction to the literary masterpieces of Spain, through the reading and study of Spanish texts from the medieval period to modern times.
**Prerequisite(s):** SPAN 202, 204, 214, 217.

**SPAN 306.3 — 2(3L)**
**Introduction to Spanish American Literature**

Examines the work of twelve writers of Latin America from the 19th century to the present whose works are representative of literary currents in Latin America.
**Prerequisite(s):** SPAN 202, 204, 214, 217.

**SPAN 307.3 — 1/2(3L)**
**Latin American Short Story El cuento latinoamericano**

El cuento latinoamericano introduces students to an exemplary genre of Latin American literature: the short story. Includes a brief history of the development of the short story genre in Latin America and entails in-depth textual analysis of masterpieces of the short story from all parts of Spanish speaking Latin America: the Caribbean, Central America, Mexico, Chile, Argentina, Uruguay, Peru, Colombia, etc. All class lectures and readings are in Spanish. Selections will include works of internationally renowned authors such as Gabriel Garcia Marquez (Columbia), Carlos Fuentes (Mexico), Mario Benedetti (Uruguay), Jorge Luis Borges (Argentina), Alejo Carpentier (Cuba), Julio Cortazar (Argentina); as well as ten other authors chosen at the discretion of the individual instructor.
**Prerequisite(s):** SPAN 204 and 217; or equivalent.

**SPAN 308.3 — 1/2(3L)**
**Peninsular Spanish Novel from Generation of 1898 to 2000**

Introduces students to masterpieces of the novelistic genre from twentieth century Spain. Includes a brief history of the development of the novel in Spain. All class lectures and readings are in Spanish. Selections may include works of internationally renowned authors such as Miguel de Unamuno, Camilo Jose Cela, Ana Maria Matute, Miguel Delibes, Luis Martin Santos, Juan Gyotisolo, Ramon Sender, as well as other authors chosen at the discretion of the individual instructor.
**Prerequisite(s):** SPAN 204 and 217; or equivalent.

**SPAN 314.3 — 1/2(3L-1T)**
**Advanced Spanish I**

Advanced grammar and vocabulary expansion with emphasis on idiomatic speech taken from real situations in everyday life in Spain and Latin America. The course focuses on written exercises, such as compositions and translations, as well as on the formal aspect of academic writing. A good portion of class time will be spent discussing literary passages.
**Formerly:** SPAN 315.
**Prerequisite(s):** SPAN 202, 204, 214, 217 or permission of the department.
**Note:** Students with credit for SPAN 315 may not take this course for credit.

**SPAN 317.3 — 1/2(3L-1T)**
**Advanced Spanish II**

A Spanish language course that builds on skills acquired in SPAN 314, completing the study of advanced Spanish grammar and continuing with written and oral exercises, literary readings and formal writings.
**Formerly:** SPAN 315.
**Prerequisite(s):** SPAN 314 or permission of the department.
**Note:** Students with credit for SPAN 315 may not take this course for credit.

**SPAN 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SPAN 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SPAN 403.3 — 1/2(3L)**
**Introduction to Spanish Poetry**

Surveys poetry in Spain from the early Renaissance to the present time.
**Prerequisite(s):** SPAN 305.

**SPAN 405.3 — 1/2(3L)**
**Spanish Novel in Golden Age**

Includes selections of readings from Spanish novelists of the Golden Age in Spain.
**Prerequisite(s):** SPAN 305.

**SPAN 406.3 — 1/2(3L)**
**20th Century Latin American Poetry**

A study of the style and thematic content of major Modernist and Post Modernist poets.
**Prerequisite(s):** SPAN 306.

**SPAN 408.3 — 1/2(3L)**
**Modern Latin American Novel**

A study of the modern novel in Latin America through discussion and close reading of five novels, assigned readings and lectures.
**Prerequisite(s):** SPAN 306.

**SPAN 420.3 — 1/2(3L)**
**Contemporary Central American Novel**

This course will explore contemporary Central American narrative, taking testimonial writing as a starting point. The course addresses issues regarding testimonial writing such as the role of literature in Central American politics, the relationship between power and literature, the role of women in the conflict during the war years, the indigenous peoples' situation and their struggle for survival.

**Prerequisite(s):** SPAN 317 and one of SPAN 306 or 307.

**SPAN 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**SPAN 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# SPST — SPECIAL STUDIES

College of Arts and Science

**SPST 298.3 — 1/2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

**SPST 299.6 — 1&2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

**SPST 398.3 — 1/2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

**SPST 399.6 — 1&2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

**SPST 498.3 — 1/2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

**SPST 499.6 — 1&2**
**Special Studies**

Provides qualified students an opportunity to pursue independent studies on topics or projects not encompassed by standard courses and to receive academic credit for these studies, either as an elective or in a major. Special Studies courses are limited to study in a single discipline and students must plan the course in consultation with an instructor. Special Studies courses require departmental and college approval; the department must submit term 1 proposals by March 8 of the previous academic year, term 2 proposals by September 8.

# STAT — STATISTICS

Department of Mathematics & Statistics, College of Arts and Science

**STAT 103.3 — 1/2(3L)**
**Elementary Probability**

An elementary introduction to the concepts of probability, including: sets, Venn diagrams, definition of probability, algebra of probabilities, counting principles, some discrete random variables and their distributions, graphical displays, expected values, the normal distribution, the Central Limit Theorem, applications, some statistical concepts.
**Prerequisite(s):** Mathematics B30 (or Algebra 30).
**Note:** This is a course in probability; students wishing an introduction to statistics should take STAT 244, 245, or 246. STAT 103 may not be included in the courses comprising a major or honours in either mathematics or statistics. Students with credit for MATH 102 may not take this course for credit. Students may receive credit for both STAT 103 and 241, 245 or 246, provided STAT 103 is successfully completed first. Students may not receive credit for STAT 103 if ECON 204 has already been completed. Students taking ECON 204 subsequent to STAT 103 will receive only 3 credits for ECON 304. STAT 103 may not be used in Requirement 1 of Program Type C.

**STAT 241.3 — 1/2(3L-1P)**
**Probability Theory**

Laws of probability, discrete and continuous random variables and their distributions, moments, functions of random variables and their distributions, Central Limit Theorem.
**Prerequisite(s):** MATH 110 and 116.
**Note:** STAT 241 is a course in probability. Students may NOT take STAT 103 for credit either concurrently with or following STAT 241. Students may take STAT 241 for credit before, concurrently with, or after any one of STAT 244, 245 or 246.

