2015-2016 Graduate Calendar

The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2015-2016 academic years, including the Summer Semester 2015, Fall Semester 2015 and the Winter Semester 2016.

For your convenience the Graduate Calendar is available in PDF format.

If you wish to link to the Graduate Calendar please refer to the Linking Guidelines.

The University is a full member of:

• The Association of Universities and Colleges of Canada

Contact Information:

University of Guelph
Guelph, Ontario, Canada
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Revision Information:

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<tr>
<td>June 5, 2015</td>
<td>Initial Publication</td>
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<tr>
<td>July 10, 2015</td>
<td>Revision</td>
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<tr>
<td>October 19, 2015</td>
<td>Revision</td>
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<tr>
<td>December 2, 2015</td>
<td>Revision</td>
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<tr>
<td>March 2, 2016</td>
<td>Revision</td>
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</table>
Disclaimer
The Office of Graduate Studies has attempted to ensure the accuracy of this on-line Graduate Calendar. However, the publication of information in this document does not bind the university to the provision of courses, programs, schedules of studies, fees, or facilities as listed herein.

Limitations
The University of Guelph reserves the right to change without notice any information contained in this calendar, including any rule or regulation pertaining to the standards for admission to, the requirements for the continuation of study in, and the requirements for the granting of degrees or diplomas in any or all of its programs.
The university will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by the faculty, staff or students of the university or by others, civil unrest or disobedience, Public Health Emergencies, or any other cause of any kind beyond the reasonable control of the university.
The University of Guelph reaffirms section 1 of the Ontario Human Rights Code, 1981, which prohibits discrimination on the grounds of race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, handicap, age, marital status or family status.
The university encourages applications from women, aboriginal peoples, visible minorities, persons with disabilities, and members of other under-represented groups.
Collection, Use and Disclosure of Personal Information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) http://www.e-laws.gov.on.ca/DLB_Laws/Statutes/English/90f31_e.htm. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes. Certain personal information is disclosed to external agencies, including the Ontario Universities Application Centre, the Ministry of Training, Colleges and Universities, and Statistics Canada, for statistical and planning purposes, and is disclosed to other individuals or organizations in accordance with the Office of Registrarial Services Departmental Policy on the Release of Student Information. For details on the use and disclosure of this information call the Office of Registrarial Services at the University at (519) 824-4120 or see https://www.uoguelph.ca/registrar/.

Statistics Canada - Notification of Disclosure

For further information, please see Statistics Canada's web site at http://www.statcan.gc.ca and Section XIV Statistics Canada.

Address for University Communication

Depending on the nature and timing of the communication, the University may use one of these addresses to communicate with students. Students are, therefore, responsible for checking all of the following on a regular basis:

Email Address
The University issued email address is considered an official means of communication with the student and will be used for correspondence from the University. Students are responsible for monitoring their University-issued email account regularly.

Home Address
Students are responsible for maintaining a current mailing address with the University. Address changes can be made, in writing, through the Office of Graduate Studies.

Name Changes
The University of Guelph is committed to the integrity of its student records, therefore, each student is required to provide either on application for admission or on personal data forms required for registration, his/her complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation.

Student Confidentiality and Release of Student Information Policy Excerpt

The University undertakes to protect the privacy of each student and the confidentiality of his or her record. To this end the University shall refuse to disclose personal information to any person other than the individual to whom the information relates where disclosure would constitute an unjustified invasion of the personal privacy of that person or of any other individual. All members of the University community must respect the confidential nature of the student information which they acquire in the course of their work.

Complete policy at http://www.uoguelph.ca/policies.
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### Appendix A - Courses

Courses are listed in the appendix in alphabetic order and may also be found listed under the program in which they are offered.

#### Agricultural Business

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Department(s)</th>
<th>Restriction(s)</th>
</tr>
</thead>
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<tr>
<td>AGBU*6070</td>
<td>Research Methods for Managers U [0.50]</td>
<td></td>
<td>The objective of the course is to provide students with a working knowledge of quantitative and qualitative methods used in the analysis of management problems. The emphasis is on the application and interpretation of quantitative and qualitative methods rather than on theoretical background.</td>
<td>Executive MBA Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6100</td>
<td>Food and Agribusiness Economics and Policy U [0.50]</td>
<td></td>
<td>An analysis of economic and policy issues relevant for food and agribusiness managers in affluent economies, with emphasis on the economic and policy environment that exists within North America.</td>
<td>Executive Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6120</td>
<td>Marketing Management U [0.50]</td>
<td></td>
<td>A study of marketing decision-making in food and agribusiness firms, with emphasis on the formulation of strategic marketing plans.</td>
<td>Executive Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6300</td>
<td>Problems in Agribusiness - Summer Residency S [0.50]</td>
<td></td>
<td>A seven-day intensive session, delivered at the University of Guelph, that focuses on the development of a management plan for an agribusiness organization through the use of group case studies, seminars and speakers.</td>
<td>Executive Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6400</td>
<td>Strategic Management &amp; Business Game U [0.50]</td>
<td></td>
<td>An advanced course requiring the application of conceptual, analytical, problem identification, and problem solving skills to develop organizational strategy. Food, agribusiness and other cases are used to explore the development and implementation of strategy and to assess the dynamic relationship between strategy and competition.</td>
<td>Executive MBA Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6510</td>
<td>Managing Price Risk U [0.50]</td>
<td></td>
<td>The course deals with the use of futures, options and other instruments for marketing, risk management and investment purposes. Emphasis is placed on the development and implementation of trading strategies and on the policy and corporate governance framework necessary to support effective management.</td>
<td>Executive MBA Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6520</td>
<td>Marketing Research and Analysis U [0.50]</td>
<td></td>
<td>Students will learn the fundamentals of marketing research and analysis as they apply to decision-making. The key focus of the course will be on developing a marketing plan for a real product/service. Input into the marketing plan will come from actual marketing research information collected, analyzed and interpreted by participants. Students will develop and implement background-marketing research that can be used at the conclusion of the course to build the marketing plan. In addition to developing general research skills, special topics such as perceptual mapping for positioning, conjoint analysis for pricing and clustering for segmentation will be examined.</td>
<td>Executive MBA Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6530</td>
<td>Management Issues in Agriculture U [0.50]</td>
<td></td>
<td>This course discusses the application of general management concepts and practices to agricultural production. Topics include strategies farm managers can use to assess performance, set direction, build capabilities and implement change. All readings and cases are taken from the viewpoint of an owner-operator of a commercial farming operation.</td>
<td>Executive MBA Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
<tr>
<td>AGBU*6700</td>
<td>Special Topics: Agribusiness Management U [0.50]</td>
<td></td>
<td>A special topic course focusing on relevant business issues or problems allowing students to enhance and further develop expertise in specific areas of management. May be offered to students in any semester.</td>
<td>Executive Programs</td>
<td>CBE Executive Programs students only</td>
</tr>
</tbody>
</table>

#### Animal Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Department(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC*6010</td>
<td>Topics in Comparative Animal Nutrition F [0.50]</td>
<td></td>
<td>Current topics in the feeding and nutrition of agricultural, companion and captive animal species. Emphasis is placed on the influence of nutrients on metabolic integration at tissue, organ and whole-animal levels. A nutritional case study will be conducted to allow students to solve practical feeding problems by applying basic nutritional principles. The course is offered every other year on even years.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6020</td>
<td>Poultry and Swine Nutrition W [0.50]</td>
<td></td>
<td>A discussion of current topics in the feeding and nutrition of domestic fowl and swine based on the critical appraisal of selected journal readings.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6030</td>
<td>Modelling Metabolic Processes F [0.50]</td>
<td></td>
<td>Building and testing of mathematical models of metabolic processes using continuous simulation software to assist in weekly assignments. Choice of model based on students' research interests (e.g. protein synthesis, nutrient uptake, rumen fermentation). Term project to reproduce model from scientific knowledge.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6050</td>
<td>Biometry for Animal Sciences F [0.50]</td>
<td></td>
<td>For students involved in animal research. The course will provide outlines of appropriate presentation and analysis of experimental data with emphasis on different analytical techniques.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6100</td>
<td>Special Project F,W,S [0.50]</td>
<td></td>
<td>Supervised program of study in some aspect of animal and poultry science that can involve an experimental project and/or detailed analysis of the literature.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6210</td>
<td>Principles of Selection in Animal Breeding W [0.50]</td>
<td></td>
<td>Definition of selection goals, prediction of genetic progress and breeding values, and the comparison of selection programs.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6240</td>
<td>Topics in Animal Genetics and Genomics F [0.50]</td>
<td></td>
<td>Current literature and classical papers pertaining to quantitative genetics, animal breeding and animal genomics are reviewed in detail through presentation, discussion and critical analysis.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6250</td>
<td>Growth and Metabolism W [0.50]</td>
<td></td>
<td>Animal growth and metabolism are considered at the cellular level in a manner that extends beyond the basic disciplines of biometrics and biochemistry with attention focused on the main carcass components — muscle, fat and bone.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6360</td>
<td>Techniques in Animal Nutrition Research W [0.50]</td>
<td></td>
<td>Theory and/or practices of techniques to evaluate feedstuffs and determine nutrient utilization in poultry, swine and ruminants is covered through lectures, short laboratories and a major project.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6370</td>
<td>Quantitative Genetics and Animal Models F [0.50]</td>
<td></td>
<td>The course covers quantitative genetics theory associated with animal models; linear models applied to genetic evaluation of animals; estimation of genetic parameters for animal models; and computing algorithms for large datasets.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6390</td>
<td>QTL and Markers W [0.50]</td>
<td></td>
<td>Advanced training in QTL mapping and selection assisted by genetic markers.</td>
<td>Animal Biosciences</td>
</tr>
<tr>
<td>ANSC*6400</td>
<td>Mammalian Reproduction W [0.50]</td>
<td></td>
<td>Discussions and applications of methodology for collection and examination of gametes and embryos and for measurements of hormones in biological fluids. Offerings: Offered in odd-numbered years.</td>
<td>Animal Biosciences</td>
</tr>
</tbody>
</table>
### ANSC*6440 Advanced Critical Analysis in Applied Ethology F [0.50]

Students explore the process of scientific inquiry and experimental design within the context of applied ethology research. Discussions include the peer review process, critical analyses and applications of methods for applied animal behaviour research.

**Department(s):** Department of Animal Biosciences

### ANSC*6450 Topics in Animal Biotechnology W [0.50]

The course will explore current methods and recent advances of biotechnology, innovation, and emerging translational products of significance to animal production and human health.

**Department(s):** Department of Animal Biosciences

### ANSC*6460 Lactation Biology F [0.50]

An in-depth systems analysis of lactation, comparing the cow, pig, rat, human and seal. Mammary development from conception through to lactogenesis, lactation and involution will be covered. Hypotheses of regulation of the biochemical pathways of milk synthesis will be tested in relation to experimental observations.

**Department(s):** Department of Animal Biosciences

### ANSC*6470 Advanced Animal Nutrition and Metabolism I F [0.50]

A systematic review of key aspects of energy, protein, amino acid and carbohydrate utilization and metabolism in farm animals.

**Department(s):** Department of Animal Biosciences

### ANSC*6480 Advanced Animal Nutrition and Metabolism II W [0.50]

A systematic review of key aspects of lipid, vitamin and mineral utilization and metabolism in farm animals.

**Department(s):** Department of Animal Biosciences

### ANSC*6490 Advanced Dairy Management W [0.50]

A comprehensive systems science and integrative capstone course that encompasses the “closing of the loop” education of dairy production systems. Students will be exposed to real-time issues relating to dairy production from, environment, economics, nutrition, housing, health, welfare, society and agrology. This course will allow the student to practice their training from the courses they have been exposed to as undergraduates into many case study evaluations on farms provincially, nationally and internationally.

**Restriction(s):** Instructor consent required.

**Department(s):** Department of Animal Biosciences

### ANSC*6600 Seminar F,W [0.00]

This course is required for successful completion of MSc and PhD programs. The major findings of the thesis or major paper are presented to the department.

**Department(s):** Department of Animal Biosciences

### ANSC*6700 Animals in Society: Historical and Global Perspectives on Animal Welfare F [0.50]

A seminar course covering society’s duties to animals. Students will learn about the major ethical theories that deal with society’s duties towards animals, the main scientific approaches to animal welfare, and the relationship of science to ethics. A brief history of human-animal relationships will be covered and cultural differences described. Students will use this to analyze some current issues.

**Department(s):** Department of Animal Biosciences

### ANSC*6710 Assessing Animal Welfare in Practice W,S [0.50]

A lecture/seminar course covering the principles of applied animal welfare assessment. Students will learn what influences an animal welfare assessment and will understand the components necessary to create an effective and targeted animal welfare program for industry or regulatory application.

**Offering(s):** Winter offering on-campus, Summer offering Distance Education.

**Prerequisite(s):** ANSC*6700

**Department(s):** Department of Animal Biosciences

### ANSC*6720 Scientific Assessment of Affective States in Animals W [0.50]

Graduate students will explore the biology and validity of behavioural and physiological techniques used in animal welfare assessment of such phenomena as: sympathetic activation, HPA functioning, stereotypic behaviour and preference responses. A combination of lecture, instructor-led discussion and student-led discussion will explore these areas of animal welfare assessment.

**Department(s):** Department of Animal Biosciences

### ANSC*6730 Applied Environmental Physiology: Applications to Animal Care Standards W [0.50]

A lecture/seminar course covering the principles of applied environmental physiology including temperature regulation, space requirements, animal responses to light and other aspects of the physical environment. Students pursue a topic in depth to develop or update recommended codes of practice and resource-based standards. Last winter offering is Winter 2015.

**Department(s):** Department of Animal Biosciences

### ANSC*6740 Special Topics in Applied Animal Welfare Science S [0.50]

A lecture/seminar course covering in depth topics in applied animal welfare science. The course will review the scientific research into the welfare of a specific animal species or a specific animal welfare problem common across species, focusing on the main threats to welfare, relevant indicators of welfare, and possible solutions to improve welfare.

**Department(s):** Department of Animal Biosciences

### ANSC*6900 Major Paper in Animal and Poultry Science F,W,S [1.00]

A detailed, critical review of an area of study related to the specialization of students in the MSc by course work and major paper option that includes analysis and interpretation of relevant data.

**Department(s):** Department of Animal Biosciences

### Anthropology

**ANTH*6000 Public Issues Anthropology F [0.50]

This course will examine the interface between anthropological and public understandings of public issues, with sensitivity to the presence or absence of anthropological insights. The course will assure that students become well versed in how to synthesize the resources of various branches of the discipline.

**Restriction(s):** Restricted to incoming students in the program.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6140 Qualitative Research Methods W [0.50]

An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6270 Diversity and Social Equality U [0.50]

This course will examine a range of approaches used in the study of intergroup relations, with special emphasis on struggles over influence and power. Students will acquire a deeper understanding of the complex intersection, as well as the overlap among forms of identity and group mobilization based on ethnic, linguistic, regional, class, gender, racial and other forms of social division. The course may also cover native issues and policies related to multiculturalism, equity and local or regional autonomy.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6420 Global Agro-Food Systems, Communities and Rural Change U [0.50]

This course will reflect recent sociological interests in food studies and global agro-food systems, resources and the environment, community sustainability, rural-urban linkages, the transnationalization of labour regimes, and social movements in the rural context. The course will encourage students to take a comparative and historical approach, focussing on cross-national and inter-regional studies where possible, and to examine how class, gender, race and ethnicity play out in each particular substantive topic comprising the rural field.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6460 Gender and Development F [0.50]

Cross-cultural and historical changes in gender relations and the roles/positions of women brought about by industrialization and the development of the world system. Critical examination of the predominant theories of gender relations, in so far as these inform development research and action in societies with different socio-economic systems. Introduction to the latest theories and research in the area of women and development, as well as with social and political actions undertaken by women themselves. This is one of the two alternative core courses for the Collaborative International Development Studies program.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6480 Work, Gender and Change in a Global Context U [0.50]

This course will consider some of the theoretical frameworks available for examining work, workers and work places in the context of globalization, economic restructuring, and shifts in public policy. Using case studies of particular work worlds, the course may include topics such as changing patterns of work and employment in comparative contexts, labour regimes, industrial and organizational change, organizations and protest, education for work, and the regulation of work. The course will focus on the dialectical relationship between the configurations of gender, class, race and ethnicity and the transformation of work.

**Department(s):** Department of Sociology and Anthropology

### ANTH*6550 Selected Topics in Theory and Research U [0.50]

This course will be offered with varying content focusing on theory or research.

**Department(s):** Department of Sociology and Anthropology
ANTH*6600 Reading Course U [0.50]
A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the chair of the department. This course may be repeated provided different content is involved.
Department(s): Department of Sociology and Anthropology

ANTH*6660 Major Paper U [1.00]
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.
Department(s): Department of Sociology and Anthropology

Art History and Visual Culture

AVC*6100 Proseminar: Critical Methods I F [0.50]
This prosemnar explores the histories, theories, and methodologies of the fields of art history, visual culture, and material culture.
Department(s): School of Fine Art and Music

AVC*6200 Proseminar: Critical Methods II W [0.50]
This seminar is a multi-disciplinary survey of critical theory. The aim is to consider which bodies of theory have been—and continue to be—lively options for the practice of critical thought in relation to visual culture, especially post-1968. The course explores issues which also possess cultural, social and political relevance, theories which affected all the humanities and social sciences, and themes that are also deeply relevant outside the academy. These include: the institutions and networks of knowledge, identity politics, race, sexuality, gender and class, amongst others.
Prerequisite(s): AVC*6100
Department(s): School of Fine Art and Music

AVC*6300 Special Topics in Art History and Visual Culture F [0.50]
This seminar explores issues of historical and critical method by focusing them through the lens of a particular area of concern within the fields of art history, visual culture, and/or material culture.
Department(s): School of Fine Art and Music

AVC*6350 Practicum I: Art Institutions F [0.50]
The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course.
Restriction(s): Admission to the Graduate Program in Art History and Visual Culture Instructors consent required.
Department(s): School of Fine Art and Music

AVC*6400 Practicum II: Art Institutions W [0.50]
The practicum provides students with an opportunity to gain practical experience through work with an artist, curator, or other museum or arts professional. This experience may be based in a museum department, gallery, artist's studio, or arts publication office. The course should result in a substantial piece of work - for example, preparatory work for an exhibition, an analysis of a segment of a permanent collection, or a survey or catalogue of an artist's archives. The student is required to submit a written report upon completion of the course.
Restriction(s): Admission to the Graduate Program in Art History and Visual Culture Instructors consent required.
Department(s): School of Fine Art and Music

AVC*6500 Directed Reading U [0.50]
Each student establishes, in consultation with the faculty member chosen, the content of this special study within the instructor's area of expertise. Faculty varies.
Department(s): School of Fine Art and Music

AVC*6600 Graduate Seminar I in Art History and Visual Culture F [0.50]
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Students should consult the department for specific offerings.
Restriction(s): Admission to the Graduate Program in Art History and Visual Culture
Department(s): School of Fine Art and Music

AVC*6700 Graduate Seminar II in Art History and Visual Culture W [0.50]
This seminar course is designed to explore one or more issues in Art and Visual Culture depending on the expertise of the instructor. Students should consult the department for specific offerings.
Restriction(s): Admission to the Graduate Program in Art History and Visual Culture
Department(s): School of Fine Art and Music

AVC*6800 Art History and Visual Culture Major Research Paper F,W,S [1.00]
The Master's Research Project is a 10,000-15,000 word paper that requires original research and argumentation.
Restriction(s): Admission to the Graduate Program in Art History and Visual Culture, course-work students only
Department(s): School of Fine Art and Music

Bioinformatics

BINF*6110 Genomic Methods for Bioinformatics W [0.50]
This course provides an introduction to current and emerging methods used to generate genomic data analyzed in bioinformatics. This may include techniques for DNA sequencing as well as transcriptome, proteome and metabolome analysis. The objective is to develop an appreciation for the challenges of producing data.
Department(s): Dean's Office, College of Biological Science

BINF*6210 Software Tools for Biological Data Analysis and Organization F [0.50]
This course will familiarize students with tools for the computational acquisition and analysis of molecular biological data. Key software for gene expression analyses, biological sequence analysis, and data acquisition and management will be presented. Laboratory exercises will guide students through application of relevant tools.
Department(s): Dean's Office, College of Biological Science

BINF*6410 Bioinformatics Programming F [0.50]
This course will introduce bioinformatics students to programming languages. Languages such as C and Perl will be introduced with a focus on bioinformatics applications. The topics covered will serve to aid students when existing software does not satisfy their needs.
Department(s): Dean's Office, College of Biological Science

BINF*6420 Biosequence Pattern Analysis W [0.50]
This course is an overview course on different approaches to analyze biological sequences. Basic concepts are introduced, as well as related algorithms.
Department(s): Dean's Office, College of Biological Science

BINF*6500 PhD Research Writing in Bioinformatics F,W,S [1.00]
Background literature pertinent to the student's initial research direction will be studied. Starting with a reading list provided by the advisor and the instructor, the student will build on this list and construct a major literature review over two semesters. As the student begins to generate initial ideas for their own research direction, their ideas are written and explained. The emphasis will be on a sub-field or sub-fields of bioinformatics and the depth of study will be appropriate to the doctoral level.
Restriction(s): Instructor consent required. PhD students in Bioinformatics program
Department(s): Dean's Office, College of Biological Science

BINF*6890 Topics in Bioinformatics F [0.50]
Selected topics in bioinformatics will be covered. The course might focus on biological or informatics topics, or upon a mixture of both.
Department(s): Dean's Office, College of Biological Science

BINF*6970 Statistical Bioinformatics W [0.50]
This course presents a selection of advanced approaches for the statistical analysis of data that arise in bioinformatics, especially genomic data. A central theme to this course is the modelling of complex, often high-dimensional, data structures.
Prerequisite(s): Introductory courses in statistics, mathematics and programming
Restriction(s): Instructor consent required.
Department(s): Dean's Office, College of Biological Science

BINF*6999 Bioinformatics Master's Project F,W,S [1.00]
A major research paper is completed and presented by students in the Master of Bioinformatics program.
Prerequisite(s): BINF*6110, BINF*6210
Restriction(s): Restricted to MBNF students only
Department(s): Dean's Office, College of Biological Science

Biomedical Science

BIOM*6000 Functional Neuroanatomy U [0.50]
A course emphasizing the structure and function of the mammalian nervous system and organs of special sense.
Department(s): Department of Biomedical Sciences

BIOM*6070 Pregnancy, Birth and Perinatal Adaptations S [0.50]
This course promotes understanding of the physiology of the placenta, and its role in fetal, perinatal and adult health. It is offered through videoconference involving University of Guelph, Queen's University and University of Waterloo. Parts are customized to student's interests within pregnancy physiology.
Department(s): Department of Biomedical Sciences
### Appendix A - Courses, Biophysics

**BIOM*6110 Advanced Microscopy for Biomedical Sciences U [0.50]**
Routine and specialized procedures for light microscopy, and transmission and scanning electron microscopy are examined through lectures, discussions and practical exercises. Interpretation of micrographs is included.

*Department(s):* Department of Biomedical Sciences

**BIOM*6130 Vertebrate Developmental Biology U [0.50]**
The principles of vertebrate development are examined through lectures, discussions and practical exercises. Topics include aspects of gametogenesis, fertilization, implantation, embryonic and fetal development and experimental manipulation of embryos. Emphasis is on mammalian development and topics may vary depending on student needs and interests.

*Department(s):* Department of Biomedical Sciences

**BIOM*6160 Cellular Biology U [0.50]**
An integrative course that examines aspects of cell biology in the context of recent research advancements. Topics are chosen based on student interest and faculty expertise and are explored through a combination of lectures, student seminars and group discussions.

*Department(s):* Department of Biomedical Sciences

**BIOM*6190 Tissue Culture Techniques in Biomedical Sciences U [0.50]**
An introduction to in vitro techniques examining aspects and principles of the culture environment, isolation methods, propagation, characterization and storage of cultured cells, gametes and embryos. Practical exercises and student assignments complement material presented in lecture and seminar format.

*Department(s):* Department of Biomedical Sciences

**BIOM*6440 Biomedical Toxicology U [0.50]**
The course examines chemical compounds injurious to animals and man, toxicity testing, teratogens, carcinogens, factors influencing toxicity, and toxic drug interactions. The mechanism of action, metabolism, and principles of antidotal treatment are also studied.

*Department(s):* Department of Biomedical Sciences

**BIOM*6480 Pharmacodynamics and Pharmacokinetics U [0.50]**
This course describes drug absorption, distribution, biotransformation and elimination in animals and human beings, and emphasizes factors which modify drug behaviour. It integrates molecular mechanisms with physiological processes and highlights the importance of receptors and second messengers in cellular responses to pharmacologic agents.

*Department(s):* Department of Biomedical Sciences

**BIOM*6490 Introduction to Drug Development W [0.50]**
Drug development is the process of integrating scientific data from several disciplines in order to demonstrate efficacy and safety of the new chemical entity for regulatory approval. This course will provide an overview of the drug development process including preclinical and clinical aspects of drug development.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Biomedical Sciences

**BIOM*6570 Biochemical Regulation of Physiological Processes U [0.50]**
This course focuses on the regulation of vertebrate physiological processes, such as electrolyte and water balance, temperature regulation, growth and energy metabolism, by hormones and other biological regulators that act through cellular receptors and intracellular biochemical-control pathways.

*Department(s):* Department of Biomedical Sciences

**BIOM*6601 Special Topics in Reproductive Biology and Biotechnology U [0.25]**
Permits in-depth exploration of interdisciplinary aspects of biomedical research. Topics such as inflammation, reproductive immunology and neoplasia have been offered.

*Department(s):* Department of Biomedical Sciences

**BIOM*6602 Special Topics in Reproductive Biology and Biotechnology U [0.50]**
See BIOM*6601 above.

*Department(s):* Department of Biomedical Sciences

**BIOM*6610 Vascular Biology U [0.50]**
An interdisciplinary course in which the interrelationships between vascular proteins, cellular elements and the maintenance of vascular integrity are examined. Structural-functional relationships in vascular biology are explored through seminar presentations, group discussions and small group participation in problem based examples of vascular dysfunction.

*Department(s):* Department of Biomedical Sciences

**BIOM*6701 Special Topics in Development, Cell and Tissue Morphology U [0.25]**
Permits further in depth study of developmental and morphological sciences.

*Department(s):* Department of Biomedical Sciences

**BIOM*6702 Special Topics in Development, Cell and Tissue Morphology U [0.50]**
See BIOM*6701

*Department(s):* Department of Biomedical Sciences

**BIOM*6711 Special Topics in Physiology & Biochemistry U [0.25]**
This course involves an appropriate combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed according to the student's requirements.

*Department(s):* Department of Biomedical Sciences

**BIOM*6712 Special Topics in Physiology & Biochemistry U [0.50]**
See BIOM*6711

*Department(s):* Department of Biomedical Sciences

**BIOM*6721 Special Topics in Pharmacology-Toxicology U [0.25]**
This course will comprise a combination of an experimental procedure (or project), seminars, selected reading or a literature review outside the thesis subject, developed based on the student's requirements. Topics could include clinical pharmacology/toxicology, pharmaco-epidemiology/economics, gerontological or perinatal pharmacology and toxicokinetics.

*Department(s):* Department of Biomedical Sciences

**BIOM*6722 Special Topics in Biomedical Pharmacology-Toxicology U [0.50]**
See BIOM*6721

*Department(s):* Department of Biomedical Sciences

**BIOM*6800 Gene Expression in Health and Disease W [0.50]**
This course presents the molecular concepts of gene expression and the functional consequences of abnormal expression in pathological conditions. The conceptual, methodological and applied aspects of gene expression will be illustrated through student and faculty seminars, written reports, group discussions, and debates.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Biomedical Sciences

**BIOM*6900 Research Project in Biomedical Sciences W,S,F [1.00]**
This course will be a lab-based, two-semester research project course for students in the course-based MSC stream in Biomedical Sciences.

*Department(s):* Department of Biomedical Sciences

### Biophysics

**BIOP*6000 Concepts in Biophysics W [0.50]**
This course will emphasize basic concepts in molecular, cellular and structural biophysics arising from key journal publications and their impact on present day research trends.

*Department(s):* Dean's Office, College of Physical and Engineering Science

**BIOP*6010 Biophysics Seminar U [0.00]**
Public research seminar presented by all PhD students in the Biophysics program in yearly intervals after passing the qualifying exam. Students are required to attend all seminars presented during the semester in which they are registered for the course.

*Department(s):* Dean's Office, College of Physical and Engineering Science

**BIOP*6100 Scientific Communication and Research Methods in Biophysics U [0.50]**
The development and refinement of the skills of scientific communication, emphasizing oral presentation and writing skills, in the context of developing a literature review or thesis proposal. All Biophysics students will normally take this within 4 semesters of entering the program.