**STAT 242.3 — 2(3L-1P)**
**Statistical Theory and Methodology**

Sampling theory, estimation, confidence intervals, testing hypotheses, goodness of fit, analysis of variance, regression and correlation.
**Prerequisite(s):** MATH 110, 116 and STAT 241.
**Note:** Not permitted to take more than one of STAT 242, 244, 245, 246 or other introductory statistics courses for credit. See Statistics Course Regulations in the Arts & Science section of the Calendar.

**STAT 244.3 — 1/2(3L-1P)**
**Elementary Statistical Concepts**

Statistical concepts and techniques including graphing of distributions, measures of location and variability, measures of association, regression, probability, confidence intervals, hypothesis testing. Students should consult with their department before enrolling in this course to determine the status of this course in their program.
**Prerequisite(s):** A course in a social science or Mathematics A30.
**Note:** For students in the Social Sciences, Education or Nursing. Does not meet requirements of major or honours programs in either mathematics or statistics. Students are not permitted to take more than one of STAT 242, 244, 245, 246 or other introductory statistics courses for credit. See Statistics Course Regulations in the Arts & Science section of the Calendar.

**STAT 245.3 — 1/2(3L-1P)**
**Introduction to Statistical Methods**

An introduction to basic statistical methods including frequency distributions, elementary probability, confidence intervals and tests of significance, analysis of variance, regression and correlation, contingency tables, goodness of fit.
**Prerequisite(s):** MATH 100, 101, 102, 110 or STAT 103.
**Note:** Does not meet requirements for major or honours programs in either mathematics or statistics. Students are not permitted to take more than one of STAT 242, 244, 245, 246 or other introductory statistics courses for credit. See Statistics Course Regulations in the Arts & Science section of the Calendar.

**STAT 246.3 — 1/2(3L-2P)**
**Introduction to Biostatistics**

An introduction to statistical techniques with emphasis on methods particularly applicable to biological and health sciences. Topics include: descriptive statistics, estimation and hypothesis testing, linear and logistic regression, contingency tables, life tables, and experimental design. Computerized data analysis will be an essential component of the labs.
**Prerequisite(s):** MATH B30 and BIOL 110.6 or permission of the department. One of MATH 101.3, 110.3 or STAT 103.3 is recommended but not essential.
**Note:** Does not meet requirements of major or honours programs in mathematics or statistics. Not permitted to take more than one of STAT 242, 244, 245, 246 or other introductory statistics courses for credit. See Statistics Course Regulations in the Arts & Science section of the Calendar.

**STAT 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**STAT 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**STAT 341.3 — 1/2(3L-1P)**
**Probability and Stochastic Processes**

Random variables and their distributions; independence; moments and moment

generating functions; conditional probability; Markov chains; stationary time-series.
**Prerequisite(s):** STAT 241.

**STAT 342.3 — 1(3L-1P)**
**Mathematical Statistics**

Probability spaces; conditional probability and independence; discrete and continuous random variables; standard probability models; expectations; moment generating functions; sums and functions of random variables; sampling distributions; asymptotic distributions. Deals with basic probability concepts at a moderately rigorous level.
**Prerequisite(s):** MATH 225 or 276; STAT 241 and 242.
**Note:** Students with credit for STAT 340 may not take this course for credit.

**STAT 344.3 — 1/2(3L-1P)**
**Applied Regression Analysis**

Applied regression analysis involving the extensive use of computer software. Includes: linear regression; multiple regression; stepwise methods; residual analysis; robustness considerations; multicollinearity; biased procedures; non-linear regression.
**Prerequisite(s):** STAT 242, 245, 246 or equivalent.
**Note:** Students with credit for ECON 404 may not take this course for credit. Students with credit for STAT 344 will receive only half credit for ECON 404.

**STAT 345.3 — 1/2(3L-1P)**
**Design and Analysis of Experiments**

An introduction to the principles of experimental design and analysis of variance. Includes: randomization, blocking, factorial experiments, confounding, random effects, analysis of covariance. Emphasis will be on fundamental principles and data analysis techniques rather than on mathematical theory.
**Prerequisite(s):** STAT 242, 245, 246 or equivalent.

**STAT 346.3 — 1/2(3L-1P)**
**Multivariate Analysis**

The multivariate normal distribution, multivariate analysis of variance, discriminant analysis, classification procedures, multiple covariance analysis, factor analysis, computer applications.
**Prerequisite(s):** MATH 266, STAT 241, and 344 or 345.

**STAT 347.3 — 1/2(3L-1P)**
**Non Parametric Methods**

An introduction to the ideas and techniques of non-parametric analysis. Includes: one, two and K samples problems, goodness of fit tests, randomness tests, and correlation and regression.
**Prerequisite(s):** STAT 242, 245, 246 or equivalent.

**STAT 348.3 — 1/2(3L-1P)**
**Sampling Techniques**

Theory and applications of sampling from finite populations. Includes: simple random sampling, stratified random sampling, cluster sampling, systematic sampling, probability proportionate to size sampling, and the difference, ratio and regression methods of estimation.
**Prerequisite(s):** STAT 242, 245, 246 or equivalent.

**STAT 349.3 — 1/2(3L-1P)**
**Time Series Analysis**

An introduction to statistical time series analysis. Includes: trend analysis, seasonal variation, stationary and non-stationary time series models, serial correlation, forecasting and regression analysis of time series data.
**Prerequisite(s):** STAT 241, and 344 or 345.

**STAT 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**STAT 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**STAT 442.3 — 2(3L-1P)**
**Statistical Inference**

Parametric estimation, maximum likelihood estimators, unbiased estimators, UMVUE, confidence intervals and regions, tests of hypotheses, Neyman Pearson Lemma, generalized likelihood ratio tests, chi-square tests, Bayes estimators.
**Prerequisite(s):** STAT 342.

**STAT 443.3 — 2(3L-1P)**
**Linear Statistical Models**

A rigorous examination of the general linear model using vector space theory. Includes: generalized inverses; orthogonal projections; quadratic forms; Gauss-Markov theorem and its generalizations; BLUE estimators; Non-full rank models; estimability considerations.
**Prerequisite(s):** MATH 266, STAT 342, and 344 or 345.

**STAT 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**STAT 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# SURG — SURGERY

Department of Surgery, College of Medicine

**SURG 501.8 — PD**
**Surgery**

An eight-week senior surgical clerkship where the students will further develop their competencies in diagnosis and management of a broad range of problems within the field of surgery. The students will spend 4 weeks in the discipline of general surgery and an additional 4 weeks in one of the following disciplines: general surgery, pediatric surgery, urology, plastic surgery, neurosurgery, cardiothoracic surgery, vascular surgery, otolaryngology, critical care medicine, orthopedic surgery. This course involves increasing responsibility for direct care of in-hospital and ambulatory care patients. In addition, the student will participate in teaching rounds, seminars, and lectures.
**Prerequisite(s):** Enrolment in the College of Medicine.
**Note:** Eight-week course.

# SWIT — STUDENT WELLNESS INITIATIVE TOWARD COMMUNITY HEALTH

College of Medicine

**SWIT 400.0**
**Student Wellness Initiative Toward Community Health**

The Student Wellness Initiative Toward Community Health is an interdisciplinary service-learning project of health sciences students centering around a student-run clinic on Saskatoon's West Side.

# TECH — TECHNICAL VOCATIONAL EDUCATION

Department of Curriculum Studies, College of Education

**TECH 183.3 — 1(6P)**
**Drafting**

Graphics is presented as an essential communication skill in technical fields. The fundamental theory and skills of engineering drawing will involve the students in the proper use of instruments, the principles of applied geometry and the theory of orthographic projection so that they will be able to draw and read working drawings quickly and accurately.
**Prerequisite(s):** Enrolment in the Industrial Arts and Vocational Education programs.

**TECH 187.3 — 1/2(1L-3P)**
**Wood Fabrication**

Provides essential background for Industrial Arts teachers to enable them to demonstrate and have students perform common hand- and machine-tool operations correctly and safely. Essential information about materials, layout, assembly and finishing is included.
**Prerequisite(s):** Enrolment in the Industrial Arts and Vocational Education programs.

**TECH 298.3**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# TOX — TOXICOLOGY

College of Arts and Science

**TOX 298.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**TOX 299.6 — 1&2(6S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**TOX 300.3 — 1(3L)**
**General Principles of Toxicology**

An introduction to the general principles of toxicology. Salient topics include: dose-response relationships, toxicokinetics, target toxicity, mechanisms of toxic action, general principles of toxicity testing, and mechanisms of action of antidotes.
**Formerly:** VBMS 300.
**Prerequisite(s):** HSC 208 or BIOL 217 and 218. Open to all students.
**Note:** Students with credit for VBMS 300 may not take this course for credit.

**TOX 301.3 — 1/2(3L)**
**Environmental Toxicology**

A discussion of major environmental pollutants, their sources, interactions with atmospheric, terrestrial and aquatic systems, exposure of people, animals and other biota, and their dose-response relationships. Some of the physical and chemical changes induced in the environment by pollutants, contaminant fate and transport, and bioremediation are also discussed.
**Prerequisite(s):** BIOL 110 and CHEM 112.

**TOX 310.3 — 1/2(3L)**
**Radiation and Radionuclide Toxicology**

Discusses natural and artificially produced radionuclides, units of radiation measurement, processes of radioactive decay and fission, interaction of radiation with matter, radiation effects on tissues and organisms, and transport and accumulation of radionuclides in the environment. Provides students with the knowledge to assess potential environmental impacts and health hazards arising from exposure to ionizing radiation from natural, uranium mining, and medical sources.
**Prerequisite(s):** BIOL 110 and CHEM 112 or PHYS 111 or equivalent

**TOX 321.3 — 1/2(3L)**
**Risk Assessment and Regulatory Toxicology**

An introduction to human health and ecological risk assessment and an overview of Canadian and international regulatory requirements for the registration of new products, focussing on safety assessment/toxicity testing of pesticides, human and veterinary pharmaceuticals, and food additives.
**Prerequisite(s):** 6 credit units BIOL and 6 credit units CHEM. TOX 300 and TOX 301 recommended.

**TOX 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**TOX 399.6 — 1&2(6S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

**TOX 402.3 — 1/2(3L)**
**Systemic Toxicology**

An overview of the types of injury produced in specific vertebrate, especially mammalian, organ systems by toxic agents and how such injury alters their functions and the overall effect on the body.
**Prerequisite(s):** TOX 300.

**TOX 403.3 — 1/2(3L)**
**Biotoxins**

An overview of the occurrence, mechanisms of action and clinical effects of commonly encountered plant toxins, mycotoxins, poisonous mushrooms, algal toxins, bacterial toxins, and zootoxins (poisonous snakes, fish, arthropods, and marine invertebrates), as well as an introduction to food toxicology.
**Prerequisite(s):** TOX 300.

**TOX 412.3 — 1/2(3L)**
**Toxicology of Industrial Pollutants**

An introduction to major categories, sources, routes of exposure, metabolism, mechanisms of action and toxic effects on people and ecosystems of common industrial organic chemicals, pesticides and metals. Emphasis will be placed on pollutants and industries of relevance to Canada.
**Prerequisite(s):** TOX 300. Recommend TOX 301.

**TOX 461.3 — 1/2(1L-2S/T)**
**Applied Toxicology**

Provides students an opportunity to evaluate practical toxicology/ecotoxicology problems associated with Saskatchewan and northern ecosystems. Students will be presented with specific toxicological questions or case studies of current relevance which will be examined using research data and library facilities. Written and oral presentations will be required for each problem.
**Prerequisite(s):** TOX 300 and 301.

**TOX 470.3 — 1/2(1L-3S)**
**Perspectives in Toxicology**

Assigned readings and tutorials will be provided by a team of faculty members. Students are required to examine, critique and discuss selected topics and publications in both oral and written format. Topics will vary from year to year, but will generally focus on current and controversial issues in toxicology, including industrial developmental and public opinion, toxicological impacts on northern ecosystems and people, and toxicology topics not currently covered in other undergraduate courses.
**Prerequisite(s):** TOX 300 and 301.

**TOX 480.3 — 1/2(6P)**
**Toxicology Research**

Students will work on a laboratory, field, library, or theoretical study under the supervision of a faculty member from the Toxicology Group. Each individual project requires approval of a research proposal by the Toxicology Academic Advisor in the term preceding registration before permission will be granted. A thorough, written report in thesis format describing the project and the summarized results submitted at the end of the project will be evaluated by a faculty committee.
**Prerequisite(s):** TOX 300, 301 and permission of the academic advisor.
**Note:** Students with credit for TOX 481 may not take this course for credit.