*Department(s):* Dean's Office, College of Physical and Engineering Science

**BIOP*6950 Advanced Topics in Biophysics U [0.50]**
This course provides opportunities for graduate students to study special topics in contemporary biophysical research under the guidance of graduate faculty members with pertinent expertise. Proposed course descriptions are considered by the Director of the Biophysics program on an ad hoc basis, and the course will be offered according to demand.

*Department(s):* Dean's Office, College of Physical and Engineering Science

### Business

**BUS*6180 Financial and Managerial Accounting U [0.50]**
This course emphasizes the gathering and use of financial information to facilitate effective financial and management decisions. Cases are used to approach the subject from the perspective of the user of accounting information rather than that of the supplier.

*Department(s):* Executive Programs
BUS*6200 Financial Management U [0.50]
This course takes the viewpoint of the senior financial officer of a commercial enterprise. The focus is on the management of cash, accounts receivable, inventories and capital assets, as well as on the sourcing of funds through short-term liabilities, long-term debt and owners' equity.

Prerequisite(s): BUS*6180
Restriction(s): Non MBA students only by permission of instructor.
Department(s): Executive Programs

BUS*6300 Business Practices for Sustainability U [0.50]
This course focuses on critical strategic and managerial issues related to sustainability and introduces students to concepts linking organizational strategies and sustainability principles. It explores how managers can integrate consideration of the environment and society into business strategies and business practices to improve competitive advantage and create environmental, social and economic value.

Department(s): Executive Programs

BUS*6400 Canadian Business Law: Addressing Legal Issues in Organizations F,W [0.50]
This course will introduce you to Canadian business law and give you an understanding of legal principals as they apply to business organizations. After reviewing basic foundational concepts and sources of law in Canada, we will undertake a more in-depth review of practical legal issues and solutions that arise in various business environments. Topics include contracts, torts, employment law, class action and conflict resolution.

Restriction(s): Executive Program students only
Department(s): Executive Programs

BUS*6500 Governance for Sustainability U [0.50]
This course introduces MBA students to the rise of environmentalism and state-led environmental management, and the more recent emergence of environmental governance as made evident by the growing authority of non-state actors (e.g. NGOs, business associations, etc.) and the use of new mechanisms of management (e.g. voluntary standards, third party certification, etc.). These core topics are presented as both opportunities and challenges for private firms such as climate change and fisheries decline. The course is delivered online with a mix of text, audio and video, and use of external contemporary resources. Students are expected to participate actively and regularly during the eight-week on-line delivery of this course.

Restriction(s): Executive Program students only
Department(s): Executive Programs

BUS*6600 Sustainable Value Creation S [0.50]
Many organizations have redefined their business strategies in line with principles of sustainability in order to maximize value creation for the organization and its stakeholders. In this course students will critically examine these sustainability drivers and strategic approaches to value creation.

Restriction(s): Executive Program students only
Department(s): Executive Programs

BUS*6800 Readings in Leadership I U [0.50]
This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

Department(s): Executive Programs

BUS*6810 Readings in Leadership II U [0.50]
This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

Prerequisite(s): BUS*6800 (or may be taken concurrently)
Department(s): Department of Management

BUS*6820 Readings in Management U [0.50]
This course is available to individuals or groups of graduate students. Students will complete a set of readings and an associated paper as approved by designated faculty. Specific learning objectives consistent with the University's will be developed each time the course is offered.

Department(s): Department of Management

BUS*6830 Foundational Theories of Leadership F [0.50]
This doctoral seminar introduces students to the underlying philosophical assumptions that support empirical research methods within management studies. The challenge facing future researchers, leaders and managers is to distill vast amounts of information into meaningful and action oriented knowledge.

Restriction(s): Instructor consent required.
Department(s): Department of Management

BUS*6840 Foundational Theories of Management W [0.50]
This doctoral seminar provides a survey of classic and contemporary management thought. The objective of this course is to explore foundational and emerging areas of inquiry that are influential in the realm of management theory and practice.

Restriction(s): Instructor consent required.
Department(s): Department of Management

BUS*6850 Marketing Strategy U [0.50]
An advanced course for those specializing in marketing. Deals with marketing theories, models, and specific subsets of marketing such as pricing, consumer and industrial buyer behaviour, distribution, services, and service-delivery concepts.

Restriction(s): CBE Executive Programs students only
Department(s): Department of Management

BUS*6900 Major Research Project U [1.00]
A detailed critical review of an area of study specific to the specialization of students in the MBA by course work and major paper option.

Restriction(s): CBE Executive Programs students only
Department(s): Department of Management

Capacity Development and Extension

CDE*6070 Foundations of Capacity Building and Extension U [0.50]
Contemporary issues and changes in rural communities and the implications for building community capacity. Students will be introduced to and examine dominant paradigms of community capacity building for meeting rural needs.

Department(s): School of Environmental Design and Rural Development

CDE*6260 Research Design U [0.50]
Provides students with abilities and knowledge to undertake, formulate and implement research in their chosen area of development. Students are expected to acquire the ability to identify research question and the appropriate designs to answer such questions.

Department(s): School of Environmental Design and Rural Development

CDE*6290 Special Topics in Capacity Building and Extension U [0.50]
Selected study topics which may be pursued in accordance with the special needs of students in the program.

Department(s): School of Environmental Design and Rural Development

CDE*6311 Community Engagement and Public Participation U [0.50]
This course will explore the philosophy and principles of public participation. An emphasis will be placed on those practices and methods that can be used to engage communities and organizations within a participatory framework.

Department(s): School of Environmental Design and Rural Development

CDE*6320 Capacity Building for Sustainable Development U [0.50]
Learning processes enhancing human capital in civil society and the organizational and managerial capabilities that can empower communities to meet their economic, social, cultural and environmental needs. Examines development and underdevelopment and the role of non-formal education and administration in facilitation social change in peripheral regions from an interdisciplinary perspective.

Department(s): School of Environmental Design and Rural Development

CDE*6330 Facilitation and Conflict Management U [0.50]
Explore the theories of leadership, practice leadership skills and activities, and develop an understanding of the role facilitation and conflict management play in organizational success. Emphasizes personal individual development through practice, lecture and group discussion. Service learning through facilitation of community meetings will be part of the course.

Restriction(s): Instructor consent required.
Department(s): School of Environmental Design and Rural Development

CDE*6410 Readings in Capacity Building and Extension U [0.50]
A program of supervised independent study related to the student's area of concentration.

Restriction(s): Instructor consent required.
Department(s): School of Environmental Design and Rural Development

CDE*6420 Communication for Social and Environmental Change U [0.50]
Communication process for social change and development including participatory media. Students engage in community-based work involving multi-media projects. Course covers the history of development communication and current praxis in Canada and internationally.

Restriction(s): Instructor consent required.
Department(s): School of Environmental Design and Rural Development
Appendix A - Courses, Chemistry

CDE*6909 Community Environmental Leadership F [0.50]
This course explores the relationships between the environment and socio-economic issues at the community level and the resulting conflict. Using the social change model, this course examines the linkages between advocacy, decision-making and conflict and the development of strategies to mitigate community conflict.

Restriction(s): Instructor consent required.
Department(s): School of Environmental Design and Rural Development

CDE*6900 Major Research Paper U [1.00]
Students select a topic and write a paper that does not necessarily include original data but is an analysis and synthesis of materials dealing with the topic selected.

Restriction(s): Instructor consent required.
Department(s): School of Environmental Design and Rural Development

Chemistry

CHEM*7100 Selected Topics in Inorganic Chemistry U [0.50]
Discussion of specialized topics related to the research interests of members of the centre. Special topics could include, for example: bioinorganic chemistry; inorganic reaction mechanisms; synthetic methods in inorganic and organometallic chemistry; homogeneous and heterogeneous catalysis; chemistry of polynuclear compounds.

Department(s): Department of Chemistry

CHEM*7120 X-ray Crystallography U [0.50]
Introduction: crystals, basic concepts; space groups; the reciprocal lattice; x-ray diffraction; the phase problem; structure factors; electron density; small molecule structure solution, structure refinement, structure results, journals and databases, paper writing.

Department(s): Department of Chemistry

CHEM*7130 Chemistry of Inorganic Solid State Materials U [0.50]
Introduction to solid state chemistry, common crystal structures, principles of solid state synthesis, theory and experimental methods for characterizing solids, including thermal analysis techniques, powder x-ray and neutron diffraction methods; special topics to include one or more of the optical, electronic, magnetic, or conductive properties of inorganic materials. Prerequisites: one semester-long undergraduate course (at least third-year level) in inorganic chemistry, preferably with content in structural and/or solid state.

Department(s): Department of Chemistry

CHEM*7150 Structure and Bonding in Inorganic Chemistry U [0.50]
Free electron, Hueckel and extended Hueckel methods for molecules and clusters. Perturbation theory. Applications of group theory in inorganic chemistry; Jahn-Teller effects in molecules and solids. Energy bands in one, two and three dimensions. Prerequisites: three-semester-long undergraduate courses in inorganic chemistry and one semester-long undergraduate course in quantum mechanics or group theory.

Department(s): Department of Chemistry

CHEM*7170 Advanced Transition Metal Chemistry U [0.50]
Magnetic chemistry of transition metal compounds. Electronic spectra of complex ions including applications of molecular orbital and ligand field theories. Stabilization of unusual oxidation states and co-ordination numbers. Bonding, structure and reactivity of certain important classes of metal complexes, e.g., metal hydrides, metal-metal bonded species, biologically significant model systems such as macrocycles.

Department(s): Department of Chemistry

CHEM*7180 Advanced Organometallic Chemistry U [0.50]
Reactions, structure and bonding of organometallic compounds of transition and non-transition metals.

Department(s): Department of Chemistry

CHEM*7200 Selected Topics in Analytical Chemistry U [0.50]
Special topics could include, for example: trace analysis using modern instrumental and spectroscopic methods; advanced mass spectrometry (instrumentation and interpretation of spectra); analytical aspects of gas and liquid chromatography.

Department(s): Department of Chemistry

CHEM*7240 Chemical Instrumentation U [0.50]
Instrumental components and optimum application; rudiments of design; electrical, spectral, migrational and other methods.

Department(s): Department of Chemistry

CHEM*7260 Topics in Analytical Spectroscopy U [0.50]
Atomic emission and absorption spectroscopy; methods of excitation and detection; quantitative applications. Molecular electronic spectroscopy, UV, visible and Raman; instrumental characteristics; applications to quantitative determinations, speciation, measurements of equilibrium, etc. Sources and control of errors and interferences. Determination and description of colour.

Department(s): Department of Chemistry

CHEM*7270 Separations U [0.50]
Material to be drawn is from the following topics: diffusion; isolation of organic material from the matrix; chromatographic techniques - principles of chromatographic separation, gas (GLC, GSC), liquid (LLC, LSC, GPC, IEC), supercritical fluid (SFC) chromatographies; GC-MS, CG-FTIR; electrophoresis, flow field fractionation. Prerequisites: undergraduate level course in instrumental analysis.

Department(s): Department of Chemistry

CHEM*7280 Electroanalytical Chemistry U [0.50]
A study of electroanalytical techniques and their role in modern analytical chemistry. The underlying principles are developed. Techniques include chromatophotometry, chronocoulometry, polarography, voltammetry, chronopotentiometry, coulometric titrations, flow techniques, electrochemical sensors and chemically modified electrodes.

Department(s): Department of Chemistry

CHEM*7290 Surface Analysis U [0.50]
Department(s): Department of Chemistry

CHEM*7300 Proteins and Nucleic Acids U [0.50]
Determination of protein sequence and 3-dimensional structure, protein anatomy; prediction of protein structure; intermolecular interactions and protein-protein association; effects of mutation. Nucleic acid structure and anatomy; DNA and chromatin structure; RNA structure; snRNPs and ribozymes; protein-nucleic acid interactions.

Department(s): Department of Chemistry

CHEM*7310 Selected Topics in Biochemistry U [0.50]
Discussion of specialized topics related to the research interests of members of the centre. for example, recent offerings have included peptide and protein chemistry, biochemical toxicology, medical aspects of biochemistry, glycolipids and glycoproteins, redox enzymes, biological applications of magnetic resonance, etc.

Department(s): Department of Chemistry

CHEM*7360 Regulation in Biological Systems U [0.50]

Department(s): Department of Chemistry

CHEM*7370 Enzymes U [0.50]

Department(s): Department of Chemistry

CHEM*7380 Cell Membranes and Cell Surfaces U [0.50]
Membrane proteins and lipids - structure and function; dynamics; techniques for their study; model membrane systems. Membrane transport. The cytoskeleton. Membrane protein biogenesis, sorting and targeting. Signal transduction across membranes. The cell surface in immune responses.

Department(s): Department of Chemistry

CHEM*7400 Selected Topics in Theoretical Chemistry U [0.50]
Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: theory of intermolecular forces; density matrices; configuration interaction; correlation energies of open and closed shell systems; kinetic theory and gas transport properties; theory of the chemical bond.

Department(s): Department of Chemistry

CHEM*7450 Statistical Mechanics U [0.50]
Review of classical and quantum mechanics; principles of statistical mechanics; applications to systems of interacting molecules; imperfect gases, liquids, solids, surfaces and solutions.

Department(s): Department of Chemistry

CHEM*7460 Quantum Chemistry U [0.50]
Approximate solutions of the Schrodinger equation and calculations of atomic and molecular properties.

Department(s): Department of Chemistry

CHEM*7500 Selected Topics in Physical Chemistry U [0.50]
Discussion of specialized topics related to the research interests of the members of the centre. Special topics could include for example: principles of magnetic resonance in biological systems; collisions, spectroscopy and intermolecular forces, surface chemistry; catalysis; electrolyte theory; non-electrolyte solution theory, thermodynamics of biological systems; thermodynamics.

Department(s): Department of Chemistry

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CHEM*7550 Kinetics - Dynamics U [0.50]
Department(s): Department of Chemistry

CHEM*7560 Spectroscopy U [0.50]
Aspects of electronic vibrational and rotational spectroscopy of atoms, molecules, and the solid state. Relevant aspects of quantum mechanics, Dirac notation, and angular momentum will be discussed. Group Theory will be presented and its implications for spectroscopy introduced. Prerequisites: one semester-long undergraduate course in quantum mechanics or the approval of the instructor.
Department(s): Department of Chemistry

CHEM*7600 Selected Topics in Organic Chemistry U [0.50]
Two or three topics from a range including: bio-organic chemistry; environmental organic chemistry; free radicals; heterocyclic molecules; molecular rearrangements; organometallic chemistry; photochemistry; natural products.
Department(s): Department of Chemistry

CHEM*7640 Synthetic Organic Reactions U [0.50]
Named organic reactions and other synthetically useful reactions are discussed. The mechanism, stereochemical implications and use in organic synthesis of these reactions will be presented. Examples from the organic literature will be used to illustrate these aspects.
Department(s): Department of Chemistry

CHEM*7650 Strategies in Organic Synthesis U [0.50]
The synthesis of organic compounds is discussed and emphasis is placed on the design of synthetic routes. Examples drawn from the literature are used to illustrate this synthetic planning.
Prerequisite(s): CHEM*7640
Department(s): Department of Chemistry

CHEM*7660 Organic Spectroscopy U [0.50]
Ultraviolet, infrared, resonance spectroscopy and mass spectrometry, with emphasis on applications to studies of organic molecules.
Department(s): Department of Chemistry

CHEM*7690 Physical Organic Chemistry U [0.50]
Linear free energy relationships; substituent effects and reactive intermediates.
Department(s): Department of Chemistry

CHEM*7700 Principles of Polymer Science U [0.50]
Introduction to the physical chemistry of high polymers, principles of polymer synthesis, mechanisms and kinetics of polymerization reactions, copolymerization theory, polymerization in homogeneous and heterogeneous systems, chemical reactions of polymers. Theory and experimental methods for the molecular characterization of polymers.
Department(s): Department of Chemistry

CHEM*7710 Physical Properties of Polymers U [0.50]
The physical properties of polymers are considered in depth from a molecular viewpoint. Rubber elasticity, mechanical properties, rheology and solution behaviour are quantitatively treated.
Prerequisite(s): CHEM*7700 or equivalent
Department(s): Department of Chemistry

CHEM*7720 Polymerization and Polymer Reactions U [0.50]
The reactions leading to the production of polymers are considered with emphasis on emulsion and suspension polymerization and polymerization reaction engineering. Polymer degradation, stabilization and modification reactions are also considered in depth.
Prerequisite(s): CHEM*7700 or equivalent.
Department(s): Department of Chemistry

CHEM*7730 Selected Topics in Polymer Chemistry U [0.50]
Discussion of specialized topics of polymer chemistry related to the research interests of the faculty or prominent scientific visitors. Special topics could include, for example: polymer stabilization and degradation; mechanical properties; polymer principles in surface coatings; organic chemistry of synthetic high polymers; estimation of polymer properties; reactions of polymers; polymerization kinetics.
Department(s): Department of Chemistry

CHEM*7940 MSc Seminar U [0.50]
A written literature review and research proposal on the research topic will be presented and defended in a 30-minute public seminar. This requirement is to be completed by all thesis-option MSc students within two semesters of entering the program.
Department(s): Department of Chemistry

CHEM*7950 PhD Seminar U [0.00]

CHEM*7970 MSc Research Paper U [0.50]
An experimental project normally based on the CHEM*7940 research proposal, supervised by the advisor, taking three to four months to complete. This project may be completed at any time during the student’s program, but it must follow CHEM*7940. A written report is required, and a seminar based on the content of the report will be presented. The report must be completed as per the project/thesis guidelines of the University campus on which the student is registered. This course normally will follow the course CHEM*7940 MSc Seminar.
Department(s): Department of Chemistry

CHEM*7980 MSc Thesis U [0.00]
Department(s): Department of Chemistry

CHEM*7990 PhD Thesis U [0.00]
Department(s): Department of Chemistry

Computing and Information Science

CIS*6000 Distributed Systems U [0.50]
Department(s): School of Computer Science

CIS*6020 Artificial Intelligence U [0.50]
An examination of Artificial Intelligence principles and techniques such as: logic and rule based systems; forward and backward chaining; frames, scripts, semantic nets and the object-oriented approach; the evaluation of intelligent systems and knowledge acquisition. A sizeable project is required and applications in other areas are encouraged.
Department(s): School of Computer Science

CIS*6030 Information Systems U [0.50]
Relational and other database systems, web information concurrency protocols, data integrity, transaction management, distributed databases, remote access, data warehousing, data mining.
Department(s): School of Computer Science

CIS*6050 Neural Networks U [0.50]
Department(s): School of Computer Science

CIS*6060 Bioinformatics U [0.50]
Data mining and bioinformatics, molecular biology databases, taxonomic groupings, sequences, feature extraction, Bayesian inference, cluster analysis, information theory, machine learning, feature selection.
Department(s): School of Computer Science

CIS*6070 Discrete Optimization U [0.50]
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and genetic algorithms.
Department(s): School of Computer Science

CIS*6080 Genetic Algorithms U [0.50]
This course introduces the student to basic genetic algorithms, which are based on the process of natural evolution. It is explored in terms of its mathematical foundation and applications to optimization in various domains.
Department(s): School of Computer Science

CIS*6090 Hardware/Software Co-design of Embedded Systems U [0.50]
Specification and design of embedded systems, system-on-a-chip paradigm, specification languages, hardware/software co-design, performance estimation, co-simulation and validation, processes architectures and software synthesis, reconfigurable code generation and optimization.
Department(s): School of Computer Science

CIS*6100 Parallel Processing Architectures U [0.50]
Parallelism in uniprocessor systems, parallel architectures, memory structures, pipelined architectures, performance issues, multiprocessor architectures.
Department(s): School of Computer Science
Appendix A - Courses, Clinical Studies

CIS*6120 Uncertainty Reasoning in Knowledge Representation U [0.50]
Representation of uncertainty, Dempster-Schafer theory, fuzzy logic, Bayesian belief networks, decision networks, dynamic networks, probabilistic models, utility theory.
Department(s): School of Computer Science

CIS*6130 Object-Oriented Modeling, Design and Programming U [0.50]
Objects, modeling, program design, object-oriented methodology, UML, CORBA, database
Department(s): School of Computer Science

CIS*6140 Software Engineering U [0.50]
This course will discuss problems where optimization is required and describes the most common techniques for discrete optimization such as the use of linear programming, constraint satisfaction methods, and meta-heuristics.
Department(s): School of Computer Science

CIS*6160 Multiagent Systems U [0.50]
Intelligent systems consisting of multiple autonomous and interacting subsystems with emphasis on distributed reasoning and decision making. Deductive reasoning agents, practical reasoning agents, probabilistic reasoning agents, reactive and hybrid agents, negotiation and agreement, cooperation and coordination, multiagent search, distributed MDP, game theory, and modal logics.
Department(s): School of Computer Science

CIS*6200 Design Automation in Digital Systems U [0.50]
Techniques and software tools for design of digital systems. Material covered includes high-level synthesis, design for testability, and FPGAs in design and prototyping.
Department(s): School of Computer Science

CIS*6320 Image Processing Algorithms and Applications U [0.50]
Brightness transformation, image smoothing, image enhancement, thresholding, segmentation, morphology, texture analysis, shape analysis, applications in medicine and biology.
Department(s): School of Computer Science

CIS*6420 Soft Computing U [0.50]
Neural networks, artificial intelligence, connectionist model, back propagation, resonance theory, sequence processing, software engineering concepts.
Department(s): School of Computer Science

CIS*6490 Analysis and Design of Computer Algorithms U [0.25]
The design and analysis of efficient computer algorithms: standard methodologies, asymptotic behaviour, optimality, lower bounds, implementation considerations, graph algorithms, matrix computations (e.g. Strassen's method), NP-completeness.
Department(s): School of Computer Science

CIS*6650 Topics in Computer Science I U [0.50]
This special topics course examines selected, advanced topics in computer science that are not covered by existing courses. The topic(s) will vary depending on the need and the instructor.
Department(s): School of Computer Science

CIS*6660 Topics in Computer Science II U [0.50]
This is a reading course. Its aim is to provide background knowledge to students who need to get a head-start in their thesis research fields early during their program while no suitable regular graduate courses are offered. Admission is under the discretion of the instructor.
Restriction(s): Instructor consent required.
Department(s): School of Computer Science

CIS*6890 Technical Communication and Research Methodology U [0.50]
This course aims to develop students’ ability in technical communication and general research methodology. Each student is expected to present a short talk, give a mini lecture, review a conference paper, write a literature survey and critique fellow students' talks and lectures.
Department(s): School of Computer Science

Clinical Studies

CLIN*6010 Clinical Medicine F [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.
Department(s): Department of Clinical Studies

CLIN*6030 Clinical Medicine W [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.
Department(s): Department of Clinical Studies

CLIN*6031 Clinical Medicine S [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively.
Department(s): Department of Clinical Studies

CLIN*6170 Clinical Surgery F [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty commonly occurring in the Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.
Department(s): Department of Clinical Studies

CLIN*6180 Clinical Surgery W [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.
Department(s): Department of Clinical Studies

CLIN*6181 Clinical Surgery S [0.50]
These are in-service clinical training courses based on case material presented to the student in the Veterinary Teaching Hospital. Under supervision, the student is expected to take primary responsibility for case management including decisions related to diagnosis, therapy and client/referring veterinarian communications. Case material studied in each course reflects a different clinical subspecialty occurring in Fall (F), Winter (W), and Summer (S) semesters respectively. The student is required to prepare a paper for publication in a recognized peer review journal based on clinical case material presented to the teaching hospital. As an alternative, the paper can be an in-depth review article on a clinically relevant topic.
Department(s): Department of Clinical Studies

CLIN*6190 Neurology F [0.50]
Basic principles of lesion localization in the domestic species with discussions of diagnostic problems in veterinary neurology. Offered alternate years.
Restriction(s): Instructor consent required.
Department(s): Department of Clinical Studies

CLIN*6200 Concepts and Application of Infection Control U [0.50]
This course will involve principles of infection control in veterinary hospitals, drawing heavily from information from human medicine and evaluating human information in a veterinary context.
Department(s): Department of Clinical Studies

CLIN*6270 Applied Surgical Principles U [0.25]
General surgical principles associated with surgical and related treatment of various body systems. This is an applied course with laboratory and written components. Prerequisite: must have prior surgical training.
Department(s): Department of Clinical Studies

CLIN*6310 Advanced Equine Veterinary Orthopaedics U [0.50]
This course will provide the student with an in-depth understanding of orthopaedic practice and will facilitate revision of materials to prepare board certification.
Prerequisite(s): DVM or BS
Department(s): Department of Clinical Studies
**CLIN*6330 Advanced Principles of Diagnostic Imaging U [0.50]**

This course is intended for students pursuing a career in veterinary radiology. Using a lecture-discussion format, the science of x-ray production and the fundamentals of other diagnostic imaging modalities will be presented. The specific applications of these techniques to research and clinical situations will be investigated.

Department(s): Department of Clinical Studies

**CLIN*6350 Advanced Radiology I F,WS [0.50]**

Radiographic changes seen in diseases of the thorax and abdomen are demonstrated by using radiographs. Contrast and special studies are included where applicable.

Department(s): Department of Clinical Studies

**CLIN*6370 Advanced Radiology II F [0.50]**

A continuation of CLIN*6350, covering radiographic abnormalities of the neurological and skeletal systems.

Department(s): Department of Clinical Studies

**CLIN*6380 Electrocardiography in Domestic Animals F,WS [0.50]**

This course will deal with the study of the electrocardiography of the cat, dog, cow and horse. Students will review the mechanisms of arrhythmogenesis and the role of anti-arrhythmic agents in the control of arrhythmogenesis.

Department(s): Department of Clinical Studies

**CLIN*6420 Anesthesiology I S [0.50]**

A course in advanced veterinary anesthesia and allied topics such as fluid, acid-base, and electrolyte balance, shock therapy, and cardio pulmonary resuscitation.

Department(s): Department of Clinical Studies

**CLIN*6440 Anesthesiology II F,WS [0.50]**

A discussion, reading and investigative course on research methods in comparative anesthesiology.

Prerequisite(s): CLIN*6420 is normally a prerequisite

Department(s): Department of Clinical Studies

**CLIN*6460 Anesthesiology III: Species Specific and Coexisting Disease Considerations F-W [0.50]**

A course in advanced veterinary anesthesia that focuses on the scientific literature related to the anesthesia of specific species and veterinary patients with varying underlying diseases.

Prerequisite(s): DVM; CLIN*6420 and CLIN*6440

Department(s): Department of Clinical Studies

**CLIN*6550 Small Animal Internal Medicine I F [0.50]**

This is a graduate course designed for DVSd with emphasis on small animal patients. The course will cover the pathophysiologic mechanisms of disease. Subject areas to be addressed may include: cardiovascular disease, respiratory disease and acid-base-electrolyte abnormalities.

Department(s): Department of Clinical Studies

**CLIN*6560 Small Animal Internal Medicine II W [0.50]**

A continuation of Small Animal Internal Medicine I. Subject areas to be addressed may include: endocrine diseases, pharmacodynamics, renal disease and neurologic disease.

Department(s): Department of Clinical Studies

**CLIN*6570 Large Animal Internal Medicine I W [0.50]**

Advanced study in general medicine and pathophysiologic principles of disorders of the gastrointestinal and urinary systems in ruminants, swine and horses. Offered every third year.

Department(s): Department of Clinical Studies

**CLIN*6580 Large Animal Internal Medicine II W [0.50]**

Advanced study in general medicine and the pathophysiologic principles of disorders of the cardiovascular, respiratory and musculo-skeletal systems of ruminants and horses. Offered every third year.

Department(s): Department of Clinical Studies

**CLIN*6590 Large Animal Internal Medicine III W [0.50]**

Advanced study in general medicine and the pathophysiologic principles of neonatal disorders and disorders of the nervous system, skin and general systemic disorders. Offered every third year.

Department(s): Department of Clinical Studies

**CLIN*6600 Equine Soft Tissue Surgery I F,WS [0.50]**

Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.

Department(s): Department of Clinical Studies

**CLIN*6610 Equine Soft Tissue Surgery II F,WS [0.50]**

Based on required reference reading, every other week discussion will cover advanced soft tissue procedures performed in equine surgery. Guest lectures on selected topics will be presented. Laboratory will be given.

Department(s): Department of Clinical Studies

**CLIN*6620 Ruminant Surgery W [0.50]**

Through lectures/seminars, medical and surgical laboratories, and detailed case discussions, this course provides practical experience in ruminant medical, radiological and surgical procedures and in problem-solving related to ruminant practice.