**TOX 481.6 — 1&2(6P)**
**Toxicology Research**

Students will work on a toxicology research project under the supervision of a faculty member from the Toxicology Group. Each project requires approval of a research proposal by the Toxicology Academic Advisor prior to registration. A written report in thesis format must be submitted at the end of the project.
**Prerequisite(s):** TOX 300, 301 and the Toxicology Academic Advisor's permission.
**Note:** Students with credit for TOX 480 may not take this course for credit. This course is only open to Honours students in the fourth year of their Toxicology program, unless special permission has been granted by the Toxicology Academic Advisor.

**TOX 490.0 — 1&2(1S)**
**Toxicology Seminar**

Seminar presentations by visitors, faculty and students on a broad selection of toxicology issues. Fourth-year students in the Undergraduate Toxicology Program will be required to present one seminar and attend all seminars throughout the full academic year.
**Prerequisite(s):** TOX 300 and 301.

**TOX 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**TOX 499.6 — 1&2(6S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

# UKR — UKRAINIAN

Department of Languages & Linguistics, College of Arts and Science

**UKR 114.3 — 1/2(3L-1T)**
**Elementary Ukrainian I**

Develops elementary proficiency in speaking, reading, understanding, and writing Ukrainian. Basic grammatical structures, sound patterns, spelling and vocabulary will be studied. Students will be introduced to Ukrainian life and culture, politics, geography and society.
**Formerly:** UKR 115.
**Note:** Students who have completed Ukrainian 20 (Grade 11 Ukrainian) or have completed Ukrainian 30 (Grade 12 Ukrainian), may not take this course for credit. Students who have some background in Ukrainian or who have taken any other courses in Ukrainian and native speakers of Ukrainian are not allowed to register in this course. Students with credit for UKR 115 may not take this course for credit.

**UKR 117.3 — 1/2(3L-1T)**
**Elementary Ukrainian II**

This course is a continuation of UKR 114. It develops elementary proficiency in speaking, reading, understanding, and writing Ukrainian. Basic grammatical structures, sound patterns, spelling and vocabulary will be studied. Students will be introduced to Ukrainian life and culture, politics, geography and society. Students will develop the ability to understand spoken Ukrainian and respond to it within certain everyday topics.
**Formerly:** UKR 115.
**Prerequisite(s):** UKR 114 or equivalent background.
**Note:** Students who have completed Ukrainian 30 may not take this course for credit. Students who have a background in Ukrainian or have taken any other Ukrainian courses and native speakers of Ukrainian are not allowed to register in this course. Students with credit for UKR 115 may not take this course for credit.

**UKR 211.3 — 1/2(3L)**
**20th Century Ukraine in English**

An English-language introduction to contemporary Ukraine, surveying the land, the people, the culture and the way of life in present-day.
**Note:** Does not fulfill the language requirement.

**UKR 212.3 — 1/2(3L)**
**Survey of Ukrainian Folklore in English**

Surveys the material folk culture, calendar traditions, rites, family customs and the oral literature of the Ukrainian people.
**Prerequisite(s):** Completion of 30 credit units at the university.
**Note:** Does not fulfill language requirements.

**UKR 214.3 — 1/2(3L-1T)**
**Intermediate Ukrainian I**

This course will concentrate on improving speaking, reading, and writing skills by further expanding the basic syntactic, morphological, lexical, and phonetic structure of modern Ukrainian. Students will be introduced to contemporary life and culture of Ukraine.
**Formerly:** UKR 215.
**Prerequisite(s):** UKR 114 and 117 or equivalent.
**Note:** Native speakers of Ukrainian are not allowed to register in this course. Students with credit for UKR 215 may not take this course for credit.

**UKR 217.3 — 1/2(3L-1T)**
**Intermediate Ukrainian II**

This course builds on skills acquired in UKR 214. Emphasis is placed on improving oral and written skills through the extensive study of Ukrainian grammar. This course will continue providing students with a view of contemporary life and culture.
**Formerly:** UKR 215.
**Prerequisite(s):** UKR 214.
**Note:** Native speakers of Ukrainian are not allowed to register in this course. Students with credit for UKR 215 may not take this course for credit.

**UKR 220.3 — 1/2(3L)**
**Ukrainian Culture in Canada in English**

Surveys the development of Ukrainian culture in Canada. It provides an overview of the block settlement architecture, folkloric expression, religious and distinctive political organizations in the process of cultural retention in Canadian society.
**Prerequisite(s):** 30 credit units at the university level.
**Note:** Does not meet language requirements.

**UKR 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**UKR 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**UKR 314.3 — 1/2(3L-1T)**
**Advanced Ukrainian I**

Selected readings, composition exercises and a grammar review focusing on phonetics and morphology are used to improve the student's command of oral and written Ukrainian. There is no translation and the course is conducted entirely in Ukrainian.
**Formerly:** UKR 315.
**Prerequisite(s):** UKR 214, 217.
**Note:** Native speakers of Ukrainian may not take this course for credit.

**UKR 317.3 — 1/2(3L-1T)**
**Advanced Ukrainian II**

Selected readings, composition exercises and a grammar review are used to improve the student's command of oral and written Ukrainian.
**Formerly:** UKR 316.
**Prerequisite(s):** UKR 214, 217.
**Note:** Native speakers of Ukrainian may not take this course for credit.

**UKR 398.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**UKR 399.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**UKR 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**UKR 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

# VBMS — VETERINARY BIOMEDICAL SCIENCES

Department of Veterinary Biomedical Sciences, Western College of Veterinary Medicine

**VBMS 210.7 — Q1&2(2L-4P)&Q3&4(3L-4P)**
**Anatomy**

A general introduction to the anatomy of the common domestic species with emphasis on areas of particular functional and clinical significance or biological importance.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 211.4 — Q1(3L-4P)&Q2(3L-4P)**
**Histology**

A general overview of the microscopic and ultrastructural anatomy of vertebrate cells, tissues and organs emphasizing functional relationships.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 212.3 — Q3(2L-1P)&Q4(4L-2P)**
**Neuroscience**

A study of the structure and function of the nervous system of domestic animals with emphasis on general clinical applications.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 213.2 — Q3&4(2L-1P)**
**Embryology**

Emphasizes the study of embryonic development, including organogenesis and congenital anomalies.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 221.8 — Q1(3L)2(2L-5P)3(3L-6P)4(3L-3P)**
**Physiology I**

The function of the physiological systems of mammals is studied with emphasis upon domestic animals and veterinary medical aspects. After an introductory consideration of certain aspects of general physiology and hematology, the physiology of the cardiovascular, respiratory, renal and endocrine systems is studied. In the laboratory the principles of physiology are demonstrated through laboratory experiments and observations upon the normal animal. An understanding of contemporary physiological measurement techniques is stressed as a background for potential clinical application.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 314.3 — 2(3L-2P)**
**Comparative Anatomy of Domestic Animals**

A general review of the macroscopic and microscopic anatomy of the domestic animals with emphasis on those structures, such as the digestive and reproductive systems, that are of particular importance to students of Animal Science.
**Prerequisite(s):** Enrolment in the College of Agriculture.