Department(s): Department of Clinical Studies

**CLIN*6661 Respiratory Physiology & Pathophysiology U [0.50]**

This is a graduate course designed for veterinarians pursuing advanced training in residency and DVSd programs. The course will cover normal respiratory anatomy, physiology and pulmonary function. A focus on respiratory pathophysiology will include respiratory failure, oxygen therapy and positive pressure ventilation. (offered every three years).

Department(s): Department of Clinical Studies

**CLIN*6670 Structure & Function of Animal Skin F,WS [0.50]**

A review of structure and function of skin in veterinary dermatology including the epidermis, dermis, subcutis and adnexal tissue. Application of knowledge in a clinical setting will follow with attention to modalities that will improve the epidermal barrier

Restriction(s): Instructor consent required.

Department(s): Department of Clinical Studies

**CLIN*6680 Readings in Cardiology I F,WS [0.50]**

Original articles, review articles and textbook chapters dealing with the most recent concepts of pathophysiology, diagnostic procedures and therapeutic advancements will be reviewed, analyzed and discussed.

Department(s): Department of Clinical Studies

**CLIN*6690 Readings in Cardiology II F,WS [0.50]**

Readings in Cardiology II will be a continuation of the format of Readings in Cardiology I with further readings in clinical cardiology.

Department(s): Department of Clinical Studies

**CLIN*6700 Pathophysiology in Small Animal Surgery I F,WS [0.50]**

Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.

Department(s): Department of Clinical Studies

**CLIN*6710 Pathophysiology in Small Animal Surgery II F,WS [0.50]**

Based on required reference reading, weekly discussions will cover the disease mechanisms involved in medical problems commonly encountered in small animal surgical practice. Guest lectures on selected topics will be presented.

Department(s): Department of Clinical Studies

**CLIN*6800 Surgical Oncology Procedures F,W [0.50]**

This is a combined reading and laboratory course that will cover the major surgical oncology procedures. The relevant readings will be covered, followed by a cadaver laboratory to teach the students the important features of each procedure. (Offered in alternate years)

Restriction(s): Restricted to DVSd students in small animal surgery Instructor consent required.

Department(s): Department of Clinical Studies

**CLIN*6900 Clinical "Grand Rounds" Seminar F-W [0.25]**

This course allows each participant the opportunity to present a clinical case to colleagues in the veterinary school. The topic must be approved by the course co-ordinator. The oral presentation will be evaluated, as will the written presentation, which should be in a form suitable for submission to a veterinary journal.

Department(s): Department of Clinical Studies

**CLIN*6920 Veterinary Clinical Practice I F [0.50]**

These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

Restriction(s): Instructor consent required.

Department(s): Department of Clinical Studies
Appendix A - Courses, Creative Writing

**CRWR*6930 Veterinary Clinical Practice II W [0.50]**
These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

Restriction(s): Instructor consent required.
Department(s): Department of Clinical Studies

**CRWR*6940 Veterinary Clinical Practice III S [0.50]**
These are in-service clinical training courses for intern/graduate-diploma students based on case material presented to the Veterinary Teaching Hospital. Under supervision, the intern/graduate-diploma student, as part of a service team with a faculty clinician, is expected to hone his/her diagnostic, therapeutic and surgical skills, and gain experience with animal restraint and nursing care. They will also develop a problem-oriented approach to health management and disease. Case material studied in each course reflects the clinical problems commonly occurring in the Fall, Winter and Summer semesters respectively.

Restriction(s): Instructor consent required.
Department(s): Department of Clinical Studies

**CRWR*6950 Special Topics in Clinical Studies F,W,S [0.50]**

Department(s): Department of Clinical Studies

**CRWR*6990 Project in Clinical Studies F,W,S [1.00]**
This course involves participation in a clinical research project or clinical retrospective study. A review of the relevant literature will be performed. A manuscript suitable for publication in a peer-reviewed journal will be prepared, and the study will be presented in a departmental seminar.

Restriction(s): Only available to students enrolled in the MSc by Coursework Program.
Department(s): Department of Clinical Studies

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### Creative Writing

**CRWR*6000 Plenary Course: Writers on Writing F [0.50]**
This required plenary course addresses important historical and contemporary perspectives on creative writing as an art, a practice, and a profession. Readings, discussion and visits from writers and other literary professionals will help students to articulate effectively their own literary aesthetic and to develop professional skills.

Restriction(s): MFA.CW students only
Department(s): School of English and Theatre Studies

**CRWR*6010 Plenary Course: Writers in the World F [0.50]**
This required plenary course addresses changing and conflicting ideas about the responsibilities of the writer in the world. Readings, discussion, and visits from writers and other literary professionals will help students to articulate effectively their own professional roles and to develop professional skills.

Restriction(s): MFA.CW students only
Department(s): School of English and Theatre Studies

**CRWR*6100 Poetry Workshop F-W [0.50]**
The Poetry Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized poet to develop their own skills as poets and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.

Restriction(s): MFA.CW students only
Department(s): School of English and Theatre Studies

**CRWR*6200 Fiction Workshop F-W [0.50]**
The Fiction Workshop engages students in an intensive program of reading and writing work. The workshops will be strongly focused on writing and on responding to the work of students in the course with productive, constructive criticism. Students will have the opportunity to work closely with a nationally recognized author to develop their skills as writers and editors. Students are expected to read widely and to develop their understanding of the technical aspects of their craft.

Restriction(s): MFA.CW students only
Department(s): School of English and Theatre Studies

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### Other Courses

**CCJP*6660 Major Research Paper S,F,W [1.00]**
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters.

Restriction(s): Restricted to CCJP graduate students
Department(s): Department of Sociology and Anthropology, Department of Political Science

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### Criminology and Criminal Justice Policy

**CCJP*6600 Courts W [0.50]**
This course examines courts from a variety of political, social, and socio-legal perspectives depending on the interest of the instructor(s). Particular attention will be paid to the role of courts in shaping criminal justice policy through such means as constitutional decisions and sentencing decisions.

Restriction(s): CCJP students. Instructor consent required.
Department(s): Department of Sociology and Anthropology, Department of Political Science

**CCJP*6100 Governing Criminal Justice F [0.50]**
This course analyzes criminal justice policy and governance of the criminal justice system from applied and theoretical perspectives. Particular attention is paid to the interplay between criminal justice policy and management and the larger political process.

Restriction(s): CCJP students
Department(s): Department of Political Science

**CCJP*6200 Professional Seminar in CCJP F,W [0.25]**
This course introduces students to graduate studies in the program; to the professions of criminology, criminal justice policy and management; and to professional and research funding; and skill development.

Restriction(s): CCJP students
Department(s): Department of Political Science

**CCJP*6300 Research Methods in Criminal Justice F [0.75]**
This course introduces students to graduate study in the program; to the professions of criminology, criminal justice policy and management; and professional and research funding; and skill development.

Restriction(s): CCJP students. Instructor consent required.
Department(s): Department of Sociology and Anthropology

**CCJP*6600 Special Topics in Creative Writing U [0.50]**
A variable-content course focusing on a particular issue or approach to writing within one genre of creative writing (fiction, poetry, drama, etc.) or a particular issue or approach to writing that is at work across multiple genres.

Department(s): School of English and Theatre Studies
ECON*6000 Microeconomic Theory I U [0.50]
A first graduate course in microeconomics, presenting a rigorous treatment of consumer theory, producer theory, applications of duality, partial equilibrium, general equilibrium and the fundamental theorems of welfare economics.

Department(s): Department of Economics and Finance

ECON*6010 Microeconomic Theory II U [0.50]
Advanced topics in modern microeconomics to include elements of game theory, information economics, economics of risk and uncertainty, the theory of incentives and others.

Prerequisite(s): ECON*6000
Department(s): Department of Economics and Finance

ECON*6020 Macroeconomic Theory I U [0.50]
A first graduate course in macroeconomics, presenting a rigorous introduction to the tools and basic models of dynamic general equilibrium theory. The topics covered include economic growth and development, economic fluctuations, and monetary and fiscal policies.

Department(s): Department of Economics and Finance

ECON*6040 Macroeconomic Theory II U [0.50]
This course considers the dynamics resulting from intertemporal optimization models. Foundations of unemployment theory. Approaches to business cycles. Models of long-run growth.

Prerequisite(s): ECON*6020
Department(s): Department of Economics and Finance

ECON*6050 Introduction to Econometric Methods U [0.50]
Introduction to the specification, estimation and testing of economic models. Topics include the classical linear regression model, t tests, structure tests, specification error, the consequences of the violation of the classical assumptions, detection and correction of autocorrelation and heteroscedasticity.

Department(s): Department of Economics and Finance

ECON*6060 Mathematical Methods for Economics F [0.00]
This course is designed to provide students with the necessary mathematical tools to follow the contents of the core economics and econometrics courses in the MA program and successfully complete them. The material covered will include advanced topics in linear algebra, multivariate optimization techniques and comparative statics.

Department(s): Department of Economics and Finance

ECON*6090 Game Theory U [0.50]
This course introduces the student to game theory, which is an important tool for modelling economic situations with multi-person interaction. Economic applications such as oligopoly, bargaining, auctions, and public goods provision will be discussed. Broader applications to voting games, candidate strategy, war games, and parlour games will also be briefly discussed. Students need to be very familiar with optimization and single person decision making.

Department(s): Department of Economics and Finance

ECON*6100 Experimental Economics U [0.50]
This course examines the use of the experimental methodology in economics. We will study how experiments have been used to test theories in many subfields within economics. In the process, students will learn how to construct and run economics experiments and analyze experimental data.

Department(s): Department of Economics and Finance

ECON*6110 Mathematical Economics U [0.50]
This course introduces students to the mathematical techniques used in advanced economic analysis. Topics covered in any year: analysis of dynamic economic models and optimization in dynamic economic models.

Department(s): Department of Economics and Finance

ECON*6140 Econometrics I U [0.50]
Topics include a review of the classical linear regression model, applications of generalized least squares, maximum likelihood methods and various statistical test procedures.

Department(s): Department of Economics and Finance

ECON*6160 Econometrics II U [0.50]
Topics include maximum likelihood as a method of estimation and inference, nonlinear estimation and simultaneous equations. Also more specialized topics such as limited-dependent-variable models and non-parametric regression methods may be covered.

Department(s): Department of Economics and Finance

ECON*6165 Advanced Econometrics I U [0.50]
This is an advanced econometrics topics course that covers the area of non-parametric and semiparametric estimation and testing of econometric models, including time series and panel data semiparametric models.

Department(s): Department of Economics and Finance

ECON*6170 Topics in Econometrics U [0.50]
This is an advanced econometrics topics course that covers the area of non-parametric and semiparametric estimation and testing of econometric models, including time series and panel data semiparametric models.

Department(s): Department of Economics and Finance

ECON*6180 Econometric Methods U [0.50]
This course follows ECON*6050. It covers estimation by instrumental variables, estimations of simultaneous systems, asymptotic distribution theory, maximum likelihood estimation, binary choice and limited dependent variable models, and issues in time series analysis.

Department(s): Department of Economics and Finance

ECON*6200 Economic History U [0.50]
This course considers topics in economic history which vary from year to year. The emphasis will be usually on late-19th or 20th century topics and often involves a world emphasis. Student presentations and papers form a large part of the course.

Department(s): Department of Economics and Finance

ECON*6300 International Trade Theory U [0.50]
This course provides a rigorous treatment of both positive and normative aspects of trade theory through extensive use of general equilibrium models under varying assumptions. Topics may also include barriers to trade, international factor movements, growth and development, and strategic trade policy.

Department(s): Department of Economics and Finance

ECON*6320 International Finance U [0.50]
This course deals with the theoretical policy and issues of international finance. Topics may include exchange rate determination, capital flows in international markets, the financing of trade flows, and open economy macroeconomic models and policy issues.

Department(s): Department of Economics and Finance

ECON*6350 Economic Development U [0.50]
This course examines economic development from an international perspective: theories, history, policies and prospects.

Department(s): Department of Economics and Finance

ECON*6370 Economic Development in Historical Perspective U [0.50]
This course will examine the experience of economic development focusing on the emergence of the Third World. Topics for discussion will vary from year to year; they may include the impact of trade expansion during the eighteenth and nineteenth centuries, the role of manufacturing as a leading sector, statist vs. the new classical approaches to government policy, and others.

Department(s): Department of Economics and Finance

ECON*6380 Financial Economics U [0.50]
This course has three objectives: (i) build a common background for all students in asset pricing and corporate finance in order to facilitate discussion of finance research; (ii) provide an in-depth look at selected finance topics, and (iii) expose students to top published research papers.

Department(s): Department of Economics and Finance

ECON*6390 Empirical Finance and Financial Econometrics U [0.50]
This course covers topics in empirical finance, involving the integration of financial theory, financial econometrics, and data analysis. Students will learn how empirical research in finance is conducted through reading involving both textbooks and journal articles and from conducting an independent research project.

Coerequisite(s): ECON*6140

Department(s): Department of Economics and Finance

ECON*6400 Public Finance U [0.50]
This course surveys the normative theory of the public sector. Topics may include public expenditure theory, tax theory, cost benefit analysis and fiscal federalism.

Department(s): Department of Economics and Finance

ECON*6490 Money and Banking U [0.50]
This course studies monetary economics using overlapping generations models, MIU models and CIA models. More specifically, we will study major issues in money and banking, such as the role of money and banks, the cost of inflation, and the optimal monetary policies.

Department(s): Department of Economics and Finance

ECON*6600 Labour Economics U [0.50]
Major themes in labour market theory including static and dynamic labour demand and supply, migration and wage structures and dynamics, unemployment, migration and the role of social programs.

Department(s): Department of Economics and Finance
Appendix A - Courses, Environmental Design and Rural Development

ECON*6610 Topics in Labour Economics U [0.50]
This course complements ECON*6600. Topics include advanced issues in family labour supply, human capital, wage bargaining and contract theory, search theory, duration analysis and its application to major labour market spells such as employment and unemployment.
Department(s): Department of Economics and Finance

ECON*6650 Economics of Social Welfare U [0.50]
This course deals with the analysis of social welfare programs, concentrating on national health insurance. It covers their structure, incentives and distribution effects, and includes empirical analysis of existing programs.
Department(s): Department of Economics and Finance

ECON*6700 Industrial and Market Organization U [0.50]
The major topics of industrial organization are analyzed from both a game theoretic perspective and from a Structure-Conduct-Performance perspective. Typical topics include: oligopoly theory, determinants of industrial structure, Coase theorem, market entry, advertising, research and development, product differentiation, and price discrimination.
Department(s): Department of Economics and Finance

ECON*6750 Managerial Economics U [0.50]
The course introduces students to the latest developments in the economic analysis of the inside workings and organization of firms. The course tries to explain the diversity of economic organizations, and more generally why economic activity is sometimes carried out through firms and sometimes through markets. For graduate students outside the Department of Economics and Finance.
Department(s): Department of Economics and Finance

ECON*6770 Financial Management U [0.50]
This course examines implications of financing decisions made by firms in a world of uncertainty. Topics such as capital budgeting, capital structure, dividend policy, market efficiency and capital asset pricing will be analyzed from the perspective of corporate finance and portfolio management theory. Co-requisite: AGEC*6070. For graduate students outside the Department of Economics and Finance.
Department(s): Department of Economics and Finance

ECON*6800 Environmental Economics U [0.50]
A topics course concerning the interrelationships between economic activities and the state of the natural environment. Topics may include: pollution and economic growth, energy use and environmental quality; international trade and pollution; policies for controlling pollution; techniques for assessing the benefits of environmental improvement.
Department(s): Department of Economics and Finance

ECON*6810 Economic Theory of Natural Resources Use U [0.50]
This course examines economic models of the use of non-renewable resources to analyze issues such as resource conservation, sustainable development, taxation of resource rents, and price determination in resource markets.
Department(s): Department of Economics and Finance

ECON*6930 Reading Course U [0.50]
In some circumstances, students may arrange to take a reading course under the direction of a faculty member.
Department(s): Department of Economics and Finance

ECON*6940 Research Project U [1.00]
All students who choose the research project option in the MA program will register in this course. Research projects are written under the direct supervision of a faculty member. Normally, research projects are completed within one or two semesters. Students must make a presentation of their work and a copy of the final report must be submitted to the Department before the final grade is submitted to the Office of Graduate Studies.
Department(s): Department of Economics and Finance

ECON*6950 Finance Research Project S [0.50]
This program is a supervised research project exclusively for students in the Finance Specialization stream in the MA program. Students may elect either to write a major paper in a finance-related topic of to do a placement in a financial consulting company to conduct a structured portfolio analysis. Students must indicate their preference prior to the start of the summer semester to the Graduate Coordinator, who will oversee placements.
Prerequisite(s): ECON*6600, ECON*6140, ECON*6380, ECON*6390, AND ECON*6930.
Restriction(s): For students in the MA Economics Finance Specialization
Department(s): Department of Economics and Finance

Environmental Design and Rural Development

EDRD*6000 Qualitative Analysis in Rural Development U [0.50]
Nature and use of qualitative data collection and analysis techniques by practitioners in the planning, implementation and evaluation of rural planning and development activities in both domestic and international settings.
Department(s): School of Environmental Design and Rural Development

EDRD*6050 Farming Systems Analysis and Development W [0.50]
An introduction to the Farming Systems Research/Extension approach to solving problems in tropical and sub-tropical agricultural and livestock production systems including problem diagnosis, stakeholder identification and the process of generation, adoption and validation of solutions.
Department(s): School of Environmental Design and Rural Development

EDRD*6100 Disaster Planning and Management U [0.50]
This course take a multi-hazard perspective and is designed to challenge the students to examine the relationship between disaster and development, to learn how hazards become disasters, as well as the techniques for effective planning and managing disasters from a long-term development perspective.
Offering(s): Offered through Distance Education format only
Department(s): School of Environmental Design and Rural Development

EDRD*6630 Regional Planning S [0.50]
An examination of the theory and practice of regional planning in an international and Canadian environment, including a discussion of the various tools available to analysis the regional economy.
Department(s): School of Environmental Design and Rural Development

EDRD*6690 Program Evaluation U [0.50]
An advanced seminar dealing with the theory and practice of program evaluation focusing on public sector programs in agriculture and rural development, international and domestic case studies.
Department(s): School of Environmental Design and Rural Development

Engineering

ENGG*6000 Advanced Heat and Mass Transfer U [0.50]
Department(s): School of Engineering

ENGG*6010 Assessment of Engineering Risk U [0.50]
The question of "how safe is safe enough?" has no simple answer. In response, this course develops the bases by which we can assess and manage risk in engineering. Course deals with fat and transport issues associated with risk, as relevant to engineering and how these aspects are employed in the making of decisions.
Prerequisite(s): STAT*2040 or STAT*2120
Department(s): School of Engineering

ENGG*6020 Advanced Fluid Mechanics U [0.50]
Department(s): School of Engineering

ENGG*6030 Finite Difference Methods U [0.50]
Numerical solution of partial differential equations of flow through porous media; flow of heat and vibrations; characterization of solution techniques and analysis of stability; convergence and compatibility criteria for various finite difference schemes.
Department(s): School of Engineering

ENGG*6050 Finite Element Methods U [0.50]
Department(s): School of Engineering

ENGG*6060 Engineering Systems Modelling and Simulation U [0.50]
A study of theoretical and experimental methods for characterizing the dynamic behaviour of engineering systems. Distributed and lumped parameter model development. Digital simulation of systems for design and control.
Department(s): School of Engineering

ENGG*6070 Medical Imaging U [0.50]
Digital image processing techniques including filtering and restoration; physics of image formation for such modalities as radiography, MRI, ultrasound.
Prerequisite(s): ENGG*3390 or equivalent
Department(s): School of Engineering
ENGG*6080 Engineering Seminar U [0.00]
The course objective is to train the student in preparing, delivering and evaluating technical presentations. Each student is required to: (a) attend and write critiques on a minimum of six technical seminars in the School of Engineering; and (b) conduct a seminar, presenting technical material to an audience consisting of faculty and graduate students in the school. This presentation will then be reviewed by the student and the instructor.
Department(s): School of Engineering

ENGG*6090 Special Topics in Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas which are applicable to several of the engineering disciplines in the School of Engineering.
Department(s): School of Engineering

ENGG*6100 Machine Vision U [0.50]
Computer vision studies how computers can analyze and perceive the world using input from imaging devices. Topics covered include image pre-processing, segmentation, shape analysis, object recognition, image understanding, 3D vision, motion and stereo analysis, as well as case studies.
Department(s): School of Engineering

ENGG*6110 Food and Bio-Process Engineering U [0.50]
Kinetics of biological reactions, reactor dynamics and design. Food rheology and texture, water activity and the role of water in food processing; unit operations design-thermal processing; and drying, freezing and separation processes.
Department(s): School of Engineering

ENGG*6120 Fermentation Engineering U [0.50]
Modelling and design of fermenter systems. Topics include microbial growth kinetics, reactor design, heat and mass transfer. Instrumentation and unit operations for feed preparation and product recovery. Prerequisite: undergraduate course in each of microbiology, heat and mass transfer, and biochemistry or bioprocess engineering.
Department(s): School of Engineering

ENGG*6130 Physical Properties of Biomaterials U [0.50]
Rheology and rheological properties. Contact stresses between bodies in compression. Mechanical damage. Aerodynamic and hydro-dynamic characteristics. Friction.
Department(s): School of Engineering

ENGG*6140 Optimization Techniques for Engineering U [0.50]
This course serves as a graduate introduction into combinatorics and optimization. Optimization is the main pillar of Engineering and the performance of most systems can be improved through intelligent use of optimization algorithms. Topics to be covered: Complexity theory, Linear/Integer Programming techniques, Constrained/Unconstrained optimization and Nonlinear programming, Heuristic Search Techniques such as Tabu Search, Genetic Algorithms, Simulated Annealing and GRASP.
Department(s): School of Engineering

ENGG*6150 Bio-Instrumentation U [0.50]
Restriction(s): ENGG*3450 or equivalent.
Department(s): School of Engineering

ENGG*6160 Advanced Food Engineering U [0.50]
Application of heat and mass transfer, fluid flow, food properties, and food-processing constraints in the design and selection of food process equipment. Development of process specifications for the control of the flow of heat and moisture and the associated microbial, nutritional and organoleptic change in foods. Food system dynamics and process development.
Department(s): School of Engineering

ENGG*6170 Special Topics in Food Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of food engineering.
Department(s): School of Engineering

ENGG*6180 Final Project in Biological Engineering U [1.00]
A project course in which a problem of advanced design or analysis in the area of biological engineering is established, an investigation is performed and a final design or solution is presented.
Restriction(s): This course is open only to students in the biological MEng program.
Department(s): School of Engineering

ENGG*6190 Special Topics in Biological Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of biological engineering.
Department(s): School of Engineering

ENGG*6290 Special Topics in Agricultural Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of agricultural engineering.
Department(s): School of Engineering

ENGG*6300 Research Methods in Bioengineering U [0.50]
Research methodologies used in bioengineering are reviewed and assessed in the context of a diverse range of applications: biomechanics, control and instrumentation, ergonomics, diagnostic tools, biomaterials and food safety. The scientific method is discussed in terms of defining research problems, appropriate tests and hypotheses, experimental methods, data analysis and drawing conclusions. The objective is to guide students as they develop a coherent research proposal and deepen their understanding of the breadth of the discipline. (Offered in alternate years)
Restriction(s): Instructor consent required.
Department(s): School of Engineering

ENGG*6440 Advanced Biomechanical Design U [0.50]
Biomechanical Design from concept through prototyping and testing. This course will investigate and apply techniques used for biomechanical design including reverse engineering, solid modelling, geometric tolerancing, testing and rapid prototyping. Instructor’s signature required.
Department(s): School of Engineering

ENGG*6450 Queueing Theory & Traffic Modeling in Data Networks U [0.50]
Restriction(s): Engineering graduate students. Instructor consent required.
Department(s): School of Engineering

ENGG*6500 Introduction to Machine Learning U [0.50]
The aim of this course is to provide students with an introduction to algorithms and techniques of machine learning particularly in engineering applications. The emphasis will be on the fundamentals and not specific approach or software tool. Class discussions will cover and compare all current major approaches and their applicability to various engineering problems, while assignments and project will provide hands-on experience with some of the tools.
Department(s): School of Engineering

ENGG*6510 Analog Integrated Circuit Design U [0.50]
In this course, operating principles and design techniques of analog integrated circuits are introduced with emphasis on device and system modeling. These circuits include analog and switched-capacitor filters, data converters, amplifiers, oscillators, modulators, circuits for communications, sensor readout channels, and circuits for integrated memories.
Prerequisite(s): ENGG*3450 or equivalent.
Department(s): School of Engineering

ENGG*6520 VLSI Digital Systems Design U [0.50]
This course will introduce the principles of VLSI MOSFET digital design from a circuit and system perspective. Advanced topics include: power issues related to each level of design abstraction; voltage and frequency scaling; power to speed trade-offs; ASIC digital design flow; Verilog integration, ASIC case studies.
Prerequisite(s): ENGG*3450 or equivalent.
Department(s): School of Engineering

ENGG*6530 Reconfigurable Computing U [0.50]
This course serves as a graduate introduction into reconfigurable computing systems. It introduces students to the analyses, synthesis and design of embedded systems and implementing them using Field Programmable Gate Arrays. Topics include: Programmable Logic devices, Hardware Description Languages, Computer Aided Design Flow, Hardware Accelerators, Hardware/Software Co-design techniques, Run Time Reconfiguration, High Level Synthesis.
Prerequisite(s): ENGG*3410 or equivalent.
Department(s): School of Engineering

ENGG*6540 Advanced Robotics U [0.50]
This course is intended for graduate students who have some knowledge and interest in robotics. The course covers modelling, design, planning control, sensors and programming of robotic systems. In addition to lectures, students will work on a term project in which a problem related to robotics systems will be studied. Instructors signature required.
Department(s): School of Engineering
ENGG*6550 Intelligent Real-Time Systems U [0.50]
Soft real-time systems, hard real-time systems, embedded systems, time handling and synchronization, deadlines, preemption, interruption, RTS languages, RTS/operating systems, system life-cycle, petri nets, task scheduling and allocation, fault-tolerance, resource management, RTO-based techniques, dealing with uncertainty.
Department(s): School of Engineering

ENGG*6560 Advanced Digital Signal Processing U [0.50]
Discrete-time signals and systems, z transform, frequency analysis of signals and systems, fourier transform, fast fourier transform, design of digital filters, signal reconstruction, power spectrum estimation.
Department(s): School of Engineering

ENGG*6570 Advanced Soft Computing U [0.50]
Neural dynamics and computation from a single neuron to a neural network architecture. Advanced neural networks and applications. Soft computing approaches to uncertainty representation, multi-agents and optimization.
Prerequisite(s): ENGG*4430 or equivalent
Department(s): School of Engineering

ENGG*6580 Advanced Control Systems U [0.50]
This course will start with state space analysis of multi-input multi-output control systems. Then state space design will be presented. After that, nonlinear control systems and soft computing based intelligent control systems will be studied. Finally, hybrid control systems, infinite control and uncertainty and robustness in control systems will be addressed.
Department(s): School of Engineering

ENGG*6590 Final Project in Engineering Systems and Computing U [1.00]
A project course in which a problem of advanced design or analysis in the area of Engineering Systems and Computing is established by the student, an investigation is performed, and a report on the final design or solution selected is presented.
Restriction(s): This course is only open to students in the engineering systems and computing MEng program.
Department(s): School of Engineering

ENGG*6600 Advanced Special Topics in Engineering Systems and Computing U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of Engineering Systems and Computing.
Department(s): School of Engineering

ENGG*6610 Urban Stormwater Management U [0.50]
Continuous stormwater management models and model structure. Catchment discretization and process disaggregation. Pollutant build-up, wash off and transport. Flow and pollutant routing in complex, looped, partially surcharged pipe/channel networks including pond storage, storage tanks, diversion structures, transverse and side weirs, pump stations, orifices, radial and leaf gates and transient receiving water conditions (including tides). Pollutant removal in sewer networks, storage facilities and treatment plants.
Department(s): School of Engineering

ENGG*6630 Environmental Contaminants: Fate Mechanisms U [0.50]
Analysis of fate mechanisms associated with environmental contaminants. Focus on substances which are generally considered to be hazardous to humans, or other animal life at low concentrations. Study of physicochemical properties and fate estimation on control and remediation strategies. Quantitative analysis of contaminant partitioning and mass flows, including cross-media transport and simultaneous action of contaminant fate mechanisms.
Department(s): School of Engineering

ENGG*6650 Advanced Air Quality Modelling U [0.50]
Analysis of analytical and computational models used to predict the fate of airborne contaminants; role of air quality models for the solution of engineering-related problems; analysis of important boundary layer meteorology phenomena that influence the fate of air pollutants; conservation equations and mathematical solution techniques; model input requirements such as emissions inventories; Gaussian models; higher-order closure models; Eulerian photochemical grid models.
Department(s): School of Engineering

ENGG*6660 Renewable Energy U [0.50]
The engineering principles of renewable energy technologies including wind, solar, geothermal and biomass will be examined, including technology-specific design, economic and environmental constraints. Students will compare the relative merits of different energy technologies and gain a knowledge base for further study in the field.
Restriction(s): Engineering graduate students. Instructor consent required.
Department(s): School of Engineering

ENGG*6670 Hazardous Waste Management U [0.50]
This course will define the different types of hazardous wastes that currently exist and outline the pertinent legislation governing these wastes. Information will be presented on different ways to handle, treat and dispose the hazardous waste, including separation, segregation, minimization, recycling and chemical, physical, biological, and thermal treatment. Also to be discussed are hazardous waste landfills and site remediation technologies. Specifics include design and operation of hazardous landfill sites, handling and treatment of leachate, comparison of pertinent soil remediation technologies. Case studies will be reviewed.
Department(s): School of Engineering

ENGG*6680 Advanced Water and Wastewater Treatment U [0.50]
This design course will discuss advanced technologies not traditionally covered during an undergraduate curriculum. An important consideration will be the reuse of water.
Department(s): School of Engineering

ENGG*6740 Ground Water Modelling U [0.50]
Introduction to current groundwater issues, definition of terms, review of fundamental equations describing fluid and contaminant transport in saturated groundwater zones.
Mathematical techniques (analytical, FE and FD) for the solution of the fundamental equations. Application of numerical groundwater models to a variety of situations. Case studies. Review of groundwater models used in industry.
Department(s): School of Engineering

ENGG*6790 Special Topics in Environmental Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of environmental engineering.
Department(s): School of Engineering

ENGG*6800 Deterministic Hydrological Modelling U [0.50]
Department(s): School of Engineering

ENGG*6820 Soil Erosion and Fluvial Sedimentation U [0.50]
This design course will discuss advanced technologies not traditionally covered during an undergraduate curriculum. An important consideration will be the reuse of water.
Department(s): School of Engineering

ENGG*6840 Open Channel Hydraulics U [0.50]
Basic concepts, energy principle; momentum principle; flow resistance, non-uniform flow; channel controls and transitions; unsteady flow; flood routing.
Department(s): School of Engineering

ENGG*6860 Stream and Wetland Restoration Design U [0.50]
Explores the multi-disciplinary principles of stream and wetland restoration and the tools and techniques for restoration design. Restoration design is approached from a water resources engineering perspective with emphasis on hydrological and hydraulic techniques. Numerous case studies are examined as a means to identify more successful design approaches.
Prerequisite(s): ENGG*3650 or equivalent.
Department(s): School of Engineering

ENGG*6880 Soil Erosion and Fluvial Sedimentation U [0.50]
This course covers techniques used to measure rates of movement and amounts of water occurring as precipitation, soil water, ground water and streamflow. Available measurements of water quality are surveyed. Calculation procedures involved in the use of indirect indicators of water quantity and quality individually and in combination are described.
Department(s): School of Engineering

ENGG*6910 Special Topics in Water Resources Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of water resources engineering.
Department(s): School of Engineering

ENGG*6990 Final Project in Water Resources Engineering U [1.00]
A project course in which an advanced design problem in the area of watershed engineering is established, a feasibility investigation performed and a final design presented.
Restriction(s): This course is open only to students in the water resources MEng program.
Department(s): School of Engineering

ENGG*6910 Special Topics in Water Resources Engineering U [0.50]
A course of directed study involving selected readings and analyses in developing knowledge areas of water resources engineering.
Department(s): School of Engineering
ENGL*6950 Final Project in Environmental Engineering U [1.00]
A project course in which a problem of advanced design or analysis in the area of environmental engineering is established, an investigation is performed and a final design or solution is presented.
Restriction(s): This course is only open to students in the environmental MEng program.
Department(s): School of Engineering

ENGL*6002 Topics in the History of Criticism U [0.50]
This course deals with various aspects of the field of literary criticism, focusing on a specific problem or question each time it is offered. Topics may include the investigation of a specific critical debate - the debate between the Ancients and the Moderns, for instance - or the various ways in which a particular concept - such as didacticism or intentionality - has been treated or is being treated in literary studies.
Department(s): School of English and Theatre Studies

ENGL*6003 Problems of Literary Analysis U [0.50]
Variable in content and practical in orientation this course seeks to familiarize the student with particular critical techniques and approaches by applying specific examples of those approaches and methods to particular topics (e.g., cultural studies and renaissance literature, discourse analysis and the Victorian novel, computer-mediated analysis and the theatre of the absurd).
Department(s): School of English and Theatre Studies

ENGL*6201 Topics in Canadian Literature U [0.50]
A course to be offered at least once every academic year. This course in Canadian Literature may focus on cross-genre study or on single genres such as poetry, biography, the short story, literary memoir and/or autobiography, and poetic prose. The focus may be on such topics as the literary and general cultural production of a time-period, an age-group (such as children's literature), or a specific region (such as Atlantic Canada, the Prairies, or the West Coast), or may bring together texts from two or more categories to allow for a comparative study. Other possible topics include: post-modernism and the creation of an ex-centric Canadian canon; multiculturalism and the transcultural aesthetics of Canadian writing; the construction and reinvention of a national identity and literature; and literary history, influence, reception and critique.
Department(s): School of English and Theatre Studies

ENGL*6209 Topics in Colonial, Postcolonial and Diasporic Literature U [0.50]
A course to be offered at least once every academic year. A comparative study of postcolonial literatures in English. Topics may include a focus on a single area, such as India, the Caribbean, Africa, Australia, or New Zealand or may focus on the comparative study of some of these literatures, considering the construction of Third World, diasporic, or settler-invader colonies, or writing and reading practices in colonial, neo-colonial, and postcolonial environments.
Department(s): School of English and Theatre Studies

ENGL*6421 Topics in Eighteenth Century and Romantic Literature U [0.50]
A examination of the literature of Britain between the 17th century and the latter part of the 18th century. Topics may focus on a specific author, a specific genre, or relationships between the literary and the cultural.
Department(s): School of English and Theatre Studies

ENGL*6421 Topics in Nineteenth Century Literature U [0.50]
This course is a study of the literature of Britain, Canada, the United States, or another region from the late 18th century until the start of the First World War. Topics may focus on a single author, a specific genre, or a central critical question.
Department(s): School of English and Theatre Studies

ENGL*6441 Topics in Modern British Literature U [0.50]
A study of the literature of Britain in the twentieth century. This course includes a consideration of the interaction between literature and culture in the period - sometimes through the examination of a specific author, sometimes through the study of a particular genre or issue.
Department(s): School of English and Theatre Studies

ENGL*6451 Topics in American Literature U [0.50]
Topics may include a focus on a single region, such as the American West, on a single time period, such as the Civil War, on a specific genre, such as the novels of frontier women, or other issues in American literary studies.
Department(s): School of English and Theatre Studies

Environmental Sciences

ENVS*6000 Physical Environment of Crops and Forests F [0.50]
Recent literature on temperature, humidity, radiation, wind, gases and particles in crop and forest environments; evapotranspiration and photosynthesis of plant communities; modification of microclimates; applied micrometeorology.
Offering(s): Offered in even-numbered years.
Department(s): School of Environmental Sciences

ENVS*6040 Molecular Basis of Plant-Microbe Interactions F [0.50]
A lecture and seminar course on recent advances in the study of plant-microbe interactions. Topics included are the biochemical, physiological and genetic aspects of plant defenses and the interaction of plants with pathogenic and mutualistic bacteria, fungi and viruses. Offered in conjunction with PBIO*4000. Extra work is required of graduate students. Restriction(s): Credit may be obtained for only one of ENVS*6040 or PBIO*4000.
Department(s): School of Environmental Sciences
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<tr>
<td>ENVS*6050</td>
<td>Micrometeorology W</td>
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<tr>
<td>ENVS*6060</td>
<td>Meteorological Instrumentation W</td>
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<td>ENVS*6190</td>
<td>Environmental Microbial Technology U</td>
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<td>ENVS*6242</td>
<td>Special Topics in Atmospheric Science F,W,S</td>
<td>0.50</td>
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<tr>
<td>ENVS*6250</td>
<td>Soil Genesis and Classification F</td>
<td>0.50</td>
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<tr>
<td>ENVS*6280</td>
<td>Soil Physics W</td>
<td>0.50</td>
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<tr>
<td>ENVS*6340</td>
<td>Colloquium in Insect Systematics W</td>
<td>0.25</td>
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<td>ENVS*6350</td>
<td>Soil Organic Matter and Biochemistry F</td>
<td>0.50</td>
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<td>ENVS*6360</td>
<td>Soil and Water Chemistry F</td>
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<td>ENVS*6400</td>
<td>Soil Nitrogen Fertility and Crop Production W</td>
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<td>ENVS*6440</td>
<td>Field Sampling Strategies and Geostatistics W</td>
<td>0.50</td>
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<td>ENVS*6452</td>
<td>Special Topics in Ecosystem Science and Biodiversity F,W,S</td>
<td>0.50</td>
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<td>ENVS*6460</td>
<td>Environmental Remediation W</td>
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<td>ENVS*6470</td>
<td>The Science and Management of Multiple Stressors in the Great Lakes F</td>
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<td>ENVS*6500</td>
<td>Environmental Sciences Research Project U</td>
<td>1.00</td>
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<tr>
<td>ENVS*6501</td>
<td>Advanced Topics in Environmental Science F</td>
<td>0.50</td>
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<tr>
<td>ENVS*6502</td>
<td>Seminar in Environmental Sciences W</td>
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<td>ENVS*6503</td>
<td>Biogeochemistry of Wetlands S</td>
<td>0.50</td>
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<tr>
<td>ENVS*6504</td>
<td>Classification and Assessment of Aquatic Systems S</td>
<td>0.50</td>
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<th>Prerequisite(s):</th>
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<th>Restriction(s):</th>
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</table>
ENVS*6505 Soil Survey and Interpretation S [0.50]

A two-week course covering concepts and techniques related to the characterization of soil in the landscape. Focus will be given to soilsceads encountered in southern Ontario, and involves a multi-day excursion to examine the distribution of soils in this region. 

Restriction(s): Restricted to students in the GDIP,ENVS and MES,ENVS:L programs 

Department(s): School of Environmental Sciences

ENVS*6506 Forest Ecosystem Patterns and Processes S [0.50]

A two-week course covering concepts and techniques related to the ecological characterization of forests. Focus will be on southern and mid-central Ontario forests and will involve periodic excursions to various locations for the purpose of demonstrating theoretical principles, sampling techniques, in-field measurements, and collecting samples for in-lab assessment and metric determination. 

Restriction(s): Restricted to students in the GDIP,ENVS and MES,ENVS:L programs 

Department(s): School of Environmental Sciences

ENVS*6520 Pollinator Biology F [0.50]

The biology of pollinators will be discussed in lectures and seminars stressing fundamental and applied aspects. The honey bee will be used as the model system. 

Offering(s): Offered in odd-numbered years. 

Department(s): School of Environmental Sciences

ENVS*6540 Integrated Pest Management - Insects W [0.50]

Concepts associated with integrated pest management of insects of various plant hosts will be introduced to students in an interactive lecture and laboratory format. Experiential learning and skill development, associated with economic entomology, will also be emphasized. 

Offering(s): Offered annually 

Restriction(s): Credit may be obtained for only one of ENVS*6540 and ENVS*4100 

Department(s): School of Environmental Sciences

ENVS*6550 Bioactivity and Metabolism of Pesticides W [0.50]

The basis of pesticide bioactivity will be examined, with emphasis on mode of action, structure-activity relationships and analytical methods. Students will participate in seminars and prepare a research paper and/or conduct a laboratory research project in consultation with the instructor(s). Students in this course are expected to attend the lectures for ENVS*4240. 

Department(s): School of Environmental Sciences

ENVS*6560 Forest Ecosystem Dynamics F [0.50]

An exploration of energy flow and distribution in forest ecosystems. Both components will be examined in the context of biomass and productivity, perturbations and resilience. Some aspects of modelling will be covered. 

Offering(s): Offered in odd-numbered years. 

Department(s): School of Environmental Sciences

ENVS*6582 Special Topics in Soil Science F,WS [0.50]

Students will explore topics within soil science such as soil physics, pedology, soil chemistry and microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. 

Restriction(s): Instructor consent required. 

Department(s): School of Environmental Sciences

ENVS*6700 Glacial Sedimentary Environments U [0.50]

Students will learn about the processes and deposits of glacial environments as well as the use of sedimentary records to reconstruct past glacial environments. Case studies from modern to ancient glacial sedimentary environments will be used. Field trip included. 

Offering(s): Offered only as needed 

Department(s): School of Environmental Sciences

ENVS*6710 Advanced Sedimentology U [0.50]

Topics covered through case studies of sedimentary deposits and environments include facies analysis, large scale controls, and novel techniques in sedimentology. Topics may also include specific sedimentary environments or specific sedimentary deposits such as turbidites, cross-bedded strata or seismites depending on student interest. (Offered only as needed) 

Offering(s): Offered only as needed 

Department(s): School of Environmental Sciences

ENVS*6730 Special Topics in Environmental Earth Science F,WS [0.50]

Students will explore topics within environmental earth science such as glacial geology, environmental geophysics and hydrogeology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. 

Restriction(s): Instructor consent required. 

Department(s): School of Environmental Sciences

ENVS*6882 Special Topics in Plant and Environmental Health F,WS [0.50]

Students will explore topics within plant and environmental health such as integrated pest management, apiculture and environmental microbiology. Normally, an independent course of study will be developed with a faculty advisor and one or more students in the semester prior to enrollment. Occasionally, the course will be offered as a lecture/seminar in a particular area, to be advertised in the semester prior to offering. Typically, students will produce a major paper or scientific report. 

Restriction(s): Instructor consent required. 

Department(s): School of Environmental Sciences

ENVS*6900 Research Seminar in Environmental Sciences F-W [0.50]

This course provides information and training in scientific presentations for thesis-based Environmental Sciences (ENVS) programs. Students will prepare a written research proposal and make an oral presentation of their proposed studies. Students are expected to complete this course in their second or third semester of study. 

Restriction(s): Offered only to MSC,ENVS and PHD,ENVS students 

Department(s): School of Environmental Sciences

European Studies

EURO*6000 Research Methods F [0.50]

This course will: a) introduce students to the field and research methods of European Studies, b) familiarize them with field-relevant research skills and methodologies. 

Department(s): School of Languages and Literatures

EURO*6010 European Identities W [0.50]

This core course examines historical and contemporary ideas of the 'nation' and of 'Europe' and their relationships to identity, from an interdisciplinary perspective. Using core concepts that span various disciplines, the course investigates the construction and implications of national, minority, European and EU identities. 

Department(s): School of Languages and Literatures

EURO*6020 Myth, Fairy Tales and European Identities U [0.50]

An exploration of how myths and fairy tales have been refashioned in European literature, music and art to express political, social or psychological concerns. Examples will be chosen from different national cultures and epochs. Content will vary according to the interests of the instructor(s). 

Department(s): School of Languages and Literatures

EURO*6030 Women and the Arts in Europe: Seeking Expression U [0.50]

This course examines women's participation in the arts in Europe. Content will vary according to the interests of the instructor(s). Possible approaches: an examination of women's relationships to European cultural institutions, or the extent of women's participation in central pan-European artistic movements. 

Department(s): School of Languages and Literatures

EURO*6040 Europe and the Discourse of Civilization U [0.50]

This course explores the genealogy of the idea of 'civilization' with respect to Europe as it emerges from the writings of medieval, renaissance, early modern and modern art historians, and its role in contemporary political discourse. Literature and music may also be included. 

Department(s): School of Languages and Literatures

EURO*6050 European Integration and the EU U [0.50]

This course examines the contributions of international relations, comparative politics and/or governance/public policy to the study of European integration and the EU. Students will learn about the major concepts and theories of these sub-disciplines of political science to analyze the development, institutions, policy processes, policies and politics of the EU. 

Department(s): School of Languages and Literatures

EURO*6070 Topics in Comparative European Culture I U [0.50]

An examination of a topic, period, or region in any aspect of European culture. The content of the course will vary according to the topic and the professor teaching the course at any given time. It will also differ from the content of Topics in Comparative European Culture II. 

Department(s): School of Languages and Literatures
FRAN*6090 Practicum in Couple and Family Therapy* U [0.50]
This course features supervised clinical practice in couple and family therapy. It involves regular clinical work with couples, families, and individuals. Students meet with faculty each week for up to six hours of supervision. Supervision over the semester will involve both group and individual/dyadic meetings.

Restriction(s): Available only to students in the Couple and Family Therapy program.
Department(s): Department of Family Relations and Applied Nutrition

FRAN*6210 Program Evaluation U [0.50]
An examination of the theoretical principles and practical applications of evaluation issues and strategies. Special attention is given to services for children and families across the life span. (Offered in alternate years.)

Department(s): Department of Family Relations and Applied Nutrition

FRAN*6221 Evidence-Based Practice and Knowledge Translation U [0.50]
The principles of evidence-based practice are examined using various examples of psychosocial, behavioural and health interventions. The levels of evidence, criteria for efficacy and effectiveness, and the importance and limitations of evidence-based practice will be evaluated. The process of moving knowledge derived from high quality evidence into practice will be appraised throughout the course. Students will have the opportunity to build knowledge in their own areas of interest.

Offering(s): Offered in alternate years.
Department(s): Department of Family Relations and Applied Nutrition
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<tr>
<td>FRAN*6260</td>
<td>Practicum in Family Relations and Human Development U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Offered in alternate years.</td>
</tr>
<tr>
<td>FRAN*6270</td>
<td>Issues in Family-Related Social Policy U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Offered in alternate years.</td>
</tr>
<tr>
<td>FRAN*6280</td>
<td>Theorizing in Family Relations and Human Development U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Offered in alternate years.</td>
</tr>
<tr>
<td>FRAN*6310</td>
<td>Family Relationships Across the Life Span U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Offered in alternate years.</td>
</tr>
<tr>
<td>FRAN*6320</td>
<td>Human Sexuality Across the Life Span U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Offered in alternate years.</td>
</tr>
<tr>
<td>FRAN*6330</td>
<td>Research Seminar U</td>
<td>0.25</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Research literature in Family Relations and Human Development. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Thesis students attend weekly seminars in each of the Fall and Winter semesters of their program of study.</td>
</tr>
<tr>
<td>FRAN*6340</td>
<td>Interdisciplinary Perspectives in Family Relations and Human Development U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This course acquaints students with the diverse disciplinary perspectives used in the study of family relations and human development. Substantive research issues provide a forum for integrating the separate perspectives and understanding the reciprocal relationship between individual and family growth and development.</td>
</tr>
<tr>
<td>FRAN*6350</td>
<td>Major Research Paper U</td>
<td>1.00</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>The major research paper is an option open only to MSc students within the Couple and Family Therapy area. Students must demonstrate their ability to accurately synthesize and critically evaluate the literature in a specific area of interest. Detailed guidelines are provided.</td>
</tr>
<tr>
<td>FRAN*6370</td>
<td>Social Development During Childhood and Adolescence U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>A detailed study of factors important to social development and competence from infancy through adolescence.</td>
</tr>
<tr>
<td>FRAN*6410</td>
<td>Developmental Assessment and Intervention in Childhood and Adolescence U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>An examination of psychological difficulties encountered in childhood and adolescence. Special attention will be given to theoretical models used to explain childhood difficulties, categorization systems, assessment techniques, methods of intervention, as well as ethical issues specific to working with children and adolescence.</td>
</tr>
<tr>
<td>FRAN*6440</td>
<td>Applied Factor Analysis &amp; Structural Equation Modelling U</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This course introduces students to exploratory factor analysis, confirmatory factor analysis, and structural equation modeling. Topics include: model selection and validation, multiple group models, measurement equivalence/ invariance and latent mean analyses. This course is data-driven and students will learn through hands-on analytic experiences accompanied by in-class lectures and readings.</td>
</tr>
<tr>
<td>FRAN*6510</td>
<td>Nutrition in the Community W</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Concepts and knowledge of nutrition as applied in community and public health nutrition. Examination of current programs in applied nutrition.</td>
</tr>
<tr>
<td>FRAN*6550</td>
<td>Research Seminar U</td>
<td>0.25</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Research literature in applied nutrition. Registration for this course occurs in semester 5 for MSc students and semester 7 for PhD students. Students attend weekly seminars in each of the Fall and Winter semesters of their program of study.</td>
</tr>
<tr>
<td>FRAN*6610</td>
<td>Special Topics in Applied Human Nutrition</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Contemporary research and special topics in applied human nutrition. Course content is unique to each offering.</td>
</tr>
<tr>
<td>FRAN*6650</td>
<td>Advances in Clinical Nutrition/Assessment I F</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>An advanced overview of nutritional assessment and clinical nutrition with emphasis on issues relevant to community based and non-acute care settings. Nutrition assessment methods will be discussed in depth along with emerging issues. Emphasis on clinical nutrition will be integration of theory and practice.</td>
</tr>
<tr>
<td>FRAN*6710</td>
<td>Practicum in Applied Human Nutrition I F</td>
<td>1.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.</td>
</tr>
<tr>
<td>FRAN*6720</td>
<td>Practicum in Applied Human Nutrition II W</td>
<td>1.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.</td>
</tr>
<tr>
<td>FRAN*6730</td>
<td>Practicum in Applied Human Nutrition III S</td>
<td>1.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This course provides a practicum of 3 days per week with a dietetic-related agency or organization to develop and perform dietetic competencies (internship experience). In weekly seminars, students discuss and reflect on theory and dietetic practice issues.</td>
</tr>
<tr>
<td>FRAN*6740</td>
<td>Foodservice Management in Healthcare W</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>Students will critically assess and integrate foodservice management literature and theories to address the multifactorial issues in foodservice operations in healthcare. Case studies presented by expert guests and operational projects will support student synthesis and evaluation of the literature.</td>
</tr>
<tr>
<td>FRAN*6750</td>
<td>Final Project in Applied Human Nutrition S,F,W</td>
<td>0.50</td>
<td>Department of Family Relations and Applied Nutrition</td>
<td>This supervised project includes a written report and oral presentation of an applied research project or a proposal for a research project, consisting of a literature review, purpose, methodology, and analysis plan. Students register in and work on the project for 3 consecutive semesters.</td>
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### Food, Agricultural and Resource Economics

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<tr>
<td>FARE*6100</td>
<td>The Methodologies of Economics W</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
</tr>
<tr>
<td>FARE*6140</td>
<td>Major Paper in Food, Agricultural and Resource Economics U</td>
<td>1.00</td>
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<tr>
<td>FARE*6380</td>
<td>Applied Microeconomics for Agricultural Economists F</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6400</td>
<td>Advanced Topics in Agricultural Economics U</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6600</td>
<td>Food Security and the Economics of Agri Food Systems in Developing Countries F</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6720</td>
<td>Readings in Agricultural Economics F,S,W</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6800</td>
<td>Seminar in Agricultural Economics U</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<td>FARE*6910</td>
<td>Applied Policy Analysis I W</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6920</td>
<td>Applied Policy Analysis II U</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6930</td>
<td>Food Firms, Consumers and Market I F</td>
<td>0.50</td>
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<tr>
<td>FARE*6940</td>
<td>Food Firms, Consumers and Markets II U</td>
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<td>FARE*6950</td>
<td>Natural Resource Economics I W</td>
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<tr>
<td>FARE*6960</td>
<td>Natural Resource Economics II U</td>
<td>0.50</td>
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<tr>
<td>FARE*6970</td>
<td>Applied Quantitative Methods for Agricultural Economists F</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FARE*6980</td>
<td>Agricultural Trade Relations W</td>
<td>0.50</td>
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<td>Department(s): Department of Food, Agricultural and Resource Economics</td>
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<tr>
<td>FSQA*6000</td>
<td>Food Safety and Quality Assurance Seminar F</td>
<td>0.50</td>
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<td>Department(s): Department of Food Science</td>
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<tr>
<td>FSQA*6100</td>
<td>Food Law and Policy F</td>
<td>0.50</td>
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<td>Department(s): Department of Food Science</td>
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<tr>
<td>FSQA*6150</td>
<td>Food Quality Assurance Management W</td>
<td>0.50</td>
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<td>Department(s): Department of Food Science</td>
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<tr>
<td>FSQA*6200</td>
<td>Food Safety Systems Management W</td>
<td>0.50</td>
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<td>Department(s): Department of Food Science</td>
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### Food Safety and Quality Assurance

- **FSQA*6000 Food Safety and Quality Assurance Seminar F [0.50]**
  - Provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology.
  - **Offering(s):** Offered through Distance Education format only.
  - **Department(s):** Department of Food Science

- **FSQA*6100 Food Law and Policy F [0.50]**
  - The fundamentals of food policy development and Canadian and international food law are learned and practiced through online presentations, independent study and online interactions with other students and industry professionals.
  - **Offering(s):** Offered through Distance Education format only.
  - **Department(s):** Department of Food Science

- **FSQA*6150 Food Quality Assurance Management W [0.50]**
  - Examination and review of principles and concept of quality assurance and their application to consumer products and services. Topics include applied aspects of total-quality management principles.
  - **Offering(s):** Offered through Distance Education format only.
  - **Department(s):** Department of Food Science

- **FSQA*6200 Food Safety Systems Management W [0.50]**
  - Food safety systems are studied in four modules. (1) A brief review of plant hygiene and HACCP principles. Students with insufficient background will do supplemental study in these areas; (2) HACCP implementation and verification; (3) HACCP-based food safety programs in Canada; and (4) International Food Safety Management Systems.
  - **Offering(s):** Offered through Distance Education format only.
  - **Department(s):** Department of Food Science
FSQA*6500 Food Safety and Quality Assurance Research Project S,F,W [1.00]
An original research project related to food safety and quality assurance which includes
the preparation of a written report suitable for publication and an oral presentation of the
findings to the graduate faculty.
Department(s): Department of Food Science

FSQA*6600 Principles of Food Safety and Quality Assurance F [0.50]
An integrated approach to factors affecting food safety and quality including microbial
and chemical contamination is provided. Major food-borne disease outbreaks are studied
as examples. Modern methods of quality management to minimize contamination of
processed foods is discussed.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science

Food Science

FOOD*6190 Advances in Food Science U [0.50]
Topics of current research interest and importance are examined. A project supervised
by a faculty member is undertaken, the topic of which is chosen after considering the interests of the student.
Department(s): Department of Food Science

FOOD*6300 Food Science Communication U [0.50]
This course provides experiential training in forms of communication that are likely to be
required in professional or academic careers in food science and technology.
Restriction(s): This course is only open to students in the MSc Food program.
Department(s): Department of Food Science

FOOD*6710 Special Topics in Food Chemistry U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food chemistry. Students will complete an independent review in the
area of food chemistry, participate in discussions, complete case studies, and present talks related to food chemistry.
Department(s): Department of Food Science

FOOD*6720 Special Topics in Food Microbiology U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food microbiology. Students will complete an independent review in the
area of food microbiology, participate in discussions, complete case studies, and present talks related to food microbiology.
Department(s): Department of Food Science

FOOD*6730 Special Topics in Food Physics U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food physics. Students will complete an independent review in the
area of food physics, participate in discussions, complete case studies, and present talks related to physics in foods.
Department(s): Department of Food Science

FOOD*6740 Special Topics in Food Processing U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food processing. Students will complete an independent review in the
area of food processing, participate in discussions, complete case studies, and present talks related to conventional and emerging methodologies for the processing of foods.
Department(s): Department of Food Science

FOOD*6750 Special Topics in Food for Health U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food for health. Students will complete an independent review in the
area of food and health, participate in discussions, complete case studies, and present talks related to the impact of food for health.
Department(s): Department of Food Science

FOOD*6760 Special Topics in Food Quality U [0.25]
This is a modular course in which several faculty members lecture and/or lead discussions
in current topics in food quality. Students will complete an independent review in the
area of food quality, participate in discussions, complete case studies, and present talks related to quality of foods.
Department(s): Department of Food Science

FOOD*6770 PhD Research Writing in Food Science F,W [0.50]
PhD Research Writing in Food Science provides experiential training in forms of
communication that are likely to be required in professional or academic careers, helps
PhD students position their research in the broader context of Food Science and Technology, and helps prepare students for the qualifying examination.
Restriction(s): Only for Ph.D. students in Food Science Instructor consent required.
Department(s): Department of Food Science

French

FREN*6000 Research Methods Seminar F [0.50]
This course will introduce students to the field and research methods of various disciplines
and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies.
Department(s): School of Languages and Literatures

FREN*6020 Topics in French Literature U [0.50]
This course will focus on European French literature in relation to thematic approaches
including: gender and feminism, transgression, (post)colonialisms, identity and alterity.
Department(s): School of Languages and Literatures