**VBMS 320.2 — Q1(2L)&Q2(2L-2P)**
**Physiology II**

A continuation of Physiology I in which the digestive systems of monogastrics and ruminants are studied. Laboratory experiments are designed to illustrate the principles covered in the lecture material.
**Prerequisite(s):** VBMS 221 and enrolment in the Doctor of Veterinary Medicine program.

**VBMS 323.3 — Q1(3L)&Q2(4L)&Q3(3L)**
**Basic Principles of Pharmacology**

General pharmacological principles are reviewed. The pharmacology of important drugs is discussed with emphasis on mechanism of action, absorption, distribution, metabolism, excretion, uses, and toxicity. Chemotherapeutic drugs are considered from the viewpoint of: action on the parasitic organism, spectrum of activity, development of resistance, and toxicity in the host.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 324.3 — 1(3L-3P)**
**Animal Physiology I**

To provide undergraduate students with an understanding of mammalian and avian physiology, with major emphasis on

domestic farm animals. Topics include hematology, respiration, the cardiovascular system, renal physiology and monogastric digestion.
**Prerequisite(s):** Enrolment in the College of Agriculture.

**VBMS 325.3 — 2(3L-3P)**
**Animal Physiology II**

To provide undergraduate students with an understanding of mammalian and avian physiology, with major emphasis on domestic farm animals. Topics include ruminant digestion, endocrinology, pre-natal growth, reproduction and lactation.
**Prerequisite(s):** VBMS 324. Enrolment in the College of Agriculture.

**VBMS 424.2 — Q1(3L)&Q2(2L)**
**Toxicology**

A consideration of toxic agents, their principles, modes of action and manifestations in affected animals; and a brief survey of important poisonous plants of western Canada.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 426.2 — Q1(3L)&Q2(3L-1P)**
**Veterinary Clinical Pharmacology**

Pharmacology as it applies to the treatment of animals with clinical disease will be emphasized through a combination of lectures and practicum sessions. Principles of clinical pharmacokinetics, drug interactions and adverse drug reactions will be addressed. Lectures on specific groups of drugs will utilize a system-oriented approach. Practicum sessions consist of discussions of the pharmacologic management of specific diseases and rationale for drug selection.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VBMS 428.3 — 1(3L)**
**Gastrointestinal Physiology**

Provides an in-depth coverage of monogastric gastrointestinal function, stressing those aspects related to the understanding of diseases of this system
**Prerequisite(s):** PHSI 333 or permission of the instructor. Open to all students.

# VINT — VETERINARY INTERDEPARTMENTAL

Western College of Veterinary Medicine

**VINT 201.1 — Q1(2L)**
**Survey of Veterinary Medicine**

A series of seminars introducing the student to the veterinary profession. Topics include career opportunities in veterinary medicine, professional behaviour and professionalism, ethics, the human-animal bond, animal rights and welfare, etc.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VINT 481.3 — Q1(1L-3P),Q2,3&4(3P)**
**Year III Clinics**

This is the initial, formal introduction to clinics and consists of rotation through selected clinical areas. Experiences will include working with clinical cases as an assistant to Year 4 students (including surgery), receiving duty, participation in clinical rounds, working with medical records, pharmacy management, etc. Specific types of experiences will vary among the rotations. The objectives of the course are to obtain hands-on clinical experience at an introductory level, to have an opportunity for correlating basic and applied sciences to this clinical experience, and to become acquainted with the operation and organization of the Veterinary Teaching Hospital.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VINT 580.34 — Q1,2,3&4(32 weeks)**
**Applied Veterinary Medicine**

Full-time course load for Year 4 WCVM students. Provides students an opportunity to develop, integrate and apply veterinary medical knowledge and skills in a clinical setting under faculty supervision. Consists of 32 weeks of clinical and other applied experiences. Most of these are clinical rotations in the Veterinary Teaching Hospital but experiences outside of WCVM are permitted. Each student is required to write and submit a satisfactory case report based on one of their experiences during the session.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

# VLAC — LARGE ANIMAL CLINICAL SCIENCES

Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine

**VLAC 57.3 — 2(3L-3P)**
**Principles of Animal Health and Disease**

This course will briefly review some of the important principles of animal diseases, disease causing agents, and the animal body disease defense system. A discussion of some common livestock diseases, with an emphasis on prevention through management procedures, will follow. Laboratory demonstrations will include routine procedures for handling, restraint, treatment and animal behaviour. Calculation of the economic loss to a livestock enterprise due to disease will be discussed.
**Prerequisite(s):** Enrolment in the Diploma in Agriculture program.

**VLAC 200.5 — Q1&2(2L-2P)&Q3(3L-2P)**
**Animal Management and Production I**

Provides a basic foundation of knowledge in the behaviour, husbandry, nutrition and breeding of the common animal species, featuring the veterinary aspects of the various animal industries and the contemporary role of the veterinarian in servicing them. Concepts of herd management, health and production interactions, and the makeup of various animal industries will be emphasized for the various species groups. Laboratory exercises will emphasize hands-on experience in animal handling and field trips to production facilities. Laboratories will also involve production data analysis, feed evaluations, and exercises relating to genetics of animal breeding.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.
**Note:** Offered jointly with the Department of Animal Science.

**VLAC 300.5 — Q1(3L-4P)&Q2,3&4(2L-2P)**
**Animal Management and Production II**

A continuation of Animal Management and Production I.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.
**Note:** Offered jointly by the College of Veterinary Medicine and the Department of Animal Science.

**VLAC 400.2 — Q3(2L-2P)&Q4(2L)**
**Herd Medicine**

Covers how the concepts of herd or population medicine can be applied to veterinary practice. Emphasis is placed on five main topics: evaluating clinical trials, choosing diagnostic tests, investigating and resolving outbreaks of disease, managing herd data, and discovering how the concepts of herd medicine might be applied to entire ecosystems. Laboratories are designed to provide students with practical experience evaluating clinical trials and analyzing herd data.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VLAC 411.3 — Q3(3L)**
**Diseases of Livestock**

Provides an overview of animal disease principles in which disease mechanisms, body response to disease, diagnosis, control and prevention are emphasized. Special attention is given to infectious diseases of cattle that are of economic importance to the Saskatchewan livestock industry.
**Prerequisite(s):** Enrolment in the College of Agriculture.