FREN*6021 Topics in Quebec and French-Canadian Literatures U [0.50]
This course will focus on how literature functions as a socio-political institution in Quebec
and in French Canada. It will also deal with elements that relate more broadly to identity,
reception theory and semiotics.
Department(s): School of Languages and Literatures

FREN*6022 Topics in Caribbean and African Literatures U [0.50]
This course focuses on the works of major Francophone African and Caribbean fictional
and theoretical works with particular attention being given to links between notions of
cultural hierarchies, identity, métissage and creolization.
Department(s): School of Languages and Literatures

FREN*6030 Topics in Translation U [0.50]
This course deals with various aspects of literary translation, including theories of
translation, the role of reading in translation, the active translation of a text from English
into French, and the reflection upon the influence of each of these categories on the
others.
Department(s): School of Languages and Literatures

FREN*6031 Topics in Intermediacy U [0.50]
An investigation of the intersection of artistic expression taking place in literature, theatre,
film, television and new media and the various effects produced by the interaction of two
or more media.
Department(s): School of Languages and Literatures

FREN*6041 Topics in French and French-Canadian Sociolinguistics U [0.50]
This course will allow students to explore, within the framework of sociolinguistics and
applied linguistics, the relationship between language and society, with particular reference
to French and the French-speaking world.
Department(s): School of Languages and Literatures

FREN*6042 Topics in FSL Pedagogy U [0.50]
This compulsory course covers theories, methods, and real-life applications of the
teaching/learning of a second language, specifically French.
Department(s): School of Languages and Literatures

FREN*6050 Reading Course S [0.50]
An independent study course, the nature and content of which is agreed upon between
the student and the professor offering the course. Subject to the approval of the graduate coordinator.
Department(s): School of Languages and Literatures

FREN*6051 Major Research Paper Paper U [0.50]
This independent, required course allows students to pursue research in an area of
particular interest to them in the field of French Studies. A compulsory major paper 40
pages in length will be required.
Prerequisite(s): FREN*6000
Department(s): School of Languages and Literatures

FREN*6053 Practicum in French Studies S [0.50]
This course will allow students to engage in volunteer service in a francophone
community. Students will be asked to forge links between knowledge acquired in the
academic setting and problem-based learning in a real-world context. A list of authorized
community partners will be provided.
Prerequisite(s): FREN*6000 and FREN*6042
Department(s): School of Languages and Literatures

Geography

GEOG*6060 Special Topics in Geography S,F,W [0.50]
A course on some specific topic not covered by the regular graduate courses for which
there are both available faculty and sufficient interest among students.
Restriction(s): on some specific topic not covered by the regular graduate courses for which
there are both available faculty and sufficient interest among students.
Department(s): Department of Geography

March 2, 2016

2015-2016 Graduate Calendar
GEOG*6090 Geographical Research Methods I F [0.50]
A review of philosophies and research methods in geography. The development and presentation of a context paper for the thesis or research project.
Department(s): Department of Geography

GEOG*6091 Geographical Research Methods II W [0.50]
A review of philosophies and research methods in geography. The development and presentation of a research proposal for the thesis or research project.
Prerequisite(s): GEOG*6090
Department(s): Department of Geography

GEOG*6100 Geographic Scholarship and Research F-W [0.50]
A review of geographic scholarship including conceptual, theoretical and methodological issues in resource assessment, biophysical resources and rural socio-economic resources.
Offering(s): The course extends over two semesters (Fall and Winter).
Department(s): Department of Geography

GEOG*6180 Research Project in Geography S,F,W [1.00]
The preparation and presentation of a report on the research project approved in GEOG*6090.
Restriction(s): Instructor consent required.
Department(s): Department of Geography

GEOG*6281 Environmental Management and Governance F [0.50]
Analysis, evaluation and management of environmental resources. Emphasis is on biophysical and socio-economic concepts and methods which offer a more comprehensive and integrative basis for environmental decisions.
Department(s): Department of Geography

GEOG*6330 Biotic Processes and Biophysical Systems U [0.50]
Investigation of biotic processes influencing the composition, structure and distribution of plant and animal communities and of approaches to biophysical systems analysis, focusing on environmental system interaction at the landscape scale.
Department(s): Department of Geography

GEOG*6340 Human-Environment Relations W [0.50]
A critical review of philosophies, concepts and analytical methods for analysis and management of systems involving the interaction of environmental processes and human spatial activity.
Department(s): Department of Geography

GEOG*6400 Urbanization and Development U [0.50]
Analysis of the evolution of urban form and pattern in the developing world within the context of the global urban system. Examines national urban systems and implications for dispersed development and rural change.
Offering(s): Offered in alternate years.
Department(s): Department of Geography

GEOG*6450 Development Geography U [0.50]
Group identities at various scales in relation to concepts of territory and territoriality, and their changing impact on the world's political map.
Offering(s): Offered in alternate years.
Department(s): Department of Geography

GEOG*6550 Environmental Modelling W [0.50]
This course aims to provide students with an understanding of the processes and techniques involved in environmental modeling practice and will focus on the power and limitations of existing models.
Department(s): Department of Geography

GEOG*6610 Global Hydrology F [0.50]
An examination of global environmental hydrology including precipitation, evaporation, subsurface water and runoff. Physical processes, measurement, analytical techniques and modelling strategies will be considered in the context of global change.
Department(s): Department of Geography

History

HIST*6000 Historiography I F [0.50]
This course will introduce students to some of the essential components of the historical process as exemplified by the literature produced prior to 1914. It will also assess history as a cognitive discipline in contemporary society. While the scope of the course will extend from ancient times to the eve of World War I, emphasis will be placed on 19th-century historiography.
Department(s): Department of History

HIST*6020 Historiography II W [0.50]
An examination of major examples of recent historical methodology, including works in cultural and social history. The student is also expected to develop and present a thesis proposal.
Department(s): Department of History

HIST*6040 Special Reading Course U [0.50]
Students selecting this course should speak to individual instructors to arrive at appropriate topics.
Department(s): Department of History

HIST*6140 Topics in British History Since 1688 U [0.50]
Although topics vary with the expertise of individual instructors, this course encompasses the British Isles.
Department(s): Department of History

HIST*6141 British History Research U [0.50]
Continuation of HIST*6140 in which students prepare an in-depth research paper based on primary sources.
Department(s): Department of History

HIST*6150 Scottish Archival Research U [0.50]
This course will comprise of classroom teaching, practical instruction and work-placement within the Scottish Collection of the University of Guelph's Archives. It will introduce students to basic skills in the digitization of sources and teach competence in conservation, record creation and archival research.
Restriction(s): Student numbers are limited by the number of placements available in the University Archives.
Department(s): Department of History

HIST*6190 Topics in Scottish History I U [0.50]
This course will introduce students to selected aspects of medieval and early modern Scottish history and historiography, including the use of source materials, and practical training involving manuscripts in the University Archives.
Department(s): Department of History

HIST*6191 Scottish History I Research U [0.50]
Continuation of HIST*6190 in which students prepare an in-depth research paper based on primary sources.
Department(s): Department of History

HIST*6200 Topics in Scottish History II U [0.50]
This course will introduce students to selected aspects of modern Scottish history and historiography, including the use of source materials, and provide practical training involving manuscripts in the University Archives.
Department(s): Department of History

HIST*6201 Scottish History II Research U [0.50]
Continuation of HIST*6200 in which students prepare an in-depth research paper based on primary sources.
Department(s): Department of History

HIST*6230 Canada: Culture and Society U [0.50]
A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.
Department(s): Department of History

HIST*6231 Canada: Culture and Society Research U [0.50]
Continuation of HIST*6230 in which students prepare an indepth research paper based on primary sources.
Department(s): Department of History

HIST*6280 Canada: Community and Identity U [0.50]
A course that examines the current historiography of selected aspects of Canadian history. Topics will vary with the expertise of individual instructors.
Department(s): Department of History

HIST*6281 Canada: Community and Identity Research U [0.50]
Continuation of HIST*6280 in which students prepare an indepth research paper based on primary sources.
Department(s): Department of History

HIST*6290 Topics in North American History U [0.50]
Depending on the expertise of the instructor, this course may concentrate on either the United States or Canada, or it may select an historical theme or themes common to the larger continent.
Department(s): Department of History
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Department(s)</th>
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<td>HIST*6291</td>
<td>North American History Research U [0.50]</td>
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<tr>
<td>HIST*6300</td>
<td>Topics in Modern European History I U [0.50]</td>
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<td>HIST*6301</td>
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<td>HIST*6310</td>
<td>Topics in Modern European History II U [0.50]</td>
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<td>HIST*6311</td>
<td>Modern Europe II Research U [0.50]</td>
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<td>HIST*6350</td>
<td>History of the Family U [0.50]</td>
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<tr>
<td>HIST*6351</td>
<td>Family History Research U [0.50]</td>
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<td>HIST*6360</td>
<td>History of Sexuality and Gender U [0.50]</td>
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<td>HIST*6370</td>
<td>Topics in Cultural History U [0.50]</td>
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<td>HIST*6371</td>
<td>Cultural History Research U [0.50]</td>
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<td>HIST*6380</td>
<td>Topics in Early Modern European History U [0.50]</td>
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<td>HIST*6381</td>
<td>Early Modern European History Research U [0.50]</td>
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<td>HIST*6400</td>
<td>Major Paper U [1.00]</td>
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<tr>
<td>HIST*6450</td>
<td>Quantitative Evidence and Historical Methods U [0.50]</td>
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<td>HIST*6500</td>
<td>Topics in Global History U [0.50]</td>
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<td>HIST*6501</td>
<td>Global History Research U [0.50]</td>
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<td>HIST*6521</td>
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<td>HIST*6540</td>
<td>Topics in South Asian History U [0.50]</td>
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<td>HIST*7000</td>
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<td>Colloquium U [0.00]</td>
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<td>HIST*7100</td>
<td>Canadian History Major Seminar U [1.00]</td>
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<td>Scottish History Major Seminar U [1.00]</td>
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### Hospitality and Tourism Management

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<td>HTM*6050</td>
<td>Management Communications U [0.50]</td>
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<tr>
<td>HTM*6110</td>
<td>Foundations of Management Leadership U [0.50]</td>
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<tr>
<td>HTM*6120</td>
<td>Special Topics in Hospitality Organizational Behaviour U [0.50]</td>
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<tr>
<td>HTM*6140</td>
<td>Foundations of Human Resource Management U [0.50]</td>
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<td>HTM*6150</td>
<td>Research Methods for Managers U [0.50]</td>
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<tr>
<td>HTM*6170</td>
<td>Hospitality and Tourism Economics and Policy U [0.50]</td>
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<tr>
<td>HTM*6220</td>
<td>Special Topics in Management Issues U [0.50]</td>
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<tr>
<td>HTM*6300</td>
<td>Hospitality and Tourism Marketing U [0.50]</td>
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<tr>
<td>HTM*6330</td>
<td>Special Topics in Hospitality Marketing U [0.50]</td>
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<tr>
<td>HTM*6510</td>
<td>Hospitality and Tourism Revenue Management U [0.50]</td>
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### Department(s):
- Department of History
- School of Hospitality, Food and Tourism Management
- Department of History
- Executive Programs
- School of Hospitality, Food and Tourism Management
- Executive Programs
- Executive Programs
- Executive Programs

### Restrictions:
- CBE Executive Programs students only
- HTM*6300
- CBE Executive Programs students only

### Prerequisites:
- HTM*6300
HTM*6550 Managing Service Quality U [0.50]
A holistic and interdisciplinary approach is used to explore the principles of service management. The course will enhance participants' understanding of what actually constitutes quality, the nature of service, and strategies for improving it.
Restriction(s): CBE Executive Programs students only
Department(s): Executive Programs

HTM*6590 Organizational Theory and Design U [0.50]
Core concepts in organizational theory and their interrelationships as well as concepts such as group decision making and intragroup and intergroup dynamics are explored.
Restriction(s): CBE Executive Programs students only
Department(s): Executive Programs

HTM*6600 International Tourism and Tourism Marketing U [0.50]
Analyzes the social, political and economic impacts of tourism on the world scene, as well as the global integration of tourism in today's society.
Restriction(s): CBE Executive Programs students only
Department(s): School of Hospitality, Food and Tourism Management

HTM*6620 Special Topics in Tourism U [0.50]
Advanced course for those specializing in tourism. Deals with theories of tourism generators, multi-markets, tourism multipliers, current and future trends, regulatory environments, and distributions systems.
Restriction(s): CBE Executive Programs students only
Department(s): School of Hospitality, Food and Tourism Management

HTM*6710 Services Management Theory I F [0.50]
In this doctoral seminar students will assess the 'services' driven economy and the theory and practices of its constituent organizations and relationships. Through readings, facilitated discussions and seminar presentations, students will be able to identify, explain and evaluate the key theories of services management and how they are being used to apply and extend current theories and practice of services management.
Restriction(s): Instructor consent required.
Department(s): School of Hospitality, Food and Tourism Management

HTM*6720 Services Management Theory II W [0.50]
This doctoral seminar is an examination of the 'services' driven economy and the theory and practices of its constituent organizations and relationships. This course builds on the foundation of Services Management I and explores key contemporary research areas on services management in more detail. Students will examine services management and value chains theory research and practice in a selection of industries, with a focus on one of the following: tourism, hospitality, food and environmental services.
Prerequisite(s): HTM*6710
Restriction(s): Instructor consent required.
Department(s): School of Hospitality, Food and Tourism Management

HTM*6730 Cases in Management F,W,S [0.50]
In this course, students learn how to design, research and write cases used in the management discipline: (1) the teaching case, (2) the research case, and (3) the management decision-making case, as well as related research methods and professional and creative non-fiction writing.
Restriction(s): Instructor consent required.
Department(s): School of Hospitality, Food and Tourism Management

HTM*6800 Operations Management U [0.50]
This course applies operations research theory and practices to management problem solving and decision-making. The focus is on modelling service and product delivery systems and major emphasis is placed on managerial problems in hospitality, tourism, and food and agribusiness organizations.
Restriction(s): CBE Executive Programs students only
Department(s): Executive Programs

Human Health and Nutritional Sciences

HHNS*6000 Students Promoting Awareness of Research Knowledge S,F,W [0.25]
This course will explore research communication through practical experience. The course will be part of the SPARK program in which students write, edit and coordinate a variety of news publications that highlight University of Guelph research activities for a wide range of audiences.
Restriction(s): Limited to HHNS MSc course work and project students only. Instructor consent required.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6010 Seminar in Human Health and Nutritional Sciences S [0.50]
Students will develop their scientific communication skills by translating a specific body of knowledge on a chosen topic into a seminar. The class will also explore scientific process-oriented concepts and issues such as effective scientific communication and dissemination of results.
Restriction(s): Limited to HHNS MSc course work and project students only.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6040 Research Fronts in Nutritional and Nutraceutical Sciences F [0.50]
Building on an information base in nutrition, biochemistry and physiology, the course comprises selected research topics pertaining to the importance of nutrition as a determinant of health throughout the life span. Distinction will be drawn between the metabolic basis of nutrient essentiality and the health protectant effects of nutraceuticals.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6130 Advanced Skeletal Muscle Metabolism in Humans W [0.50]
This course examines how the energy provision pathways in human skeletal muscle and associated organs meet the energy demands of the muscle cell during a variety of metabolically demanding situations.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6200 Research Methods in Biomechanics F [1.00]
This course covers the basic elements of biomechanics experimental data collection including instrumentation, analog-to-digital conversion, signal processing and analysis. Particular emphasis is placed on the areas of kinematics, electromyography and tissue mechanics.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6210 Exploring Research Techniques in Biomechanics F [0.50]
This course will review basic elements of biomechanics experimental data collection including instrumentation, analog-to-digital conversion, signal processing and analysis including kinematics, electromyography and tissue mechanics. Students will also be responsible for conducting bi-weekly seminars which will analyze and critique original research investigations in the area of biomechanics instrumentation/processing techniques.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6320 Advances in Human Health and Nutritional Sciences Research S,F,W [0.50]
This course provides the student with an opportunity to study a topic of choice and involves literature research on a chosen topic. The course may stand alone (MSc thesis and PhD students) or provide the background information for an experimental approach to the topic (MSc course work and project students).
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6400 Functional Foods and Nutraceuticals F [0.50]
This course considers the relation of nutraceuticals, functional foods, designer foods, medical foods and food additives to foods and drugs. The course emphasizes the development and commercialization of nutraceuticals.
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6410 Applied Functional Foods and Nutraceuticals W [1.00]
This course prepares students to develop an innovative product or service from conceptualization to market entry considering regulatory, product development, safety/efficacy and market readiness issues. The course applies and integrates the concepts defined in HHNS*6400
Department(s): Department of Human Health and Nutritional Sciences

HHNS*6440 Nutrition, Gene Expression and Cell Signalling W [0.50]
This course emphasizes the role nutrients play as modulators of gene expression at the molecular level. The mechanisms by which nutrients modulate gene expression through specific cell signalling cascades are examined. (offered annually)
Department(s): Department of Human Health and Nutritional Sciences
Appendix A - Courses, Integrative Biology

Department(s): Department of Human Health and Nutritional Sciences

**HHNS*6700 Nutrition, Exercise and Metabolism F [0.50]**
A discussion of recent concepts in the relationships among nutrition, exercise and metabolism. Information from the molecular to the whole-body level will be presented with a focus on understanding nutrition and exercise in the human. Emphasis is placed on the development and testing of experimental hypotheses in these areas of research.

**HHNS*6710 Advanced Topics in Nutrition and Exercise F [0.50]**
Advanced topics will be presented to establish an in-depth understanding of current investigations in nutrition and exercise. Based on the integrated understanding of nutrition and exercise developed in HHNS*6700, the focus of this course will be to develop the student's ability to independently analyze original research investigations.

**HHNS*6910 Basic Research Techniques and Processes S,F,W [0.50]**
Working with a faculty advisor, students will gain experience in basic aspects of scientific research. This will be accomplished through experience of one or more components of the scientific method in a laboratory setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

**IBIO*6000 Advances in Ecology and Behaviour U [0.50]**
This is a modular course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of ecology and behaviour. Topics may include animal communication, optimal foraging, life-history evolution, mating systems, population dynamics, niche theory and food-web dynamics. The course includes lectures and seminars in which the students participate.

**IBIO*6060 Special Topics in Evolution U [0.50]**
Students will explore aspects of evolution not otherwise covered in existing graduate courses. A program of study will be developed with a faculty advisor according to the student's requirements. Research papers, laboratory work and/or written and oral presentations may be required.

**IBIO*6070 Topics in Advanced Integrative Biology I U [0.50]**
This course provides advanced topics in specialized fields of integrative biology under the guidance of graduate faculty. Course topics will be presented to establish an in-depth understanding of current investigations in integrative biology.

**IBIO*6080 Topics in Advanced Integrative Biology II U [0.50]**
This course provides advanced topics in specialized fields of integrative biology under the guidance of graduate faculty. Course topics will be presented to establish an in-depth understanding of current investigations in integrative biology.

**IBIO*6090 Special Topics in Physiology U [0.50]**
Students will explore aspects of physiology not otherwise covered in existing graduate courses. A program of study will be developed with a faculty advisor according to the student's requirements. Research papers, laboratory work and/or written and oral presentations may be required.

**IBIO*6092 Fieldwork in International Development Studies U [0.50]**
Students will gain practical experience in discipline-specific aspects of research. This will be accomplished through experience in a pre-arranged practicum in an applied setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

**IBIO*6093 Research Project S,F,W [0.50]**
Under the supervision of a faculty advisor, students will gain practical experience in discipline-specific aspects of research. This will be accomplished through experience in a pre-arranged practicum in an applied setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

**IBIO*6094 Special Topics in Ecology U [0.50]**
Students will explore aspects of ecology not otherwise covered in existing graduate courses. A program of study will be developed with a faculty advisor according to the student's requirements. Research papers, laboratory work and/or written and oral presentations may be required.

**IBIO*6095 Scientific Communication U [0.50]**
This course involves development and refinement of the skills of scientific communication, with emphasis on writing skills, in the context of developing a thesis proposal. This course is mandatory for MSc AND DIRECT ENTRY PhD students in the Department of Integrative Biology.

**IBIO*6096 Development Research and Practice W [0.50]**
In this course students establish the linkages between their doctoral research topic and the wider field of development studies and practice. The course will examine development policies and projects, ethical issues related to (cross-cultural) development research, and relationships between research and development practice.

**IBIO*6097 Ethics in Scientific Communication U [0.50]**
This course provides advanced topics in specialized fields of integrative biology under the guidance of graduate faculty. Course topics will be presented to establish an in-depth understanding of current investigations in integrative biology.

**IBIO*6098 Ethics in Scientific Communication II U [0.50]**
This course provides advanced topics in specialized fields of integrative biology under the guidance of graduate faculty. Course topics will be presented to establish an in-depth understanding of current investigations in integrative biology.

**IBIO*6099 Fieldwork in International Development Studies II U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor.

**IBIO*6100 International Development Studies Seminar U [0.50]**
A bi-weekly seminar discussion of issues which arise in the study of international development. Led by faculty and visitors from a variety of disciplines.

**IDEV*6000 Regional Context U [0.50]**
This reading course provides an opportunity for in-depth investigation about a particular region in preparation for a thesis, major paper or research project. The course normally is directed by the student's advisor.

**IDEV*6100 International Development Studies Seminar U [0.50]**
A bi-weekly seminar discussion of issues which arise in the study of international development. Led by faculty and visitors from a variety of disciplines.

**IDEV*6500 Fieldwork in International Development Studies U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee.

**IDEV*6600 Theories and Debates in Development F [0.50]**
This course examines recent approaches in development theory explaining international inequality, poverty and long-term change. It also investigates selected current debates in international development – such as food security, trade, good governance, sustainability or gender – from various discipline-based and interdisciplinary perspectives, and analyzes selected regional experiences of development.

**IDEV*6680 Development Research and Practice W [0.50]**
In this course students establish the linkages between their doctoral research topic and the wider field of development studies and practice. The course will examine development policies and projects, ethical issues related to (cross-cultural) development research, and relationships between research and development practice.

**IDEV*6900 Special Topics in Development U [0.50]**
Students will explore aspects of development not otherwise covered in existing graduate courses. A program of study will be developed with a faculty advisor according to the student's requirements. Research papers, laboratory work and/or written and oral presentations may be required.

**IDEV*6906 Fieldwork in International Development Studies U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor.

**IDEV*6907 Fieldwork in International Development Studies II U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee.

**International Development Studies**

**IDEV*6900 Regional Context U [0.50]**
This reading course provides an opportunity for in-depth investigation about a particular region in preparation for a thesis, major paper or research project. The course normally is directed by the student's advisor.

**IDEV*6100 International Development Studies Seminar U [0.50]**
A bi-weekly seminar discussion of issues which arise in the study of international development. Led by faculty and visitors from a variety of disciplines.

**IDEV*6500 Fieldwork in International Development Studies U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee.

**IDEV*6600 Theories and Debates in Development F [0.50]**
This course examines recent approaches in development theory explaining international inequality, poverty and long-term change. It also investigates selected current debates in international development – such as food security, trade, good governance, sustainability or gender – from various discipline-based and interdisciplinary perspectives, and analyzes selected regional experiences of development.

**IDEV*6680 Development Research and Practice W [0.50]**
In this course students establish the linkages between their doctoral research topic and the wider field of development studies and practice. The course will examine development policies and projects, ethical issues related to (cross-cultural) development research, and relationships between research and development practice.

**IDEV*6906 Fieldwork in International Development Studies U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor.

**IDEV*6907 Fieldwork in International Development Studies II U [0.50]**
This course recognizes an intensive commitment to research in an archival repository, 'in the field' or at an appropriate development institution in Canada or abroad. The course normally is directed by the student's advisor in consultation with the advisory committee.
**LARC*6010 Landscape Architecture Studio I F [0.50]**

Studio and field instruction introduces the student to landscape architecture through acquisition of basic professional skills and knowledge. Topics include design theory, landscape inventory and analysis, application of the design process to projects at the site scale, graphic and oral communication.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6020 Landscape Architecture Studio II F [0.50]**

Studio and field instruction introduces the student to basic knowledge and skills of site engineering as it relates to landscape architecture. Topics include surveying, principles of site grading and drainage, introduction to materials and methods of construction, and graphic communication.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6030 Landscape Architecture Studio III W [0.50]**

Studio and field instruction continues the student's development of professional knowledge and skills at the site scale. Topics include site planning principles, social factors in design, introduction to principles of planting design and architectural structures, facilitation and computer applications in design.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6040 Landscape Architecture Studio IV W [0.50]**

Studio instruction emphasizes design implementation, materials and methods of construction, principles of stormwater management, construction specifications and graphic communication using computer applications.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6120 Community Design W [0.50]**

Studio and field instruction emphasizes integration of ecological, social, cultural and historical factors in the comprehensive design of urban and special use landscapes at the neighbourhood and community scale.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6340 Landscape History Seminar F [0.25]**

A lecture/seminar course focussed on the history of Landscape Architecture. Skills emphasize the development of oral and writing skills.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6360 Professional Practice Seminar F [0.25]**

A lecture/seminar course focussed on the legal, business, ethical and professional practices of Landscape Architecture professionals. Skills emphasize the development of oral and writing skills.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6380 Research Seminar W [0.25]**

A seminar course focussed on the process and communication of research, influenced by the current research of the participants. Participants organize a conference to present their research results.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6430 Landscape Resource Analysis F [0.50]**

Integrated field and classroom instruction introduces the student to inventory and analysis of biological, physical, social and cultural elements of the landscape. Projects will incorporate principles of landscape ecology and landscape planning. Field study will require some travel at student's expense.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6440 Environmental Design F [0.50]**

This course integrates field and classroom study to apply landscape ecology to current landscape problems, including analysis of regional landscapes, restoration of degraded landscapes, and application of aesthetic and ecological principles across scales in site to regional settings. Case studies component will require some travel at students' expense.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6470 Integrative Environmental Planning W [0.50]**

Landscape planning emphasizing the integration and interrelationships between biophysical and cultural resources, with application at a regional landscape planning scale. This course typically incorporates community-outreach projects.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6600 Critical Inquiry & Research Analysis W [0.50]**

Students are introduced to critical inquiry as a method of evaluating information, design, and planning. The focus of the course is on the quantification and analysis of research data. Modelling and simulation are introduced and discussed in the context of planning, design, and research.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6610 Research Methods F [0.50]**

An introduction to a broad array of research methods as they apply to landscape planning and design, with a focus on the connections between research and design. Emphasis is on developing foundations for the creation of appropriate research questions.

*Restrictions*: Available only to students registered in the MLA program.
*Department(s)*: School of Environmental Design and Rural Development

**LARC*6710 Special Study S,F,W [0.50]**

Independent study. A proposal for the content and product required for this course must be developed in conjunction with the student's Advisory Committee.

*Restrictions*: Instructor consent required.
*Department(s)*: School of Environmental Design and Rural Development

**Latin American and Caribbean Studies**

**LACS*6000 Research Methods Seminar U [0.50]**

This course will introduce students to the field and research methods of various disciplines and of interdisciplinary studies, and it will familiarize them with field-relevant research skills and methodologies.

*Department(s)*: School of Languages and Literatures

**LACS*6010 Latin American Identity & Culture I F [0.50]**

This is the first of the two required LACS culture core courses. They will address theoretical issues relevant to Latin American identities and cultures, and will use these as heuristic devices in the study of major and marginalized cultural events, narratives, and visual and musical expressions. In LACS*6010 students will analyze the concept of “hybridity” and study how hybrid culture has been incorporating past with the present, and how it is and has been incorporating local and African forms and themes with European and US derived high culture.

*Department(s)*: School of Languages and Literatures

**LACS*6020 Latin American Identity & Culture II W [0.50]**

This course is a continuation of LACS*6010. Students going on an exchange may replace this course with a similar course taken at the exchange university. This course will study minority cultures and the relationship of the periphery and the centre. Feminist, queer Latinx/o and indigenous marginalized cultures will be studied in the context of Internationalism and Globalization.

*Department(s)*: School of Languages and Literatures

**LACS*6030 Globalization & Insecurity in the Americas F [0.50]**

An analytical, critical and interdisciplinary introductory overview of Latin America and the Caribbean in the larger context of the Americas, from the point of view of the security and insecurity of its people. It will concentrate on the interplay of environmental, economic, social, political, and cultural factors upon such security in an era of globalization.

*Department(s)*: School of Languages and Literatures

**LACS*6040 Novel & Nation in Spanish America U [0.50]**

This course will study the constitution of Spanish American nation in the novel since 1900 from a variety of theoretical perspectives. Particular attention will be paid to the novel's appropriation of foreign artistic and cultural influences to articulate Spanish American history.