**VLAC 452.2 — Q2(3L)&Q3(3L)**
**Large Animal Surgery**

A comprehensive course covering the signs, diagnosis, management and treatment of the major surgical conditions in large animals. Covers plastic and reconstructive surgery of the skin, surgery of the respiratory system, digestive system, musculoskeletal system, and the urogenital system. The major emphasis is on the equine and bovine species, but reference is made to other large animal species.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VLAC 460.5 — Q2(3L)&Q3(3L-3P)&Q4(2L-5P)**
**Obstetrics and Reproduction or Theriogenology**

Covers the normal reproductive patterns of domestic animals, the causes of lowered reproductive efficiency and management of reproductive problems of individual animals and herds. Laboratories are designed to enhance understanding of these aspects of theriogenology and to develop clinical skills including, male and female breeding soundness evaluation, obstetrical management and the diagnosis and treatment of reproductive problems.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VLAC 472.4 — Q1(4L)&Q2&3&4(3L)**
**Large Animal Internal Medicine**

A series of lectures which deal with the specific diseases of domestic farm animals (cattle, sheep, goats, and pigs) and horses. Emphasizes the etiology, epidemiology, pathogenesis, clinical and laboratory findings, diagnosis, treatment and control of the common diseases which occur in domestic farm animals. Some lectures deal with the important exotic diseases which are potential threats to the livestock Industry.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

# VSAC — SMALL ANIMAL CLINICAL SCIENCES

Department of Small Animal Clinical Sciences, Western College of Veterinary Medicine

**VSAC 350.2 — Q3(2L-3P)&Q4(3L-3P)**
**Veterinary Anesthesiology and Surgical Principles**

An Introduction to the science and pathophysiology of veterinary anesthesiology and surgery. A multiple species approach is utilized to assist students in developing an understanding of the fundamental principles and technical skills associated with the treatment and management of surgical conditions and anesthetic principles and techniques in veterinary medicine. This course is a combination of lectures and laboratory exercises.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 351.2 — Q3&4(2L)**
**Radiology**

Teaches the fundamentals of x-ray and ultrasound diagnosis. Using contemporary case material from the Veterinary Teaching Hospital, the instructors endeavour to actualize the learning process, assisting the students in the transition to the clinical phase of their studies. The students, for their part, engage in regular-self assessments, lecture inquiries, and extensive classroom preparation.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 371.4 — Q2(2L)&Q3(4L)&Q4(4L-3P)**
**General Internal Veterinary Medicine**

A series of lectures dealing with the general aspects of the etiology, pathophysiology, clinical and laboratory findings, diagnosis and principles of treatment of generic diseases of the body systems of domestic animals. The emphasis is on the principles of pathophysiology as they relate to the diagnosis and rational treatment of disease.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 400.2 — Q1&2(3P)**
**Surgical Exercises**

Introduces the student to the practical aspects of anesthesiology and surgery prior to entering clinics. The student is expected to become familiar with the instrumentation used in surgery and anesthesia, to become proficient in manipulative skills and to know and to understand surgical and anesthetic techniques in both large and small animals.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 420.2 — Q1,2,3&4(3P)**
**Veterinary Medical Exercises**

A series of clinical laboratory exercises which allow the student to learn the common restraint and diagnostic techniques which are necessary to handle animals and to make a clinical diagnosis. Students are taught how to conduct a complete clinical examination of all domestic animals. Special diagnostic techniques for the examination of each body system are also demonstrated.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 453.2 — Q1(2L)&Q2&3(1L)&Q4(2L)**
**Small Animal Surgery**

A comprehensive course covering the clinical signs, diagnosis, management and treatment of the common surgical conditions in small animals. This course covers the principles of neurosurgery, urogenital surgery, surgery of the respiratory system, reconstructive surgery of the skin, surgery of the ears and surgery of the gastrointestinal tract, orthopedic surgery and oncology. A case-based method is sometimes used.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VSAC 473.3 — Q1(2L)&Q2&3(3L)&Q4(2L)**
**Small Animal Internal Medicine**

A series of lectures which deal with the specific diseases of small animals (dogs and cats). The emphasis is on the etiology, pathogenesis, clinical and laboratory findings, diagnosis and treatment of common diseases which occur in dogs and cats.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

# VTMC — VETERINARY MICROBIOLOGY

Department of Veterinary Microbiology, Western College of Veterinary Medicine

**VTMC 236.3 — Q4(3L-1P)**
**Epidemiology and Public Health**

An introduction to the study of the dynamics of disease in animal populations. Topics include the strategy of epidemiology, sampling techniques, data collection and analysis, hypothesis formulation and testing, and directed actions against disease in populations.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VTMC 330.2 — Q3(3L-3P)**
**Immunology**

Covers basic aspects of humoral and cell-mediated immunity, the role of immunological reactions in infectious disease pathogenesis, hypersensitivity, and auto-immune disease. Students will study the principles of immunity to bacteria, viruses and parasites and the fundamentals of vaccination. Students will also be familiarized with diagnostic techniques for assessing the immune system and for diagnosis of immune-mediated diseases.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VTMC 333.2 — Q4(4L-2P)**
**Virology**

A case-based approach to veterinary virology. Cases from WCVM files and published literature supplemented by lectures on basic virology used to illustrate general principles of virus infection, replication, spread and control.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VTMC 337.3 — Q1&2(2L-3P)**
**Veterinary Bacteriology and Mycology**

Provides basic knowledge of the common bacterial and fungal diseases of animals, with emphasis on those present in North America. Coverage of specific diseases/organisms include: distribution, epidemiology, mechanisms of pathogenesis, immunity, diagnosis, and prevention. Laboratory sessions emphasize the proper selection, collection and transportation of bacteriologic and fungal specimens. Basic processing of clinical/pathological specimens and identification of bacteria and fungal organisms commonly present in those specimens is offered.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VTMC 338.3 — Q1&2(2L-3P)**
**Parasitology**

Protozoan, helminth and arthropod parasites, including zoonoses of domestic and other animals will be studied. The course will cover aspects of life cycles, pathogenesis, diagnosis, epidemiology, treatment and prevention.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

# VTPA — VETERINARY PATHOLOGY

Department of Veterinary Pathology, Western College of Veterinary Medicine

**VTPA 342.3 — Q1&2(3L-4P)**
**General Pathology**

Basic pathogenic mechanisms that underlie disease processes are discussed. Functional derangements are correlated with structural alterations. The following topics are considered: cell and tissue injury, disturbances of circulation and hemostasis, inflammation, healing and repair, immunopathology, disturbances of growth and neoplasia.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.
**Note:** 12 week course starting in Q1.