*Department(s)*: School of Languages and Literatures

**LACS*6050 Globalization & Latin American Representation in Art W [0.50]**

This course will examine the continuous flow of large, temporary high-profile identity-based "blockbuster" exhibitions based on Latin American and Caribbean art in Canada and the United States. These exhibitions play a key role as cultural agents, and raise questions of the concept of converging visual cultures.

*Department(s)*: School of Languages and Literatures
### Leadership Studies

#### LEAD*6600 Foundations of Leadership for Retirement and Senior Living U [0.50]
- Leadership in the senior living sector requires unique skills, competencies and practice. The purpose of this course is to explore leadership theories and concepts in this context. Understanding the rights and choices of seniors, the future of the aging population, care and support services available and legislative requirements is essential to individuals interested in pursuing career growth in senior living.
- **Restriction(s):** CBE Executive Programs students only
- **Department(s):** Executive Leadership Program

#### LEAD*6720 Politics of Organizations U [0.50]
- This course reviews a variety of theories and models that help to explain the behavioural underpinnings that influence and shape management and leadership processes within organizations. Examples from history and current events are explored to illustrate theory.
- **Restriction(s):** CBE Executive Programs students only
- **Department(s):** Executive Programs

#### LEAD*6740 Coaching and Developing Others U [0.50]
- This course will provide student with an opportunity to design developmental plans for direct reports, assess their coaching skills, and develop their coaching skills to support the development of others.
- **Restriction(s):** CBE Executive Programs students only
- **Department(s):** Executive Programs

#### LACS*6200 Topics in Latin American and Caribbean Studies U [0.50]
- An independent study course, the nature and content of which is agreed upon between the individual student and the person offering the course.
- **Restriction(s):** Instructor and Graduate Co-ordinator signatures required. Course cannot be taken in first semester.
- **Department(s):** School of Languages and Literatures

### Literature and Theatre Studies

#### LTS*7770 Language Requirement U [0.00]
- A written demonstration of a student's reading knowledge of one language other than English, as approved by the Graduate Studies Committee.
- **Department(s):** School of English and Theatre Studies

#### LTS*7900 Directed Studies U [0.50]
- The study of a special topic under the guidance of a member of the graduate faculty.
- **Department(s):** School of English and Theatre Studies

### Management

#### MGMT*6800 Philosophy of Social Science Research S [0.50]
- This course introduces students to the underlying philosophical assumptions that support empirical research methods within social science disciplines. The aim of this course is to examine the philosophy of knowledge generation and claims, particularly in the context of management phenomena.
- **Department(s):** Department of Marketing and Consumer Studies

#### MGMT*6820 Theory of Management F [0.50]
- This course examines the evolution of management thought and the overarching theories that have been successfully applied to multiple functional areas of the organization. Examples of theories that apply to such disparate areas as operations, marketing, and organizational behaviour include agency theory, transaction cost analysis, and contingency theory.
- **Department(s):** Department of Management

#### MGMT*6830 Applied Univariate Statistical Analysis for Management F [0.50]
- This course focuses on the use of univariate statistics as applied to social and behavioural research within the fields of organizational, management, and consumer studies. Emphasis will be placed on providing a solid understanding of descriptive statistics, mean difference testing, analysis of variance and covariance, linear and logistic regression, and power and effect size. Laboratory sessions will focus on analysis application using statistical packages such as SPSS, R, SAS, Stata, and Mplus.
- **Department(s):** Department of Management
MGMT*6840 Quantitative Research Methods: Multivariate Techniques W [0.50]
This course provides a review of selected multivariate analysis techniques with applications to management. Students will learn to determine which multivariate technique is appropriate for a specific research problem and how to apply multivariate quantitative techniques to research questions. Topics include regression analysis, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach and requires computer-program analysis.
Department(s): Department of Management

MGMT*6850 Qualitative Research Methods W [0.50]
This doctoral seminar provides students with the historical roots, underlying theoretical frameworks, and methods of qualitative research for consumer and management studies. Students will develop their capacity to conduct qualitative research through the development of an original qualitative research project.
Department(s): Department of Management

MGMT*6900 PhD Research Seminar Project S [0.00]
The summer project seminar has the objective to start familiarizing students with the research process. Students will prepare and submit a research piece drawing on techniques acquired in the research methods courses.
Department(s): Department of Management

MGMT*6950 Doctoral Research Seminar F,W [0.00]
This is a seminar course attended by graduate students and faculty. Academic guest speakers present their work in weekly meetings. Students are encouraged to be engaged and participate actively during the presentations.
Restriction(s): Must be registered in the PhD Management program
Department(s): Department of Management

Marketing and Consumer Studies

MCS*6000 Consumption Behaviour Theory I F [0.50]
A review of the nature and scope of consumption behaviour and the approaches to studying the role of human consumption using the major theoretical perspectives.
Department(s): Department of Marketing and Consumer Studies

MCS*6010 Consumption Behaviour Theory II W [0.50]
Consumption behaviour is an interdisciplinary field of study which applies theories from multiple disciplines to the activities and processes people engage in when choosing, using and disposing of goods and services. The purpose of this course is to provide a basic review of the theoretical foundations of aspects of consumption and consumer behaviour and to demonstrate their applicability to marketing management. The course is designed to allow participants to bring their own background and interests to bear on the review and application of the theories underlying consumer behaviour.
Prerequisite(s): MCS*6000 or consent of instructor
Department(s): Department of Marketing and Consumer Studies

MCS*6050 Research Methods in Marketing and Consumer Studies F [0.50]
A comprehensive review of measurement theory, including issues such as construct definition, scale development, validity and reliability. Applicants of measurement principles will be demonstrated, particularly as they relate to experimental and survey research design.
Department(s): Department of Marketing and Consumer Studies

MCS*6060 Multivariate Research Methods W [0.50]
A review of selected multivariate analysis techniques as applied to marketing and consumer research. Topics include regression, anova, principal components, factor and discriminant analysis, nonmetric scaling and trade-off analysis. The course uses a hands-on approach with small sample databases available for required computer-program analysis.
Prerequisite(s): MCS*6050 or consent of instructor
Department(s): Department of Marketing and Consumer Studies

MCS*6070 Introduction to Structural Equation Modeling W [0.50]
This course introduces students to the theory, concepts and application of structural equation modeling. Topics covered include path analysis, confirmatory factor analysis and measurement models, latent variable modeling, multi-group modeling, and measurement invariance testing. Emphasis is placed on applying the principles of SEM to the creation and testing of theoretically driven models using both categorical and continuous data.
Department(s): Department of Marketing and Consumer Studies

MCS*6080 Qualitative Research Methods W [0.50]
A review of the nature, importance and validity issues associated with qualitative research. Topics include theory and tactics in design, interpersonal dynamics, analysis of interaction and transcripts.
Prerequisite(s): MCS*6050 or consent of instructor
Department(s): Department of Marketing and Consumer Studies

MCS*6090 Special Topics in Consumer Research and Analysis U [0.50]
Department(s): Department of Marketing and Consumer Studies

MCS*6100 Marketing Theory F [0.50]
A theoretical understanding of marketing, including philosophy of science and marketing, a history of marketing thought, market orientation, marketing strategy theory, modeling, social marketing, and ethical issues in marketing.
Restriction(s): Signature required for non-MCS students.
Department(s): Department of Marketing and Consumer Studies

MCS*6120 Marketing Management U [0.50]
This course is designed to increase depth of knowledge of marketing by helping the student understand how marketing theory can directly affect marketing practice and firm performance. As this is an MSc course and NOT an MBA course; there is an expectation that the level of critical thinking and knowledge growth falls within the realm of the science of marketing and/or the empirical nature of marketing research and is not simply about marketing practice.
Prerequisite(s): MCS*6100
Department(s): Department of Marketing and Consumer Studies

MCS*6260 Special Topics in Food Marketing U [0.50]
Department(s): Department of Marketing and Consumer Studies

MCS*6500 Global Business Today U [0.50]
This course will survey the key issues related to doing business internationally including the cultural context for global business, cross border trade and investment, ethics, the global monetary system, foreign exchange challenges and effectively competing in the global environment.
Restriction(s): Non MBA/MA Leadership students only by permission of Executive Programs Office.
Department(s): Executive Programs

MCS*6710 Special Topics in Marketing U [0.50]
Department(s): Department of Marketing and Consumer Studies

MCS*6720 Special Topics in Housing and Real Estate U [0.50]
Department(s): Department of Marketing and Consumer Studies

MCS*6800 Best Worst Scaling and Discrete Choice Analysis U [0.50]
This course is designed to cover an array of related topics in the recent developments of Best-Worst Scaling (BWS) and Discrete Choice Experiments (DCEs) data collection. Students will develop an understanding of different preference elicitation methods and response formats and the ability to design experiments for best-worst and choice experiments. Multiple software will be used to analyze data, interpret results and write research reports.
Prerequisite(s): Graduate level course in Statistics or equivalent
Restriction(s): Instructor consent required.
Department(s): Department of Marketing and Consumer Studies

MCS*6810 Experimental Design and Analysis for Behavioural Research in Management Studies F [0.50]
This course focuses on experimental methods within the fields of organizational, management and consumer studies. Specifically students will learn how to design and analyze experiments. Emphasis will be placed on hypothesis testing with factorial and mixed designs, issues related to design, power, continuous and categorical data and scientific communication. Laboratory sessions will focus on analysis application using statistical packages that may include SPSS, R, SAS and Mplus.
Restriction(s): Instructor consent required.
Department(s): Department of Marketing and Consumer Studies

MCS*6950 Marketing & Consumer Studies Seminar F,W [0.00]
Department(s): Department of Marketing and Consumer Studies

Mathematics

MATH*6010 Analysis U [0.50]
Half the course covers metric spaces, normed linear spaces, and inner product spaces, including Banach's and Schauder's fixed point theorems, Lp spaces, Hilbert spaces and the projection theorem. The remaining content may include topics like operator theory, inverse problems, measure theory and spectral analysis.
Department(s): Department of Mathematics and Statistics

MATH*6011 Dynamical Systems I U [0.50]
Basic theories on existence, uniqueness and differentiability; phase space, flows, dynamical systems; review of linear systems, Floquet theory; Hopf bifurcation; perturbation theory and structural stability; differential equations on manifolds. Applications drawn from the biological, physical, and social sciences.
Department(s): Department of Mathematics and Statistics
MATH*6012 Dynamical Systems II U [0.50]

The quantitative theory of dynamical systems defined by differential equations and discrete maps, including: generic properties; bifurcation theory; the center manifold theorem; nonlinear oscillations, phase locking and period doubling; the Birkhoff-Smale homoclinic theorem; strange attractors and deterministic chaos.

Department(s): Department of Mathematics and Statistics

MATH*6020 Scientific Computing U [0.50]

This course covers the fundamentals of algorithms and computer programming. This may include computer arithmetic, complexity, error analysis, linear and nonlinear equations, least squares, interpolation, numerical differentiation and integration, optimization, random number generators, Monte Carlo simulation; case studies will be undertaken using modern software.

Department(s): Department of Mathematics and Statistics

MATH*6021 Optimization I U [0.50]

A study of the basic concepts in: linear programming, convex programming, non-convex programming, geometric programming and related numerical methods.

Department(s): Department of Mathematics and Statistics

MATH*6022 Optimization II U [0.50]

A study of the basic concepts in: calculus of variations, optimal control theory, dynamic programming and related numerical methods.

Department(s): Department of Mathematics and Statistics

MATH*6031 Functional Analysis U [0.50]

Hilbert, Banach and metric spaces are covered including applications. The Baire Category theorem is covered along with its consequences such as the open mapping theorem, the principle of uniform boundedness and the closed graph theorem. The theory of linear functionals is discussed including the Hahn-Banach theorem, dual spaces, and if time permits, weak topologies or generalized functions. Basic operator theory is covered including topics such as adjoints, compact operators, the Frechet derivative and spectral theory. A brief introduction to the concepts of measure and integration required for some of the aforementioned topics is also included. Restriction: Credit may be obtained for only one of MATH*4220 or MATH*6031.

Department(s): Department of Mathematics and Statistics

MATH*6041 Partial Differential Equations I U [0.50]

Classification of partial differential equations. The Hyperbolic type, the Cauchy problem, range of influence, well- and ill-posed problems, successive approximation, the Riemann function. The elliptic type: fundamental solutions, Dirichlet and Neumann problems. The parabolic type: boundary conditions, Green's functions and separation of variables. Introduction to certain non-linear equations and transformations methods.

Department(s): Department of Mathematics and Statistics

MATH*6042 Partial Differential Equations II U [0.50]

A continuation of some of the topics of Partial Differential Equations I. Also, systems of partial differential equations, equations of mixed type and non-linear equations.

Department(s): Department of Mathematics and Statistics

MATH*6051 Mathematical Modelling U [0.50]

The process of phenomena and systems model development, techniques of model analysis, model verification, and interpretation of results are presented. The examples of continuous or discrete, deterministic or probabilistic models may include differential equations, difference equations, cellular automata, agent based models, network models, stochastic processes.

Department(s): Department of Mathematics and Statistics

MATH*6071 Biomathematics U [0.50]

The application of mathematics to model and analyze biological systems. Specific models to illustrate the potential of mathematical approaches employed when considering different levels of biological function.

Department(s): Department of Mathematics and Statistics

MATH*6091 Topics in Analysis U [0.50]

Selected topics from topology, real analysis, complex analysis, and functional analysis.

Department(s): Department of Mathematics and Statistics

MATH*6181 Topics in Applied Mathematics I U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats.

Department(s): Department of Mathematics and Statistics

MATH*6182 Topics in Applied Mathematics II U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in applied mathematics under the guidance of graduate faculty. Course topics will normally be advertised by faculty in the semester prior to their offering. Courses may be offered in any of lecture, reading/seminar, or individual project formats.

Department(s): Department of Mathematics and Statistics

MATH*6400 Numerical Analysis I U [0.50]

Topics selected from numerical problems in: matrix operations, interpolation, approximation theory, quadrature, ordinary differential equations, partial differential equations, integral equations, nonlinear algebraic and transcendental equations.

Department(s): Department of Mathematics and Statistics

MATH*6410 Numerical Analysis II U [0.50]

One or more topics selected from those discussed in Numerical Analysis I, but in greater depth.

Department(s): Department of Mathematics and Statistics

MATH*6990 Mathematics Seminar U [0.00]

Students will review mathematical literature and present a published paper.

Department(s): Department of Mathematics and Statistics

MATH*6998 MSc Project in Mathematics U [1.00]

This course is intended for students in the course-based MSc program in Mathematics. The MSc project will be written under the supervision of a faculty member and will normally be completed within one or two semesters. Once completed, students will submit a final copy of their project to the Department and give an oral presentation of their work.

Restriction(s): Restricted to MSc.MAST:L-MATH students in Mathematics

Department(s): Department of Mathematics and Statistics

Molecular and Cellular Biology

MCB*6310 Advanced Topics in Developmental and Cellular Biology U [0.50]

A study of selected topics in contemporary developmental and cellular biology. Students will review recent advances in these disciplines at the molecular and cellular level, in biological systems ranging from simple eukaryotes to plants and vertebrates.

Department(s): Department of Molecular and Cellular Biology

MCB*6320 Advanced Topics in Microbiology U [0.50]

A study of selected topics in contemporary microbiology. Students will review recent advances in microbial cell structure, physiology, interactions, gene expression and virulence.

Department(s): Department of Molecular and Cellular Biology

MCB*6330 Molecular Biology of Viruses U [0.50]

Replication strategies of virus genomes including prototypes of different animal, plant and (some) bacterial virus families; mechanism and control of viral gene expression; tumour virology; genetically engineered virus vaccines.

Department(s): Department of Molecular and Cellular Biology

MCB*6340 Advanced Topics in Molecular Genetics U [0.50]

A study of selected topics in contemporary molecular biology and molecular genetics. Students will review recent progress in gene expression and regulation in model organisms, and the application of molecular biology tools to the study of cellular and organismal physiology.

Department(s): Department of Molecular and Cellular Biology

MCB*6350 Advanced Topics in Plant Biology U [0.50]

A study of selected contemporary topics in biochemistry and molecular biology. Proposed course descriptions are considered by the Department of Molecular and Cellular Biology on an ad hoc basis, and the course will be offered according to demand.

Department(s): Department of Molecular and Cellular Biology

MCB*6360 Advanced Topics in Biochemistry and Molecular Biology U [0.50]

A study of selected contemporary topics in biochemistry and molecular biology. Proposed course descriptions are considered by the Department of Molecular and Cellular Biology on an ad hoc basis, and the course will be offered according to demand.

Department(s): Department of Molecular and Cellular Biology

MCB*6370 Protein Structural Biology and Bioinformatics U [0.50]

This course explores structural biology from three perspectives: 1) the fundamental concepts in structural biology; 2) the methods used to determine structures (including x-ray crystallography, NMR, electron microscopy, and computational modeling); 3) the bioinformatic concepts and tools used to compare, contrast and assign biochemical function to protein structures and sequences. The course emphasizes building a conceptual and practical skill set that will be applicable to any structure related problem.

Department(s): Department of Molecular and Cellular Biology
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<tr>
<th>Code</th>
<th>Title</th>
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<th>Prerequisite(s)</th>
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<tr>
<td><strong>PABI*6050</strong></td>
<td>Applied Avian Pathology I F [0.50]</td>
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<td>Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.</td>
<td>Department of Pathobiology</td>
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<td><strong>PABI*6060</strong></td>
<td>Applied Avian Pathology II W [0.50]</td>
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<td>Instructor consent required. Veterinarians licensed by CVO. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.</td>
<td>Department of Pathobiology</td>
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<td><strong>PABI*6070</strong></td>
<td>Applied Avian Pathology III S [0.50]</td>
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<td>Instructor consent required. Students who are not DVM students and/or do not have a protective rabies titre need instructors permission.</td>
<td>Department of Pathobiology</td>
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<td><strong>PABI*6080</strong></td>
<td>Bacterial Pathogenesis F [0.50]</td>
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<td>Department of Pathobiology</td>
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<td><strong>PABI*6090</strong></td>
<td>Bacterial Pathogenesis II F, W, S [0.50]</td>
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<td><strong>PABI*6100</strong></td>
<td>Immunobiology F [0.50]</td>
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<td><strong>PABI*6104</strong></td>
<td>Mechanics of Disease W [0.50]</td>
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<td><strong>PABI*6190</strong></td>
<td>Topics in Immunology W [0.50]</td>
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<tr>
<td><strong>PABI*6221</strong></td>
<td>Comparative Veterinary Pathology I U [0.50]</td>
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<td>PABI*6222</td>
<td>Comparative Veterinary Pathology II U [0.50]</td>
<td>offered in even-numbered years</td>
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<tr>
<td>PABI*6300</td>
<td>Clinical Pathology I U [0.50]</td>
<td>offered in odd-numbered years</td>
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<td>Veterinarians licensed by CVO.</td>
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<tr>
<td>PABI*6320</td>
<td>Clinical Pathology II W [0.50]</td>
<td>offered in alternate years</td>
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<td>PABI*6330</td>
<td>Viral Diseases F [0.50]</td>
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<td>PABI*6350</td>
<td>Molecular Epidemiology of Bacterial Diseases F [0.50]</td>
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<td>PABI*6440</td>
<td>Graduate Seminar in Pathobiology S,F,W [0.50]</td>
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<td>PABI*6500</td>
<td>Infectious Diseases and Public Health F [0.50]</td>
<td>offered in odd-numbered years</td>
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<tr>
<td>PABI*6550</td>
<td>Principles and Practice of Antimicrobial Therapy U [0.50]</td>
<td>offered in alternate years</td>
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<td>Instructor consent required. DVM degree or equivalent required</td>
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<td>PABI*6630</td>
<td>Applied Comparative Pathology I S,F,W [0.50]</td>
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<td>PABI*6640</td>
<td>Applied Comparative Pathology II S,F,W [0.50]</td>
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<td>PABI*6650</td>
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<td>PABI*6740</td>
<td>Avian Diseases U [0.50]</td>
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<tr>
<td>PABI*6960</td>
<td>Special Topics in Pathobiology F,W,S [0.50]</td>
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<tr>
<td>PHIL*6000</td>
<td>Value Theory U [0.50]</td>
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<td>PHIL*6060</td>
<td>Logic U [0.50]</td>
<td>offered in alternate years</td>
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<tr>
<td>PHIL*6110</td>
<td>Philosophy of Religion U [0.50]</td>
<td>offered in alternate years</td>
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</table>
PHIL*6120 Philosophy of Mind U [0.50]
A study of contemporary theories of mind and philosophies of psychology.
Department(s): Department of Philosophy

PHIL*6140 Contemporary European Philosophy I U [0.50]
A study of the historical and contemporary origins of existentialism, phenomenology
and post-modernism, concentrating on one or several of the classic texts.
Department(s): Department of Philosophy

PHIL*6150 Contemporary European Philosophy II U [0.50]
A study of the historical and contemporary origins of existentialism, phenomenology
and post-modernism, concentrating on texts not covered in PHIL*6140 in the same year.
Department(s): Department of Philosophy

PHIL*6200 Problems of Contemporary Philosophy U [0.50]
A study of a particular set of problems in contemporary philosophy.
Department(s): Department of Philosophy

PHIL*6210 Metaphysics U [0.50]
A critical examination of some selected major works or central problems in metaphysics.
Department(s): Department of Philosophy

PHIL*6220 Epistemology U [0.50]
A critical examination of some selected major works or central problems in epistemology.
Department(s): Department of Philosophy

PHIL*6230 Ethics U [0.50]
A critical examination of some selected contemporary works or problems in ethical theory.
Department(s): Department of Philosophy

PHIL*6240 Biomedical Ethics U [0.50]
A critical examination of some selected contemporary works or of problems in biomedical ethics.
Department(s): Department of Philosophy

PHIL*6310 Plato U [0.50]
A study of some of the major works of Plato.
Department(s): Department of Philosophy

PHIL*6311 Aristotle U [0.50]
A study of some of the major works of Aristotle.
Department(s): Department of Philosophy

PHIL*6320 Medieval Philosophy U [0.50]
A close examination of particular problems and texts of the medieval period
Department(s): Department of Philosophy

PHIL*6340 Modern Philosophy U [0.50]
An examination of major texts, from Descartes to Mill.
Department(s): Department of Philosophy

PHIL*6500 John Locke U [0.50]
A critical examination of the works of John Locke.
Department(s): Department of Philosophy

PHIL*6530 Kant U [0.50]
A critical examination of the works of Immanuel Kant.
Department(s): Department of Philosophy

PHIL*6600 Social and Political Philosophy U [0.50]
A critical examination of some selected contemporary works or central problems in the
field of social philosophy.
Department(s): Department of Philosophy

PHIL*6700 Survey of Ancient Philosophy U [0.50]
A survey of ancient philosophy.
Department(s): Department of Philosophy

PHIL*6710 Survey of Early Modern Philosophy U [0.50]
A survey of modern philosophy from Hobbes to Hume.
Department(s): Department of Philosophy

PHIL*6720 History of the Philosophy of Science U [0.50]
A survey of the history of the philosophy of science from the Presocratics to the Positivists.
Department(s): Department of Philosophy

PHIL*6730 Contemporary Philosophy of Science U [0.50]
An examination of the contemporary discipline of the philosophy of science.
Department(s): Department of Philosophy

PHIL*6740 Philosophy of Biology U [0.50]
A general introduction to the history and philosophy of biology.
Department(s): Department of Philosophy

PHIL*6760 Science and Ethics U [0.50]
A consideration of the problems which arise in the conjunction of science and ethics.
Department(s): Department of Philosophy

PHIL*6810 Survey of Late Modern Philosophy U [0.50]
A survey of modern philosophy from Kant to the late 19th century.
Department(s): Department of Philosophy

PHIL*6900 Reading Course U [0.50]
Topics in this course will vary from offering to offering.
Department(s): Department of Philosophy

PHIL*6930 Selected Topics I U [0.50]
Topics in this course will vary from offering to offering.
Department(s): Department of Philosophy

PHIL*6940 Selected Topics II U [0.50]
Topics in this course will vary from offering to offering.
Department(s): Department of Philosophy

PHIL*6950 MA Seminar U [0.50]
A seminar course in which students work on developing a range of academic skills for
doing professional philosophy. This course is pass/fail and is mandatory for all incoming
MA students. Please refer to the Philosophy Department website for a comprehensive
description of this course.
Department(s): Department of Philosophy

PHIL*6960 PhD Graduate Seminar U [0.50]
A seminar course in which students work on developing a range of academic skills for
doing professional philosophy. This course is pass/fail and is mandatory for all second
year PhD students. Please refer to the Philosophy Department website for a comprehensive
description of this course.
Department(s): Department of Philosophy

PHIL*6990 Guided Research Project U [1.00]
A guided research project undertaken by students doing an MA by course work, under
the supervision of a faculty member.
Department(s): Department of Philosophy

PHYS*6010 PSI Quantum Field Theory I U [0.50]
Canonical quantization of fields, perturbation theory, derivation of Feynman diagrams,
applications in particle and condensed matter theory, renormalization in phi^4.
Department(s): Department of Physics

PHYS*6020 PSI Statistical Physics U [0.50]
A brief review of ensembles and quantum gases, Ising model, Landau theory of phase
transitions, order parameters, topology, classical solutions.
Department(s): Department of Physics

PHYS*6030 PSI Quantum Field Theory II U [0.50]
Feynman Path Integral, abelian and nonabelian gauge theories and their quantization,
spontaneous symmetry breaking, nonperturbative techniques: lattice field theory,
Wilsonian renormalization.
Department(s): Department of Physics

PHYS*6040 PSI Relativity U [0.50]
Special relativity, foundations of general relativity, Riemannian geometry, Einstein's
equations, FRW and Schwarzschild geometries and their properties.
Department(s): Department of Physics

PHYS*6050 PSI Quantum Theory U [0.50]
Schrödinger equation: free particle, harmonic oscillator, simple time-dependent problems,
Heisenberg picture and connection with classical physics. Entanglement and non-locality.
Pure and mixed states, quantum correlators, measurement theory and interpretation.
Department(s): Department of Physics

PHYS*6060 PSI Information and Data Analysis U [0.50]
Probability, entropy, Bayesian inference and information theory. Maximum likelihood
methods, common probability distributions, applications to real data including Monte
Carlo methods.
Department(s): Department of Physics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS*6070</td>
<td>PSI Dynamical Systems</td>
<td>0.50</td>
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<tr>
<td>PHYS*6080</td>
<td>PSI Computation</td>
<td>0.50</td>
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<tr>
<td>PHYS*6210</td>
<td>PSI Cosmology</td>
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<tr>
<td>PHYS*6220</td>
<td>PSI Standard Model</td>
<td>0.25</td>
</tr>
<tr>
<td>PHYS*6240</td>
<td>PSI Mathematical Physics Topics</td>
<td>0.25</td>
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<tr>
<td>PHYS*6350</td>
<td>PSI Quantum Information Review</td>
<td>0.25</td>
</tr>
<tr>
<td>PHYS*6360</td>
<td>PSI Gravitational Physics Review</td>
<td>0.25</td>
</tr>
<tr>
<td>PHYS*6370</td>
<td>PSI Condensed Matter Theory</td>
<td>0.25</td>
</tr>
<tr>
<td>PHYS*6380</td>
<td>PSI Quantum Gravity</td>
<td>0.25</td>
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<tr>
<td>PHYS*6390</td>
<td>PSI Foundations of Quantum Theory</td>
<td>0.25</td>
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<tr>
<td>PHYS*6410</td>
<td>PSI Explorations in Quantum Information</td>
<td>0.25</td>
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<tr>
<td>PHYS*6420</td>
<td>PSI Explorations in Gravitational Physics</td>
<td>0.25</td>
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<tr>
<td>PHYS*6430</td>
<td>PSI Exploration in Condensed Matter Theory</td>
<td>0.25</td>
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<td>PHYS*6440</td>
<td>PSI Exploration in Quantum Gravity</td>
<td>0.25</td>
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<td>PHYS*6450</td>
<td>PSI Explorations in Foundations of Quantum Theory</td>
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<tr>
<td>PHYS*6460</td>
<td>PSI Explorations in Particle Physics</td>
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<tr>
<td>PHYS*6470</td>
<td>PSI Explorations in String Theory</td>
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<td>PHYS*6480</td>
<td>PSI Explorations in Complex Systems</td>
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<td>PHYS*6490</td>
<td>PSI Explorations in Cosmology</td>
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<tr>
<td>PHYS*7010</td>
<td>Quantum Mechanics I * U</td>
<td>0.50</td>
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<tr>
<td>PHYS*7020</td>
<td>Quantum Mechanics II U</td>
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<tr>
<td>PHYS*7030</td>
<td>Quantum Field Theory</td>
<td>0.50</td>
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<tr>
<td>PHYS*7040</td>
<td>Statistical Physics I* U</td>
<td>0.50</td>
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<tr>
<td>PHYS*7050</td>
<td>Statistical Physics II U</td>
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<td>PHYS*7060</td>
<td>Electromagnetic Theory * U</td>
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<tr>
<td>PHYS*7080</td>
<td>Applications of Group Theory U</td>
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<tr>
<td>PHYS*7090</td>
<td>Green's Function Method U</td>
<td>0.50</td>
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<tr>
<td>PHYS*7100</td>
<td>Atomic Physics</td>
<td>0.50</td>
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<tr>
<td>PHYS*7120</td>
<td>Special Topics in Theoretical Physics</td>
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**PHYS*7130 Molecular Physics U [0.50]**
Angular momentum and the rotation of molecules; introduction to group theory with application to molecular vibrations; principles of molecular spectroscopy; spectra of isolated molecules; intermolecular interactions and their effects on molecular spectra; selected additional topics (e.g., electronic structure of molecules, experimental spectroscopic techniques, neutron scattering, correlation functions, collision induced absorption, extension of group theory to molecular crystals, normal co-ordinate analysis, etc.).
Department(s): Department of Physics

**PHYS*7140 Nonlinear Optics U [0.50]**
Classical and Quantum Mechanical descriptions of nonlinear susceptibility, nonlinear wave propagation, nonlinear effects such as Pockel's and Kerr effects, harmonic generation, phase conjugation and stimulated scattering processes.
Department(s): Department of Physics

**PHYS*7150 Nuclear Physics U [0.50]**
Static properties of nuclei; alpha, beta, gamma decay; two-body systems; nuclear forces; nuclear reactions; single-particle models for spherical and deformed nuclei; shell, collective, interacting boson models.
Department(s): Department of Physics

**PHYS*7160 Special Topics in Subatomic and Nuclear Physics U [0.50]**
Restriction(s): Instructor consent required.
Department(s): Department of Physics

**PHYS*7170 Intermediate and High Energy Physics U [0.50]**
Strong, electromagnetic and weak interactions. Isospin, strangeness, conservation laws and symmetry principles. Leptons, hadrons, quarks and their classification, interactions and decay.
Department(s): Department of Physics

**PHYS*7180 Special Topics in Subatomic and Nuclear Physics U [0.25]**
Restriction(s): Instructor consent required.
Department(s): Department of Physics

**PHYS*7310 Solid State Physics I U [0.50]**
Phonons, electron states, electron-electron interaction, electron-ion interaction, static properties of solids.
Department(s): Department of Physics

**PHYS*7320 Solid State Physics II U [0.50]**
Transport properties; optical properties; magnetism; superconductivity; disordered systems.
Department(s): Department of Physics

**PHYS*7330 Special Topics in Theoretical Condensed Matter Physics U [0.50]**
Department(s): Department of Physics

**PHYS*7370 Special Topics in Surface Physics U [0.50]**
Department(s): Department of Physics

**PHYS*7380 Special Topics in Condensed Matter and Materials Physics U [0.25]**
Department(s): Department of Physics

**PHYS*7450 Special Topics in Experimental Physics * U [0.50]**
A modular course in which each module deals with an established technique of experimental physics. Four modules will be offered during the Winter and Spring semesters, but registration and credit will be in the spring semester. Typical topics are neutron diffraction, light scattering, acoustics, molecular beams, NMR, surface analysis, etc.
Department(s): Department of Physics

**PHYS*7470 Optical Electronics U [0.50]**
Optoelectronic component fabrication, light propagation in linear and nonlinear media, optical fiber properties, electro-optic and acousto-optic modulation, spontaneous and stimulated emission, semiconductor lasers and detectors, noise effects in fiber systems.
Department(s): Department of Physics

**PHYS*7510 Clinical Applications of Physics in Medicine U [0.50]**
This course provides an overview of the application of physics to medicine. The physical concepts underlying the diagnosis and treatment of disease will be explored. Topics will include general imaging principles such as resolution, intensity, and contrast; x-ray imaging and computed tomography; radioisotopes and nuclear medicine, SPECT and PET; magnetic resonance imaging; ultrasound imaging and radiation therapy. Credit may be obtained for only one of PHYS*4070 or PHYS*7510.
Department(s): Department of Physics

**PHYS*7520 Molecular Biophysics U [0.50]**
Physical methods of determining macromolecular structure: energetics, intramolecular and intermolecular forces, with application to lamellar structures, information storage, DNA and RNA, recognition and rejection of foreign molecules.
Department(s): Department of Physics

**PHYS*7540 Special Topics in Biophysics U [0.50]**
Offered on demand
Department(s): Department of Physics

**PHYS*7570 Special Topics in Biophysics U [0.25]**
Offered on demand
Department(s): Department of Physics

**PHYS*7670 Introduction to Quantum Information Processing F [0.50]**
Department(s): Department of Physics

**PHYS*7680 Special Topics in Quantum Information Processing U [0.50]**
Department(s): Department of Physics

**PHYS*7690 Special Topics in Quantum Information Processing U [0.25]**
Department(s): Department of Physics

**PHYS*7710 Special Lecture and Reading Course U [0.50]**
Department(s): Department of Physics

**PHYS*7730 Special Topics in Physics U [0.50]**
Department(s): Department of Physics

**PHYS*7750 Interinstitution Exchange U [0.50]**
At the GWPI director's discretion, a PhD or MSc student may receive credit for a term of specialized studies at another institution. Formal evaluation is required.
Restriction(s): GWPI director approval required
Department(s): Department of Physics

**PHYS*7760 Special Topics in Physics U [0.50]**
Department(s): Department of Physics

**PHYS*7770 Special Topics in Physics U [0.25]**
Department(s): Department of Physics

**PHYS*7810 Fundamentals of Astrophysics U [0.50]**
The fundamental astronomical data: techniques to obtain it and the shortcomings present. The classification systems. Wide- and narrow-band photometric systems. The intrinsic properties of stars: colours, luminosities, masses, radii, temperatures. Variable stars. Distance indicators. Interstellar reddening. Related topics.
Department(s): Department of Physics

**PHYS*7840 Advanced General Relativity W [0.50]**
Department(s): Department of Physics

**PHYS*7850 Quantum Field Theory for Cosmology U [0.50]**
Introduction to scalar field theory and its canonical quantization in flat and curved spacetimes. The flat space effects of Casimir and Unruh. Quantum fluctuations of scalar fields and of the metric on curved space-times and application to inflationary cosmology. Hawking radiation.
Prerequisite(s): PHYS*7010
Department(s): Department of Physics

**PHYS*7860 General Relativity for Cosmology U [0.50]**
Department(s): Department of Physics
### Plant Agriculture

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Offering(s)</th>
<th>Credit Hours</th>
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<tr>
<td>PLNT*6010</td>
<td>Physiology of Crop Yield W</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6080</td>
<td>Plant Disease Epidemiology and Management F</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6100</td>
<td>Advanced Plant Breeding I W</td>
<td>Offered in even-numbered years</td>
<td>[0.50]</td>
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<tr>
<td>PLNT*6110</td>
<td>Fruit and Vegetable Technology F</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6160</td>
<td>Advanced Plant Breeding II W</td>
<td>Offered in even-numbered years</td>
<td>[0.50]</td>
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<tr>
<td>PLNT*6170</td>
<td>Statistics in Plant Agriculture W</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6210</td>
<td>Herbicide Activity, Modes-of-Action, Selectivity and Resistance F</td>
<td>Offered in odd-numbered years</td>
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<tr>
<td>PLNT*6230</td>
<td>Colloquium in Plant Physiology and Biochemistry U</td>
<td>Offered in odd-numbered years</td>
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<tr>
<td>PLNT*6250</td>
<td>Colloquium in Plant Genetics and Breeding U</td>
<td>Offered in odd-numbered years</td>
<td>[0.25]</td>
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<tr>
<td>PLNT*6260</td>
<td>Advanced Plant Genetics I F</td>
<td>Offered in even-numbered years</td>
<td>[0.50]</td>
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<tr>
<td>PLNT*6269</td>
<td>Advanced Plant Genetics II W</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6320</td>
<td>Metabolic Processes in Crop Plants F</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6330</td>
<td>Metabolism of Natural Products in Plants W</td>
<td>Offered in even-numbered years</td>
<td>[0.50]</td>
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<tr>
<td>PLNT*6340</td>
<td>Plant Breeding F</td>
<td>Offered in even-numbered years</td>
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<tr>
<td>PLNT*6400</td>
<td>Seminar F,W</td>
<td>Offered in odd-numbered years</td>
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</table>

### Example Course Details

**PLNT*6100 Advanced Plant Breeding I W [0.50]**

The practical consideration of genetic theory and biological limitations to improving plant populations and developing cultivars are discussed. Current and emerging breeding methodologies and sources of variation used to achieve plant breeding goals are examined through lectures, paper discussion, site visits and invited talks.

**Prerequisite(s):** CROP*4240 or BOT*2100 or BOT*3120

**Department(s):** Department of Plant Agriculture
PLNT*6450 Plant Agriculture International Field Tour U [0.25]
A field course designed to increase student's knowledge of primary field and animal agricultural production systems, to explore the environmental and political issues related to international agriculture, and to understand the role of agri-business in the rural economy. 
Restriction(s): CROP*4260 if PLNT*6450 is field tour to mid-west USA
Department(s): Department of Plant Agriculture

PLNT*6500 Applied Bioinformatics W [0.50]
The goal of this course is to provide an introductory understanding of the databases and methods used in computational molecular biology research. Topics include: reviewing major molecular databases and their structures, constructing sequence alignments, constructing phylogenetics, and finding motifs and genes in biological sequences. Lab sessions include an introduction to Unix and Perl for the biologist and hands-on use of several molecular data analysis programs.
Prerequisite(s): Undergraduate level statistics class (such as STAT*2040 or STAT*2100) and undergraduate level molecular biology class (such as MBG*2020).
Department(s): Department of Plant Agriculture

PLNT*6800 Special Topics in Plant Science U [0.50]
A study of selected contemporary topics in plant science. Proposed course descriptions are considered by the Department of Plant Agriculture on an ad hoc basis, and the course is offered according to demand.
Department(s): Department of Plant Agriculture

Political Science

POL600 Comparative Approaches to Political Science U [0.50]
In this course, the students examine the main theoretical frameworks and debates in political science and the ways in which these conceptual approaches guide empirical analysis and explain political behaviour. Examples include neo-institutionalism, political culture, Marxism, feminist and identity based approaches.
Department(s): Department of Political Science

POL6050 Gender and Politics U [0.50]
This course will survey theoretical approaches to gender, primarily feminist analysis. Through selected readings, students will be introduced to gender as an approach to examining current political problems such as social policy, security or development.
Department(s): Department of Political Science

POL6210 Conceptions of Canada U [0.50]
This course will explore evolving conceptions of Canadian identity and nationalism through consideration of political culture, institutions and constitutional arrangements. Possible topics include: multiculturalism, aboriginal identity and community, Quebec nationalism, social citizenship, rights and representation, as well as Canada's global role and significance.
Department(s): Department of Political Science

POL6250 Comparative Governments in the Americas U [0.50]
This course provides the theoretical and methodological foundation for the analysis of the United States, Canada, and Latin America and the Caribbean. Methodological issues in the analysis of constitutional regimes and theoretical frameworks for the comparative analysis of political institutions are examined.
Department(s): Department of Political Science

POL6290 The American Political System U [0.50]
This course examines the institutions, processes and policies of the government and politics of the United States. Seminar discussion focuses on evaluating approaches to the study of the American system. Topics to be covered include Congress, interest groups, executive-legislative relations and reinventing government.
Department(s): Department of Political Science

POL6380 Democratization in Comparative Perspective U [0.50]
This course offers a graduate seminar in the study of democratization. Focusing primarily on the countries of the Global South, it explores theories of democratic transition, social mobilization and the articulation of rights aimed at defending new forms of democratic recognition.
Department(s): Department of Political Science

POL6390 Environmental Politics and Policy U [0.50]
This course analyses environmental actors, movements, institutions, processes and policies across national, sub-national regional and/or global levels of governance utilizing a range of environmental perspectives and theories. Depending on the instructor(s), different case studies of critical and contemporary environmental policy issues will be explored.
Department(s): Department of Political Science

POL6400 Comparative Social Policy U [0.50]
In this course, students will study social policy in comparative perspective. Theoretical models and various policy fields will be examined in order to understand welfare state development and retrenchment. Policy fields may include immigration, health, child care and income.
Department(s): Department of Political Science

POL6450 International Political Economy U [0.50]
The course relies on theoretical approaches in IPE to examine the relationships between politics and economics across national and regional levels. The evolution of the global political economy and its globalization and state and non-state actors' responses. Issue areas may include: money and power, technology, trade, development and the environment.
Department(s): Department of Political Science

POL6630 Approaches to Public Policy U [0.50]
This course introduces students to the main theoretical approaches utilized in understanding public policy making and outcomes. Throughout the course, particular attention is paid to varying conceptions of institutions, ideas and interest and the role of these conceptions in various explanations of policy change and stasis.
Department(s): Department of Political Science

POL6640 Canadian Public Administration: Public Sector Management U [0.50]
This course examines the growth of the administrative state in Canada, especially in the post World War II period. It critically reviews issues such as the concept of public sector management, the delegation of authority, personnel management, accountability and the ethics of ministers and officials to Parliament and the public.
Department(s): Department of Political Science

POL6730 The Politics of Development and Underdevelopment U [0.50]
This course, for MA students specializing in international and comparative development, has a primarily theoretical orientation, focusing on the main paradigms that have evolved to explain central problems and issues of development and underdevelopment, particularly modernization theory, dependency theory, world-systems theory and Marxist state-theory.
Department(s): Department of Political Science

POL6750 Development in Practice U [0.50]
This course examines the politics of international development policy and practice. Drawing upon theories of development and underdevelopment, it examines the role of transnational regimes, international institutions, national governments, and NGOs in the provision of international development assistance.
Department(s): Department of Political Science

POL6800 Public Policy and Governance - Selected Topics F [0.50]
This course explores concepts, theories and methods of public policy analysis and governance practices and questions; the factors that influence a state's ability to design, coordinate, implement and learn from policy interventions; the intellectual forces and conceptual-theoretical frameworks that underpin the literature.
Restriction(s): Doctoral students only.
Department(s): Department of Political Science

POL6810 Core Seminar in Comparative Politics W [0.50]
This PhD seminar course will familiarize students with themes and theorists in comparative politics.
Restriction(s): Doctoral students only.
Department(s): Department of Political Science

POL6900 Pro-Seminar U [0.25]
This course is a 0.25 credit course introducing students to graduate studies in the department and to the profession of political science. It includes information on the following: formation of a student's faculty advisory committee; preparation of research proposals for thesis and major papers; library orientation; research using the WWW and computers; and discussion of faculty research. All graduate students are required to take this course. The course is graded satisfactory (SAT) or unsatisfactory (UNS).
Department(s): Department of Political Science

POL6940 Qualitative Research Design and Methods U [0.50]
This course focuses on the elements of designing and writing a research question and proposal. It further examines a variety of research methods, such as the case study, comparative and survey methods. Data collection techniques also are examined.
Department(s): Department of Political Science

POL6950 Specialized Topics in Political Studies U [0.50]
This course is intended to be an elective course for students wishing to pursue an area of investigation not covered in the other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.
Department(s): Department of Political Science
Appendix A - Courses, Population Medicine

**POLS*6960 Directed Readings U [0.50]**
This is an elective course for students wishing to pursue an area of investigation not covered in other courses offered by the department. This course may also be chosen by students who want to further pursue a subject area to which they were introduced in a previous course.

*Department(s):* Department of Political Science

**POLS*6970 Major Paper U [1.00]**
The major paper is an extensive research paper for those who do not elect to complete a thesis. It may be taken over two semesters. The length of the major paper is not to exceed 10,000 words.

*Department(s):* Department of Political Science

## Population Medicine

**POPM*6100 Seminar F [0.00]**
A practical course that utilizes tutorials, workshops, self and peer reviewed assessment to help students develop skills in public speaking and presentation of scientific data. Each student presents at least one seminar on an approved subject during the departmental seminar series.

*Department(s):* Department of Population Medicine

**POPM*6200 Epidemiology I F [0.50]**
This course covers concepts, principles and methods of basic and applied epidemiology, including the following topics: sampling, measuring disease frequency, clinical epidemiology, descriptive epidemiology, causal reasoning and design, interpretation and critical appraisal of surveys, observational studies, field trials and critical appraisal.

*Restriction(s):* MPH and Population Medicine students. Instructor consent required.

*Department(s):* Department of Population Medicine

**POPM*6210 Epidemiology II W [0.50]**
Advanced study design and analytic methods for the analysis of data from observational studies and surveys.

*Department(s):* Department of Population Medicine

**POPM*6220 Analytical Epidemiology S [0.50]**
This course focuses on the advanced analysis of epidemiologic studies. Case control, cohort and survival studies are analysed within the generalized linear-model framework. Links between study objectives, study design and data analysis will be emphasized throughout. Special problems, such as the analysis of correlated data arising from cluster sampling of individuals, are discussed.

*Prerequisite(s):* POPM*6210 and POPM*6290

*Department(s):* Department of Population Medicine

**POPM*6230 Applied Clinical Research F [0.50]**
This course is designed to help clinical researchers design, fund, and analyze their clinical research. Emphasis is placed upon planning a well-designed clinical trial and writing a well-organized grant proposal.

*Department(s):* Department of Population Medicine

**POPM*6250 Project in Epidemiology S [1.00]**
Collection and analysis of field data and the preparation of a written report suitable for publication, and oral presentation of the findings to the graduate faculty. This course is part of the MSC program by course work in epidemiology.

*Department(s):* Department of Population Medicine

**POPM*6290 Statistics for the Health Sciences F [0.50]**
This course gives an overview of advanced methods for the analysis of data of clustered/correlated data. Special emphasis is on spatial, longitudinal and survival data.

*Prerequisite(s):* POPM*6210 (or equivalent graduate course from another university)

*Department(s):* Department of Population Medicine

**POPM*6350 Safety of Foods of Animal Origins F [0.50]**
The detection, epidemiology, human health risk, and control of hazards in food of animal origin.

*Offering(s):* Offered through Distance Education format only.

*Department(s):* Department of Population Medicine

**POPM*6400 Dairy Health Management * S [0.50]**
This course stresses a population-based, herd-level approach to dairy herd health management, in which optimizing the efficiency of the dairy enterprise is the overall goal. The biological and economic impacts of disease and management deficiencies on herd performance will be discussed as they relate to design and implementation of herd health programs. The course will emphasize the critical role of record keeping, data analysis and monitoring on program success.

*Department(s):* Department of Population Medicine

**POPM*6510 Community Health Promotion F [0.50]**
The objective of this course is to provide students with an understanding of public health, population health and health promotion. Topics will include perspectives on health and illness, injury prevention, determinants of health, population diversity and the role of evidence in public health decision-making.

*Department(s):* Department of Population Medicine

**POPM*6520 Introduction to Epidemiological and Statistical Methods F [0.50]**
This is a 0.5 credit introductory graduate course for MPH students and students interested in epidemiology. The course will provide an introduction to research design, grant proposal writing, and critical appraisal, as well as survey (questionnaire) design and basic statistical methods for epidemiological studies.

*Co-requisite(s):* POPM*6200

*Department(s):* Department of Population Medicine

**POPM*6530 Communication I W [0.50]**
This course introduces the theory of public health communication and emphasizes the development of communication skills related to public health.

*Restriction(s):* MPH students. Instructor consent required.

*Department(s):* Department of Population Medicine

**POPM*6540 Concepts in Environmental Public Health W [0.50]**
This course covers the main concepts of environmental public health including basic elements of environmental toxicology, risk analysis, air and water quality, food safety, waste, occupational health and eco health.

*Department(s):* Department of Population Medicine

**POPM*6550 Public Health Policy and Systems W [0.50]**
This course covers concepts and principles of public health policy and systems including: public health systems, their structure, funding and governance and their integration into the healthcare system; evolution of public health policy; models of policy development and analysis; stakeholder analysis; and, public health ethics.

*Department(s):* Department of Population Medicine

**POPM*6560 Public Health Practicum U [1.00]**
In this 1.0 credit course, students will synthesize theoretical concepts, learned via prior coursework, with public health practice. Students will work in a host public health agency for a 12-to 16-week period, focusing on a major project of significance to the host organization.

*Prerequisite(s):* POPM*6200, POPM*6510, POPM*6520, POPM*6530, POPM*6540, and POPM*6550

*Restriction(s):* MPH students only. Instructor consent required.

*Department(s):* Department of Population Medicine

**POPM*6570 Communication II F [0.50]**
This course is a capstone course for the MPH program as students reflect on, interpret and present their practicum experience in a variety of formats. The course also focuses on the practice of public health communication, including ethical considerations, message framing and the development of a public health communication campaign.

*Prerequisite(s):* POPM*6560 or instructor's signature required

*Department(s):* Department of Population Medicine

**POPM*6580 Public Health Administration F [0.50]**
This course will teach students to develop, implement and evaluate public health programs. Knowing an organization’s mission and priorities, developing strategic plans and conducting a cost-benefit analysis is critical for an effective administrator. Furthermore, conducting a program evaluation, understanding the role of advocacy is vital.

*Department(s):* Department of Population Medicine

**POPM*6610 Theriogenology of Cattle * U [0.50]**
A lecture/seminar course emphasizing the relationship of nutritional, genetic, endocrine, anatomic, and environmental factors with the reproductive health of cattle. Application of reproductive technologies will also be covered.

*Department(s):* Department of Population Medicine

**POPM*6630 Theriogenology of Horses * U [0.50]**
A lecture/seminar course covering the genetic, endocrine, anatomic and environmental factors that affect reproductive performance and health of horses. Breeding management, including recent technologies, and management of the infertile animal will be included.

*Department(s):* Department of Population Medicine

**POPM*6650 Theriogenology of Dogs and Cats * U [0.50]**
A seminar/lecture series that includes the theory and management of clinical reproduction for the dog and cat, including use of developing technologies.

*Department(s):* Department of Population Medicine

March 2, 2016
PSYC*6610 Learning Disorders: Research and Clinical Practice U [0.50]
This course examines various cognitive, social, and educational components of learning and language disorders and accompanying clinical methods of diagnosis and remediation.

Department(s): Department of Psychology

PSYC*6620 Clinical and Diagnostic Interviewing Skills S [0.50]
This course provides practical training in clinical and diagnostic interviewing. Through role-play, direct observation, and in vivo practice, students will learn how to conduct assessment and diagnostic interviews, and clinical dialogues with children and adults. This course is open only to graduate students in the CP-ADE field.

Prerequisite(s): Completion of all MA level course work except for the thesis
Restriction(s): Open only to graduate students in the Clinical and Diagnostic Interviewing Skills (CP-ADE) field

PSYC*6600 Developmental Psychopathology: Etiology and Assessment U [0.50]
The interaction of neurobiological, physiological, familial and social factors to an understanding of developmental psychopathology is the focus of this course. Emphasis is given to etiology and clinical assessment issues.

Department(s): Department of Psychology

PSYC*6660 Research Design and Statistics U [0.50]
This course covers non-parametric and parametric hypothesis testing and estimation, analysis of variance and covariance, and multiple correlation and multiple regression. Current controversial issues are presented.

Department(s): Department of Psychology

PSYC*6619 Research Project U [1.00]
This course is an option for students in the applied streams of MA studies who do not plan on proceeding to a PhD program. Under the supervision of a faculty member, students will design and conduct an empirical investigation in their area of emphasis.

Department(s): Department of Psychology

PSYC*6620 Issues in Social Policy U [0.50]
This doctoral course examines historical developments and selected contemporary policy domains in Canada. Topics may include policies affecting children, families, the elderly, First Nations people, the mentally and physically disabled, and one parent families. The course also addresses the interplay between social and psychological research and policy formation, as well as the use of social policy as an instrument of social change.

Department(s): Department of Psychology

PSYC*6630 Psychological Applications of Multivariate Analysis U [0.50]
This course emphasizes the use of multivariate techniques in psychological research. Both predictive (e.g., regression, canonical correlation, discriminant analysis, MANOVA) and reduction (e.g., factor analysis, multidimensional scaling, cluster analysis) techniques are considered in addition to the use of both observed and latent variable structural models.

Department(s): Department of Psychology

PSYC*6601 Reading Course I U [0.25]
An independent in-depth study of current theoretical and empirical issues in the student's area of specialization.

Department(s): Department of Psychology

PSYC*6602 Reading Course II U [0.50]
An independent in-depth study of current theoretical and empirical issues in the student's area of specialization.

Department(s): Department of Psychology

PSYC*6411 Special Problems in Psychology I U [0.25]
A critical examination of current problems relating to conceptual and methodological developments in an area of psychology.

Department(s): Department of Psychology

PSYC*6412 Special Problems in Psychology II U [0.50]
A critical examination of current problems relating to conceptual and methodological developments in an area of psychology.

Department(s): Department of Psychology

PSYC*6471 Practicum I U [0.50]
Students will gain 2-3 days per week of supervised experience in a setting related to their field of specialization.

Department(s): Department of Psychology

PSYC*6472 Practicum II U [1.00]
See PSYC*6471. Students work four to five days a week in the selected setting.

Department(s): Department of Psychology

PSYC*6473 Practicum III U [0.25]
See PSYC*6471. This course is intended for students who wish to gain additional practicum experience after completing the requirements for PSYC*6471/PSYC*6472. Students work one day a week in the selected setting.

Department(s): Department of Psychology

PSYC*6521 Research Seminar I U [0.25]
An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization.

Department(s): Department of Psychology

PSYC*6522 Research Seminar II U [0.50]
An in-depth review of current theoretical and empirical developments in topic areas related to the student's area of specialization. The course requirements may include the completion of an empirical research project.

Department(s): Department of Psychology

PSYC*6580 Models of Child and Adolescent Psychotherapy U [0.50]
This course introduces a variety of therapeutic models for addressing problems of atypical development.

Department(s): Department of Psychology

PSYC*6590 Social and Community Intervention U [0.50]
A highly applied course that focuses on the epidemiology of mental disorders, the design and implementation of preventive interventions with children, youth, and adults in the community, as well as stress and coping theory and practice.

Department(s): Department of Psychology

PSYC*6610 Advanced Child and Adolescent Psychotherapy U [0.50]
This course will consider newly emerging developments in child and adolescent psychotherapy, as well as issues of power relationships, cultural sensitivity and empirical support. In preparation, students should endeavor to complete two therapy cases prior to the commencement of the course.

Prerequisite(s): PSYC*6580 and PSYC*7993 (may be taken concurrently).
Restriction(s): This course is open only to graduate students in the CP-ADE field.

Department(s): Department of Psychology

PSYC*6630 Developmental Psychology U [0.50]
This course examines issues in the areas of cognitive, social, and emotional development. Specific research topics and theoretical issues concerning the nature of development are discussed.

Department(s): Department of Psychology

PSYC*6640 Foundations of Applied Social Psychology U [0.50]
This course examines theory and research in social psychology, particularly in those areas most relevant to applied concerns. Topics may include attribution, attitudes, social relationships, language and communication, and self and identity.

Department(s): Department of Psychology

PSYC*6670 Research Methods U [0.50]
This course emphasizes those techniques most frequently used in applied and field settings. These include: quasi-experimental designs, survey research, interviewing, questionnaire design, observational techniques, and other more qualitative methods.

Department(s): Department of Psychology
This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*6690 Cognitive Assessment of Children and Adolescents U [0.50]

This course provides an introduction to a variety of methods of social program evaluation and to the process of consultation with program staff. This course will expose graduate students to some of the major theories, issues and methodologies driving research in the broad field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers as well as to communicate the results of their own research, in both a written and oral format. All first year master's students in NACS are required to enroll in this course in both the fall and winter semesters.

Department(s): Department of Psychology

PSYC*6740 Research Seminar in Neuroscience and Applied Cognitive Science A U [0.50]

This course considers projectives, questionnaires, observations and interviews for assessing children's personality and behaviour. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*6760 Research Seminar in Neuroscience and Applied Cognitive Science B U [0.00]

This course reviews the major theories, issues and methodologies driving research in the field of Industrial/Organizational psychology. The course explores organizational issues in the recruitment and selection of new employees. Topics may include: individual differences, human rights, survey-based job analysis, recruitment methods and outcomes, selection methods and outcomes, hiring, decision making and employee placement/classification.

Department(s): Department of Psychology

PSYC*6780 Foundations of Cognitive Science U [0.50]

This course reviews selected theories, methods and problem areas in applied social psychology. Issues involved in the conduct and application of social research, as well as alternative paradigms for such research, are discussed.