**VTPA 343.5 — Q2&3(3L-4P)&Q4(3L-2P)**
**Systemic Pathology**

The principles discussed in general pathology will be utilized in the consideration of the pathology of specific diseases which affect the body systems of domestic animals. Principles of pathogenesis and diagnosis will be stressed.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.
**Note:** 20 week course starting in the middle of Q2.

**VTPA 412.3 — (3L-2P)**
**Diseases of Poultry**

Designed to provide information on the causes, signs and control of common poultry diseases for students with little or limited background in the anatomy, physiology, microbiology and pathology of the avian species. Emphasizes the effect of disease as a limiting factor in efficient poultry production and the control of disease on a modern poultry farm. Given in alternate years.
**Prerequisite(s):** Enrolment in the College of Agriculture.

**VTPA 445.2 — Q3(3L-2P),Q4(2L-2P)**
**Avian and Laboratory Animal Medicine**

Common diseases of poultry, other avian species, laboratory animals and caged pets are discussed. Diagnosis and pathology are emphasized. The general principles of preventive medicine in poultry and laboratory animals are reviewed. The principles of treatment of diseases in avian and other caged pets are also reviewed. The use of animals in research is discussed.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

**VTPA 446.2 — Q1&2(2L-2P)**

**Clinical Pathology**

Designed to teach the student how to interpret laboratory data and apply practical clinical laboratory techniques in chemistry, hematology, cytopathology and urology in the diagnosis of disease.
**Prerequisite(s):** Enrolment in the Doctor of Veterinary Medicine program.

# WGST — WOMEN'S AND GENDER STUDIES

Department of Women's & Gender Studies, College of Arts and Science

**WGST 110.6 — 1&2(3L/2L&1T)**
**Introduction to Womens and Gender Studies**

Introduces students to the research and writings in the area of Women's and Gender Studies. Examines the changing position of women in developed and developing societies since the 19th century. Special attention will be given to the analysis of women's experiences in the Canadian context.
**Note:** Students with credit for WGST 200 may not take WGST 110 for credit. May be used as Humanities or Social Science credit.

**WGST 201.3 — 1/2(3L/2L-1T)**
**Images of Women and Men in Popular Culture**

An introduction to a variety of feminist critical approaches to mass media art forms. Focuses on visual and literary images of women and men in post-World War II North American popular culture.
**Prerequisite(s):** Completion of 30 credit units at the university level or permission of the department.
**Note:** May be used as Humanities or Social Science credit.

**WGST 202.3 — 1/2(3L)**
**Gender and Environment**

An interdisciplinary and cross-cultural introduction to theories and practices linking gender and the environment, with particular emphasis on the emergence of ecofeminism in the late 20th century.
**Prerequisite(s):** WGST 110, or 6 credit units in WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 298 Special Topics: Gender and Environment may not take this course for credit. May be used as a Social Science credit.

**WGST 204.3 — 1/2(3L)**
**Gender and Popular Music**

The relationship between gender, sexuality, and music; four main themes to be explored, namely rock culture, masculinities and music, femininities and music, and image and identity in music.
**Prerequisite(s):** 30 credit units at the university level or permission of the department.
**Note:** May be used as Humanities or Social Science credit.

**WGST 205.3 — 1/2(3L)**
**Gender Work and Society**

Examination of women's situation in the labour market and the types and conditions of both the market and non-market work which women perform. Topics to be covered include women's work in pre-capitalist societies; women and the transition to market economies; the formation of gendered divisions of labour; waged work and domestic labour; women, post-industrialism, and new technologies; women, work and employment policies.
**Prerequisite(s):** 30 credit units at the university level or permission of the department. WGST 110 strongly recommended.
**Note:** May be used as a Social Science credit.

**WGST 206.6 — 1&2(3L)**
**Science and Society in Fiction and Film**

An examination of several works of fiction and film that addresses the interface of science and society. Works for examination include science fiction novels and their Hollywood adaptations. The course provides students with an opportunity to debate and research the way in which authors and film makers have represented science, and scientists have influenced the reading and viewing public with respect to the ethical and social issues provoked by developments in Western science.
**Prerequisite(s):** 30 credit units at the university, or 6 credit units WGST and/or ART, or permission of the department.
**Note:** Fulfills requirement 5 in program types A, B, C, and D. May be used as Humanities or Social Science credit.

**WGST 210.3 — 1/2(3L)**
**Gendered Perspectives on Cultural Issues**

An interdisciplinary examination of selected contemporary social and cultural issues from the perspective of gender. Students will be introduced to gender as an ideology, a category of analysis, and a theme common to issues such as racism, homophobia, militarism, and environmental crisis.
**Prerequisite(s):** Completion of 30 credit units at the university level or permission of the department.
**Note:** Students with credit for WGST 101 may not take WGST 210 for credit. Fulfills requirement 5 in program type A, B or C. May be used as Humanities or Social Science credit.

**WGST 298.3 — 1/2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.
**Prerequisite(s):** 6 credit units in WGST or completion of 30 credit units at the university.

**WGST 299.6 — 1&2(3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**WGST 310.3 — 1/2(3L)**
**Feminist Thought to 1980**

Examination of the evolution of feminist theory within the larger context of Western political and philosophical thought from the 18th century to 1980. Special attention is given to the relationship of feminist theory to the 19th and 20th century waves of political feminism.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department. Recommend PHIL 227.
**Note:** May be used as Humanities or Social Science credit.

**WGST 311.3 — 1/2(3L)**
**Contemporary Feminist Thought**

Examination of contemporary feminist theory from 1980 to the present. Feminist theory will be set within the larger context of anti-Enlightenment philosophy and political thought, including postmodernism, postcolonialism, post-Freudian psychoanalysis and psycholinguistics.
**Prerequisite(s):** WGST 110, or 6 credit units in WGST and/or cognate courses, or permission of the department. Recommend WGST 310 and/or PHIL 227.
**Note:** May be used as Humanities or Social Science credit.

**WGST 312.3 — 1/2(3L)**
**Feminist Research Methodologies**

Examines various feminist methodologies and approaches to the formal construction of knowledge. A survey of the major methods of research in diverse fields is presented in the context of feminist critique and epistemology. Androcentric bias, feminist epistemology, ethics and subjectivity are central themes of the course.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 398 Special Topics: Feminism and the Construction of Knowledge may not take this course for credit. May be used as Social Science credit.

**WGST 314.3 — 1/2(3S)**
**Gender Based Analysis of Public Policy**

Offers an introduction to the theory and practice of gender-based analysis (GBA) of public policies. Drawing upon the work of feminist scholars and policy analysts, students will learn to apply GBA and critically evaluate examples of GBA in selected policy areas (e.g. social services, health, housing, etc.).
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** May be used as Social Science credit.

**WGST 350.3 — 1/2(3L)**
**Women and Current Legal Issues**

An examination of current legal issues from a feminist perspective. Issues may include: gender dominance and dependency; occupational segregation; pay equity; sexual harassment; reproductive technologies; pornography; gender violence.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 398 Special Topics: Women and Current Legal Issues may not take this course for credit. May be used as Social Science credit.

**WGST 351.3 — 1/2(3L)**
**Women Depression and Writing**

Examines the phenomenon of depression, particularly women's depression, from clinical, theoretical, and literary perspectives. Traces the development of a language, theoretical and/or poetic, that articulates women's experience of depression and challenges the traditional, largely male-constructed discourses on clinical depression.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 398 Special Topics: Women, Depression and Writing may not take this course for credit. May be used as Humanities credit.

**WGST 352.3 — 1/2(3L)**
**Gender Gadgets Technologies of Cultural Construction**

An interdisciplinary examination of the material and conceptual tools, used today and in the past, in a range of media to construct or challenge culturally received notions of gender and other dimensions of identity such as race and ethnicity, class, ability, age, sexuality. Media studied will include some of the following: literature, art, cinema, music, magazines and newspapers, television theatre and performance, scientific texts.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 398 Special Topics: Four Canadian Women Writers/Painters not take this course for credit. May be used as Humanities or Social Science credit.

**WGST 353.3 — 1/2(3L)**
**Gender Culture and Contagion**

An examination of theories of contagion and knowledge of contagious disease from a feminist perspective. A survey of major diseases, of past and present importance, explores how men and women experience contagious disease and how these experiences are represented in technical and popular literature. The current HIV/AIDS pandemic figures prominently in the course.
**Prerequisite(s):** WGST 110, or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** May be used as Social Science credit.

**WGST 354.3 — 1/2(3L)**
**Women and Addiction**

An examination of the experiences of women with various forms of addiction. Surveyed are how women live with problems of dependency, how they are represented in popular and technical media, how they care for others with substance abuse problems, and how they are treated in existing medical and social service facilities.
**Prerequisite(s):** WGST 110 or 6 credit units WGST and/or cognate courses, or permission of the department.
**Note:** Students with credit for WGST 398 Special Topics: Women and Addiction may not take this course for credit. May be used as Humanities or Social Science credit.

**WGST 355.3 — 1/2(2L-1S)**
**The Celluloid Cyborg: A Course in Technotheory and Cyberpunk**

An interdisciplinary examination of selected literary and cinematic representations of cyberspace and the figure of the female cyborg in the context of feminist technotheory.
**Prerequisite(s):** 60 credit units, or permission of the Department. WGST 206 is recommended.
**Note:** This course is offered in a 3-hour block in order to accomodate 3 feature-length films. Students with credit for WGST 398 Special Topics the Celluloid Cyborg may not take WGST 355 for credit. May be used as a Humanities.

**WGST 398.3 — 1/2(3S/3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**WGST 399.6 — 1&2(3S/3L)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**WGST 400.0 — 1/2(3S)**
**Honours Colloquium**

Oral presentation of an academic paper in the department. The presentation is normally based on a paper already prepared, or in preparation, for a third- or fourth-year WGST seminar course.
**Prerequisite(s):** At least 3 credit units of 400-level WGST and permission of the department.
**Note:** WGST 400 is required in all Honours programs. Application for Honours must be made at least 18 months in advance of expected graduation date so requirement can be met.

**WGST 409.3 — 1/2(3S-1T)**
**Understanding Western Patriarchy**

Examination of a selection of texts which helped to shape gender, race, class, and ethnic arrangements in Western culture from 1700 BCE to the early 20th Century. The focus will be on influential sacred, legal, philosophical, and political writings that made the emergence of feminist thought and the rise of political feminism both necessary and possible.
**Prerequisite(s):** 18 credit units WGST and/or cognate courses, including at least two of WGST 310, 311, 312, PHIL 227, HIST 347, RLST 359; and permission of the department.
**Note:** Students with credit for WGST 309 may not take this course for credit. May be used as Humanities credit.

**WGST 410.3 — 1/2(3S)**
**Senior Seminar in Gender and Culture**

An advanced seminar on a contemporary theme in gender and cultural studies. The theme will vary from year to year in accordance with the research interests of the instructor and new developments in the field. Student presentations and discussions will be emphasized. Students are required to have an e-mail account and access to the Internet.
**Prerequisite(s):** 18 credit units WGST and/or cognate courses, including at least two of WGST 210, 310, 311, 312, 352; and permission of the department.
**Note:** May be used as Humanities or Social Science credit.

**WGST 413.3 — 1/2(3S)**
**Community/Research Practicum**

A collaborative effort between the individual student, a community organization and the Department of Women's and Gender Studies. It provides students with the opportunity to apply the theoretical and methodological tenets of feminism and Women's Studies, and to benefit from first-hand research and community work. Students must design and implement a project that meets the approval of a particular organization and the Department of Women's and Gender Studies.
**Prerequisite(s):** WGST 312 or permission of the instructor.
**Note:** May be used as Humanities or Social Science credit.

**WGST 453.3 — 1/2(3S)**
**Seminar in Gender Health and Body**

An advanced seminar on the cultural and political dimensions of health and body. This course examines the trends in feminist research on representations of bodies in states of health and illness and the gendered nature of regulating bodies. Special themes, such as international health and exoticized bodies along with gendered minds and mental health, and reproduction, will be explored in accordance with new developments in the field.
**Prerequisite(s):** 18 credit units WGST and/or cognate courses, including at least two of WGST 312, 351, 353, 354; and permission of the department.
**Note:** May be used as Social Science credit.

**WGST 498.3 — 1/2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

**WGST 499.6 — 1&2(3S)**
**Special Topics**

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.