Department(s): Department of Psychology

PSYC*6820 Program Evaluation U [0.50]

This course surveys applications of cognitive science to the problem of optimizing human performance. Topics of discussion will include human-system interactions (including Human-Computer and Human-Vehicle), education, and cognitive rehabilitation.

Department(s): Department of Psychology

PSYC*6840 Applied Social Psychology U [0.50]

Cognitive Science is an inter-disciplinary field that encompasses cognitive psychology, neuroscience, philosophy, and computer science. The foundational issues and basic methodologies that define cognitive science will be discussed, with specific examples from perception, learning, memory, language, decision-making, and problem solving.

Restrictions: Restricted to Psychology graduate students; all others by permission only

Department(s): Department of Psychology

PSYC*6900 Philosophy and History of Psychology as a Science U [0.50]

This course provides an introduction to consulting in Industrial/Organizational psychology, including consultation, field research, intervention, and decision-making models are discussed in this half course. Depending on the particular faculty and students involved, discussion emphasizes specific applications to either I/O or applied developmental/social psychology.

Department(s): Department of Psychology

PSYC*7010 Recruitment and Selection: Methods and Outcomes U [0.50]

This course focuses on issues that relate to employee performance. Individuals and organizations are interested in maximizing the contributions of employees at work. This course focuses on performance-based job analysis, criterion theory, performance management/appraisal, employee socialization, compensation, benefits, technology, and labour relations.

Department(s): Department of Psychology

PSYC*7030 Work Attitudes and Behaviour U [0.50]

This course examines micro-level influences on organizational behaviour. Topics may include: organizational commitment, job satisfaction, emotions, other work attitudes and attitude change, organizational citizenship behaviours, withdrawal behaviours, employee well-being, deviance, and work-life integration.

Department(s): Department of Psychology

PSYC*7040 Social Processes in the Workplace U [0.50]

This course considers projectives, questionnaires, observations and interviews for assessing children's personality and behaviour. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7050 Research Seminar in Industrial/Organizational Psychology U [0.00]

This course reviews the major theories, issues and methodologies driving research in the field of Neuroscience and Applied Cognitive Science. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research, in both a written and oral format. All second year master's and doctoral students in NACS are required to enroll in this course each fall and winter semester of their graduate program until they graduate.

Department(s): Department of Psychology

PSYC*7070 Psychological Measurement U [0.50]

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

Department(s): Department of Psychology

PSYC*7080 Consulting in Industrial/Organizational Psychology U [0.00]

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7090 Personality and Social Assessment of Children and Adolescents U [0.50]

This course surveys applications of cognitive science to the problem of optimizing human performance. Topics of discussion will include human-system interactions (including Human-Computer and Human-Vehicle), education, and cognitive rehabilitation.

Department(s): Department of Psychology

PSYC*7100 Social Assessment of Children and Adolescents U [0.50]

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7150 Research Seminar in Neuroscience and Applied Cognitive Science U [0.50]

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

Department(s): Department of Psychology

PSYC*7180 Applied Social Psychology U [0.50]

This course provides an introduction to consulting in I/O Psychology through actual consulting projects with local organization. Topics may include: marketing consulting services, understanding consulting, client and project management. Specific projects will vary from semester to semester based on work secured with local organizations (e.g. training, surveys, coaching).

Prerequisite(s): Registration in the graduate I/O psychology program and permission of the Instructor.

Department(s): Department of Psychology

PSYC*7200 Employee Performance U [0.50]

This course focuses on issues that relate to employee performance. Individuals and organizations are interested in maximizing the contributions of employees at work. This course focuses on performance-based job analysis, criterion theory, performance management/appraisal, employee socialization, compensation, benefits, technology, and labour relations.

Department(s): Department of Psychology

PSYC*7210 Recruitment and Selection: Methods and Outcomes U [0.50]

This course provides an introduction to consulting in I/O Psychology through actual consulting projects with local organization. Topics may include: marketing consulting services, understanding consulting, client and project management. Specific projects will vary from semester to semester based on work secured with local organizations (e.g. training, surveys, coaching).

Prerequisite(s): Registration in the graduate I/O psychology program and permission of the Instructor.

Department(s): Department of Psychology

PSYC*7250 Research Seminar in Neuroscience and Applied Cognitive Science U [0.50]

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7300 Methodology and Testing in Industrial/Organizational Psychology U [0.50]

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

Department(s): Department of Psychology

PSYC*7350 Research Seminar in Neuroscience and Applied Cognitive Science U [0.50]

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7400 Program Evaluation U [0.50]

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

Department(s): Department of Psychology

PSYC*7500 Research Seminar in Neuroscience and Applied Cognitive Science U [0.50]

This course considers standards, ethics, uses and interpretation of selected intelligence and other cognitive tests. Students administer tests, score, interpret and write reports under supervision.

Restrictions: This course is open only to graduate students in the CP:ADE field.

Department(s): Department of Psychology

PSYC*7600 Research Seminar in Neuroscience and Applied Cognitive Science U [0.00]

This course focuses on current developments in neuropsychology. Particular emphasis is placed on the aphasias, apraxias, memory disorders, and disorders of movement.

Department(s): Department of Psychology

PSYC*7650 Applications of Cognitive Science U [0.50]
PSYC*7130 Introduction to Industrial/Organizational Psychology U [0.50]
This course introduces graduate students to a broad range of topics in Industrial/Organizational psychology. It emphasizes researcher-practitioner issues, consumer behaviour, professionalism, ethics, and theory building. As well, graduate students will learn about contemporary issues in I-O Psychology.
Department(s): Department of Psychology

PSYC*7140 Industrial/Organizational Psychology Special Topic Doctoral Research Seminar U [0.50]
Participants investigate a specific area of Industrial/Organizational psychology. They critically review past and current research, including theory development and empirical findings. Participants work together to integrate past theory and findings, to note inconsistencies in the literature, and to identify promising areas for future investigations.
Prerequisite(s): PSYC*7130
Department(s): Department of Psychology

PSYC*7160 Employee Development: Methods and Outcomes U [0.50]
This course explores development in an organization context. Employee learning and development is a key focus for employees and organizations. This course covers functional job analysis, career development, succession management, multi-source feedback, training, coaching/mentoring and employee counseling.
Department(s): Department of Psychology

PSYC*7170 Industrial/Organizational Psychology Doctoral Research Internship I U [0.50]
Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.
Prerequisite(s): PSYC*7130
Co-requisite(s): PSYC*7140
Restriction(s): Instructor consent required.
Department(s): Department of Psychology

PSYC*7180 Industrial/Organizational Psychology Doctoral Research Internship II U [0.50]
Participants work with an Industrial Organizational faculty member to conduct research on a topic of mutual interest (other than their doctoral research). They collect and/or analyze data and write up results with the goal of producing a conference presentation and/or a quality publication manuscript.
Prerequisite(s): PSYC*7130, PSYC*7140, PSYC*7170
Restriction(s): Instructor consent required.
Department(s): Department of Psychology

PSYC*7190 Work Motivation and Leadership U [0.50]
This course examines theories, research, and application of work motivation and leadership within an organizational context. The course will include a description of classic and contemporary theories of work motivation and leadership, a critical evaluation of the research findings, and a discussion of the application of the research findings to the work environment.
Restriction(s): Psychology students only.
Department(s): Department of Psychology

PSYC*7991 CP:ADE Clinical Practicum I U [0.25]
This CP:ADE practicum is typically undertaken at the Center for Psychological Services, one day a week over a semester, to enhance skills introduced in other clinical courses. Expectations for the course will be based on the student’s current level of clinical skill. Students will work with diverse clients, and gain knowledge of ethics and jurisprudence in a clinical setting.
Restriction(s): Restricted to students in the CP:ADE area of specialization
Department(s): Department of Psychology

PSYC*7992 CP:ADE Clinical Practicum II U [0.50]
This CP:ADE practicum is undertaken in a school board, psychological services department for two days a week over one semester. Students will develop clinical assessment skills with a diversity of clients, work with interdisciplinary teams, and apply knowledge of ethics and jurisprudence to educational settings. A passing grade and a satisfactory rating on the practical component must be achieved in PSYC*6690 and PSYC*6700 to enrol in this course.
Prerequisite(s): PSYC*6610, PSYC*6690, and PSYC*6700
Restriction(s): Restricted to students in the CP:ADE area of specialization
Department(s): Department of Psychology

PSYC*7993 CP:ADE Clinical Practicum III U [1.00]
This CP:ADE practicum is undertaken in children’s mental health setting two days a week over two semesters. Students will develop complex assessment and therapy skills with diverse clients, work with interdisciplinary teams, and apply knowledge of ethics and jurisprudence to mental health settings.
Prerequisite(s): PSYC*6471 or PSYC*7992
Restriction(s): Restricted to students in the CP:ADE area of specialization. Instructor consent required.
Department(s): Department of Psychology

PSYC*8000 Clinical Internship U [0.00]
A mark of satisfactory (SAT) in this course indicates that a student in the Clinical Psychology: Applied Developmental Emphasis (CP:ADE) field has successfully completed a full year (1800-2000 hour) internship in an accredited clinical setting (e.g., CPA or APA) approved by the Director of Clinical Training for CP:ADE.
Prerequisite(s): Completion of all course work in the CP:ADE field, the PhD qualifying examination, and the PhD Thesis proposal at the time of application.
Department(s): Department of Psychology

Rural Planning and Development

RDP*6030 International Rural Development Planning: Principles and Practices U [0.50]
This course presents the scope and nature of international development planning and alternative roles for development planners; has a rural emphasis; reviews the evolution of development planning from macroeconomic beginnings to more integrated local planning approaches; examines the development planning process and its organizational and spatial dimensions; compares policy, program, project, sectoral and integrated area planning; and compares rural development planning in market, mixed and state-driven societies.
Department(s): School of Environmental Design and Rural Development

RDP*6050 Professional Practice Course in Development and Planning U [0.50]
This course offers a planned but flexible program for developing skills that are relevant to professional practice in the rural planning and development field. It also fills the skill knowledge gaps for students who cannot take full courses. Students, in consultation with his/her Academic Advisor, assess their knowledge and skills need and acquire them through selected ‘modules’.
Department(s): School of Environmental Design and Rural Development

RDP*6070 Project Development: Principles, Procedures, and Selected Methods U [0.50]
This course introduces students to the principles, procedures and methods in developing a project. It examines the project cycle: identification, preparation, appraisal, implementation/supervision, monitoring and evaluation. It gives an understanding of the major methods involved and teaches selected methods. The focus is on the international, rural context and on small non-farm projects: small industries, small physical infrastructure and social projects.
Department(s): School of Environmental Design and Rural Development

RDP*6080 Environment and Development: Biophysical Resources and Sustainable Development in Rural Environments U [0.50]
This course will examine the problems and potential for ecologically sustainable development in the context of rural development planning particularly in the Third World environments. The course critically examines the strategic planning approaches and methods which involve the interaction between social systems and natural ecosystems in the context of planned intervention and change in rural environments.
Department(s): School of Environmental Design and Rural Development

RDP*6170 Rural Research Methods U [0.50]
The course provides rural planning and development professionals with a number of theoretical frameworks and practical approaches to problem solving in rural Canadian and international contexts. The course content provides an introduction to hypothesis development, data collection, analytical frameworks, research management, and information synthesis and presentation methodologies that are appropriate to the practicing rural planner and developer. It views the roles of the researcher and research as interventionist and intervention in the rural community. Research methods are discussed as an integral and supporting part of the planning and development process.
Department(s): School of Environmental Design and Rural Development

RDP*6220 Planning and Development Policy Analysis U [0.50]
Planning and development policy has experienced a significant evolution. This course examines the history of policy, and the theory, methods and processes of policy development and governance in planning and management of environment and resources.
Department(s): School of Environmental Design and Rural Development
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPD*6240</td>
<td>Planning and Development Theory</td>
<td>0.50</td>
<td>Examines basic concepts, theories and perspectives in rural planning and development. A conceptual examination of 'rural', 'planning' and 'development' precedes an examination of how rural planning and development is viewed from alternative, often conflicting theories of rural change and planned intervention. The implications for practice are discussed.</td>
</tr>
<tr>
<td>RPD*6250</td>
<td>Foundations in Rural Planning Practice</td>
<td>0.50</td>
<td>This course provides an introduction to rural planning practice. This includes: i) Concepts in Public Administration - The structure, responsibility and functions of public sector administration and government. ii) The workings of local government. iii) Rural Planning Practice - An introduction to planning and development in rural regions and small municipalities.</td>
</tr>
<tr>
<td>RPD*6260</td>
<td>Land Use Planning Law</td>
<td>0.50</td>
<td>An introduction to the legal tools used to regulate the use of land and other resources. Zoning, subdivision controls, development control, land banking, expropriation, planning appeals, official maps, etc. An intensive study of the Ontario Planning Act and related legislation.</td>
</tr>
<tr>
<td>RPD*6280</td>
<td>Advanced Planning Practice</td>
<td>0.50</td>
<td>This course explores current issues, techniques, legislation and processes that are relevant to rural planning practice. A number of specific municipal (local and regional) rural planning examples will be presented. Comparisons between different jurisdictions will be reviewed. Students will be engaged in project-based learning.</td>
</tr>
<tr>
<td>RPD*6290</td>
<td>Special Topics in Rural Planning and Development</td>
<td>0.50</td>
<td>Selected study topics focus on the nature of rural planning and development issues and/or practices in Canadian and/or International small communities and rural environments. Among the topics which may be addressed are: rural land use planning, ecological restoration, gender analysis in development planning, GIS in agricultural development, micro-credit, physical/site planning and design, project management.</td>
</tr>
<tr>
<td>RPD*6320</td>
<td>Water Resource Management</td>
<td>0.50</td>
<td>The course provides an assessment of the processes and principles which underlie comprehensive water resource planning and integrated basin management. It also undertakes to evaluate current practice in the context of integrated planning. There is extensive use of Canadian and international practice.</td>
</tr>
<tr>
<td>RPD*6360</td>
<td>Major Research Paper</td>
<td>1.00</td>
<td>Students not pursuing the thesis route must satisfactorily complete a Major Research Paper. The paper will be supervised by a faculty committee. Content of the paper will generally focus on the placement of a problem in rural planning and development practice using appropriate methodological and analytical procedures. Note: This is a one semester course and must be completed in the semester of registration.</td>
</tr>
<tr>
<td>RPD*6370</td>
<td>Economic Development Planning and Management for Rural Communities</td>
<td>0.50</td>
<td>Theories and perspectives of local economic development, particularly community-based planning for rural economic development. Economic development within a community development framework, and challenges of sustainable development. Interdisciplinary perspectives and alternative approaches to professional planning practice, strategic planning, management and organizational design/development issues. Alternative economic concepts and perspectives are critically examined. Includes international case studies.</td>
</tr>
<tr>
<td>RPD*6380</td>
<td>Application of Quantitative Techniques in Rural Planning and Development</td>
<td>0.50</td>
<td>Analysis and application of standard quantitative, statistical and computer-based techniques utilized in rural planning and development. Problems of data collection, analysis and interpretation.</td>
</tr>
<tr>
<td>RPD*6390</td>
<td>Rural Social Planning</td>
<td>0.50</td>
<td>This course will provide students who have an interest in social development with an avenue for linking that interest to the policy, planning and intervention process.</td>
</tr>
<tr>
<td>RST*6000</td>
<td>Sustainable Rural Systems</td>
<td>1.00</td>
<td>Sustainable development theory in the rural communities and environment context.</td>
</tr>
<tr>
<td>RST*6100</td>
<td>Integrative Research Methods</td>
<td>1.00</td>
<td>Research design and evaluation with a focus on measures of sustainability and on interdisciplinary applications.</td>
</tr>
<tr>
<td>RST*6260</td>
<td>Research Design</td>
<td>0.50</td>
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<tr>
<td>RST*6300</td>
<td>Research Seminar</td>
<td>0.25</td>
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</tr>
<tr>
<td>RST*6500</td>
<td>Special Topics</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>SOC*6070</td>
<td>Sociological Theory</td>
<td>0.50</td>
<td>Classical and contemporary theoretical perspectives and their inter-relationships. A central concern will be to develop the student's ability to assess theory critically and to understand how theory and research relate to each other.</td>
</tr>
<tr>
<td>SOC*6130</td>
<td>Quantitative Research Methods</td>
<td>0.50</td>
<td>The application of multiple regression to data generated by non-experimental research, e.g., survey data and data from other sources (census, archival). In large part a course in theory construction, a thorough grounding in the mechanics and statistical assumptions of multiple regression is followed by its application to the construction of structural equation (or causal) models representing substantive theories in sociology and related disciplines.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Department(s)</td>
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<tr>
<td>SOC*6140</td>
<td>Qualitative Research Methods F [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
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<tr>
<td>SOC*6270</td>
<td>Diversity and Social Equality U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
</tr>
<tr>
<td>SOC*6350</td>
<td>Society, Crime and Control U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
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<tr>
<td>SOC*6420</td>
<td>Global Agro-Food Systems, Communities and Rural Change U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
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<tr>
<td>SOC*6460</td>
<td>Gender and Development F [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
</tr>
<tr>
<td>SOC*6480</td>
<td>Work, Gender and Change in a Global Context U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
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<tr>
<td>SOC*6520</td>
<td>Social Movements and Collective Action F [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
</tr>
<tr>
<td>SOC*6550</td>
<td>Selected Topics in Theory and Research U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
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<tr>
<td>SOC*6660</td>
<td>Reading Course U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
</tr>
<tr>
<td>SOC*6660</td>
<td>Major Paper U [1.00]</td>
<td>Department of Sociology and Anthropology</td>
<td></td>
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<tr>
<td>STAT*6650</td>
<td>Computational Statistics U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td></td>
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<tr>
<td>STAT*6700</td>
<td>Pro-seminar F-W [0.00]</td>
<td>Department of Sociology and Anthropology</td>
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<tr>
<td>STAT*6750</td>
<td>Advanced Topics in Sociological Theory F [0.50]</td>
<td>Department of Sociology and Anthropology</td>
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<tr>
<td>STAT*6761</td>
<td>Survival Analysis U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT*6820</td>
<td>Directed Readings U [0.50]</td>
<td>Department of Sociology and Anthropology</td>
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**Statistics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department(s)</th>
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<tbody>
<tr>
<td>STAT*6650</td>
<td>Computational Statistics U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
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<tr>
<td>STAT*6700</td>
<td>Stochastic Processes U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
</tr>
<tr>
<td>STAT*6721</td>
<td>Stochastic Modelling U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
</tr>
<tr>
<td>STAT*6741</td>
<td>Statistical Analysis for Reliability and Life Testing U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
</tr>
<tr>
<td>STAT*6761</td>
<td>Survival Analysis U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
</tr>
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</table>
### Appendix A - Courses, Studio Art

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Department(s)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINA*6510</td>
<td>Introduction to Graduate Studio F [1.50]</td>
<td>School of Fine Art and Music</td>
<td>1.50</td>
</tr>
<tr>
<td>FINA*6515</td>
<td>MFA Studio I W [1.50]</td>
<td>School of Fine Art and Music</td>
<td>1.50</td>
</tr>
<tr>
<td>FINA*6530</td>
<td>MFA Teaching Practicum I F [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6531</td>
<td>MFA Teaching Practicum II F [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6540</td>
<td>MFA Seminar I F [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6545</td>
<td>MFA Seminar II W [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
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<tr>
<td>FINA*6550</td>
<td>Selected Topics in Fine Art I [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6551</td>
<td>Seminar in Art Theory and Criticism I W [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6552</td>
<td>Seminar in Canadian Art [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6554</td>
<td>Seminar in Nineteenth Century Art U [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
</tr>
<tr>
<td>FINA*6555</td>
<td>Seminar in Twentieth Century Art U [0.50]</td>
<td>School of Fine Art and Music</td>
<td>0.50</td>
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### Statistics Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department(s)</th>
<th>Credits</th>
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<tbody>
<tr>
<td>STAT*6801</td>
<td>Statistical Learning U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6802</td>
<td>Generalized Linear Models and Extensions U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6821</td>
<td>Multivariate Analysis U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6841</td>
<td>Statistical Inference U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6850</td>
<td>Advanced Biometry U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6860</td>
<td>Linear Statistical Models U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6870</td>
<td>Experimental Design U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6880</td>
<td>Sampling Theory U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
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<tr>
<td>STAT*6920</td>
<td>Topics in Statistics U [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6950</td>
<td>Statistical Methods for the Life Sciences F [0.50]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.50</td>
</tr>
<tr>
<td>STAT*6970</td>
<td>Statistical Consulting Internship U [0.25]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.25</td>
</tr>
<tr>
<td>STAT*6990</td>
<td>Statistics Seminars by Graduate Students U [0.00]</td>
<td>Department of Mathematics and Statistics</td>
<td>0.00</td>
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<tr>
<td>STAT*6998</td>
<td>MSc Project in Statistics U [1.00]</td>
<td>Department of Mathematics and Statistics</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Studio Art Courses**

- **FINA*6510 Introduction to Graduate Studio F [1.50]**
- **FINA*6515 MFA Studio I W [1.50]**
- **FINA*6530 MFA Teaching Practicum I F [0.50]**
- **FINA*6531 MFA Teaching Practicum II F [0.50]**
- **FINA*6540 MFA Seminar I F [0.50]**
- **FINA*6545 MFA Seminar II W [0.50]**
- **FINA*6550 Selected Topics in Fine Art I [0.50]**
- **FINA*6551 Seminar in Art Theory and Criticism I W [0.50]**
- **FINA*6552 Seminar in Canadian Art U [0.50]**
- **FINA*6554 Seminar in Nineteenth Century Art U [0.50]**
- **FINA*6555 Seminar in Twentieth Century Art U [0.50]**

**Prerequisites and Restrictions**

- Admission to the MFA program and permission of instructor.
- Sustained work at an independent level under the supervision of the chair of the student's advisory committee.
- Prerequisite: FINA*6510

**Department(s):**

- School of Fine Art and Music
- Department of Mathematics and Statistics
FINA*6615 MFA Studio III W [1.50]
Continuation of FINA*6610
Prerequisite(s): FINA*6610
Department(s): School of Fine Art and Music

FINA*6640 MFA Seminar III F [0.50]
Continuation of FINA*6545
Prerequisite(s): FINA*6545
Department(s): School of Fine Art and Music

FINA*6641 MFA Seminar IV W [0.50]
Continuation of FINA*6640
Department(s): School of Fine Art and Music

FINA*6650 Individual Study in Art History U [0.50]
Students will pursue special study under the guidance of a faculty member with appropriate expertise
Prerequisite(s): Approval of the co-ordinator of the MFA program.
Department(s): School of Fine Art and Music

FINA*6651 Individual Study in Contemporary Art U [0.50]
Students will pursue special study under the guidance of a faculty member with appropriate expertise
Prerequisite(s): Approval of the co-ordinator of the MFA program.
Department(s): School of Fine Art and Music

FINA*6655 Individual Study in Art History U [0.50]
Students will pursue special study under the guidance of a faculty member with appropriate expertise
Prerequisite(s): Approval of the co-ordinator of the MFA program.
Department(s): School of Fine Art and Music

FINA*6652 Individual Study in Art Theory and Criticism W [0.50]
Students will pursue special study under the guidance of a faculty member with appropriate expertise.
Prerequisite(s): Approval of the co-ordinator of the MFA program.
Department(s): School of Fine Art and Music

Theatre Studies

THST*6150 Theatre Historiography F [0.50]
This variable content course introduces students to the theory and practice of theatre historical analysis. The course is required of all students in the Theatre Studies MA Program.
Department(s): School of English and Theatre Studies

THST*6210 Devising W [0.50]
This variable-content course addresses creative practice in the theatre as a site for the production of knowledge. It examines the theoretical and social issues of contemporary theatre practice.
Department(s): School of English and Theatre Studies

THST*6230 Theatre Theory F [0.50]
This variable content course introduces students to a range of theoretical approaches and to advanced issues and methods within the fields of drama, theatre, and performance studies. The course is required for all students in the Theatre Studies MA Program.
Department(s): School of English and Theatre Studies

THST*6235 Performance and Difference W [0.50]
This variable-content course introduces students to the most recent theoretical and critical international developments in the field of Theatre Studies and investigates sites of cultural diversity and difference. It provides opportunities for culturally specific studies of dramatic literature and performance.
Department(s): School of English and Theatre Studies

THST*6250 Bodies and Space in Performance W [0.50]
This variable-content course introduces students to the social, ethical, phenomenological and environmental dimensions of the interaction of bodies and space in theatre practice and research. It provides a theorized context in which students may address questions of acting, directing, and design as research processes.
Department(s): School of English and Theatre Studies

THST*6280 Independent Reading Course U [1.00]
Independent Reading Course
Department(s): School of English and Theatre Studies

THST*6500 Research Paper U [1.00]
Department(s): School of English and Theatre Studies

THST*6801 Reading Course I U [0.50]
An independent study course, the nature and content of which is agreed upon between the individual and the person offering the course. Subject to the approval of the student’s advisory committee and the graduate program committee.
Department(s): School of English and Theatre Studies

Tourism and Hospitality

TRMH*6100 Foundations of Tourism and Hospitality F [0.50]
The course is designed to discuss theoretical concepts and theories which provide an understanding of societal, managerial and strategic aspects of tourism and hospitality. An emphasis will also be placed on key theories and concepts of relevant disciplines which may affect tourism and hospitality research.
Department(s): School of Hospitality, Food and Tourism Management

TRMH*6200 Contemporary Issues in Tourism W [0.50]
The course will acquaint students with the tourism industry. An overview of the scale and scope, involved stakeholders, and the organization of the industry will be examined and critiqued. An emphasis will be placed on the sustainable development and management of tourism resources and organizations.
Prerequisite(s): TRMH*6100
Department(s): School of Hospitality, Food and Tourism Management

TRMH*6270 Data Mining Practicum W [0.50]
An applied course introducing popular concepts, methods and applications of data mining utilizing data warehoused at the government agencies and user friendly software and cases. This course covers various topics in data mining association rule, clustering, logistic regression, decision tree and artificial neural network.
Prerequisite(s): TRMH*6100 and PSYC*6060
Department(s): School of Hospitality, Food and Tourism Management

TRMH*6290 Research Methods for Tourism and Hospitality F [0.50]
This course looks at selected analytical techniques in tourism and hospitality research, both empirical and subjective, as well the nature of research questions and theory. The course is intended to help students make informed judgements about selected research tools and designs, and draw logical and substantive conclusions.
Department(s): School of Hospitality, Food and Tourism Management

TRMH*6310 Research Applications in Tourism and Hospitality W [0.50]
This course is designed to enhance the student’s analytical capability, using both basic and advanced analytical techniques and tools of tourism and hospitality research. They learn to critically evaluate, enabling them to make effective judgments, choose proper statistical techniques, and draw logical and substantive conclusions.
Prerequisite(s): TRMH*6100 and PSYC*6060
Department(s): School of Hospitality, Food and Tourism Management

TRMH*6400 Thesis Proposal F,W,S [1.00]
The students engage in seminars to share experiences and reflections on the research process. This course is a development of the proposal: framing a research question, developing a methodological plan within a challenging interdisciplinary area such as tourism and hospitality, data planning and more.
Prerequisite(s): TRMH*6100, TRMH*6200, TRMH*6310, PSYC*6060 and one of ANTH*6140, MCS*6080 or SOC*6140
Department(s): School of Hospitality, Food and Tourism Management

Toxicology

TOX*6000 Advanced Principles of Toxicology S [0.50]
An intensive course in the principles of modern aspects of toxicology, taught in a lecture/case study format.
Department(s): Department of Chemistry
UNIV*6800 The Structure and Function of Muscle U [0.50]

An interdisciplinary course covering basic aspects of muscle from a range of viewpoints: structure, metabolism, protein content, energetics, mechanics, biological adaptations, growth and development. The course is designed for graduate students from a wide range of specific disciplines and will provide a broad background to muscle biology as well as more detailed insights into specific aspects of each area covered.

Department(s): Office of Graduate Studies

UNIV*6010 Regulation in Muscle Metabolism U [0.50]

An interdisciplinary course emphasizing the regulation of muscle metabolism in vivo. The course focuses on the integration of metabolic fuel utilization to meet cellular energy demands under a variety of conditions in the whole animal. Topics include: sources of energy demand, integration of energy supply to meet energy demands, and regulation of cell growth, maintenance and adaptation.

Department(s): Office of Graduate Studies

UNIV*6030 Seminars and Analysis in Animal Behaviour and Welfare F-W [0.50]

This seminar-based course offers an interdisciplinary forum for the discussion of broad topics in animal welfare and human-animal relationships. Students analyze topics presented by visiting guest lecturers using perspectives from various disciplines such animal science, philosophy, history, psychology, ethics, and biology.

Department(s): Office of Graduate Studies

UNIV*6040 Selected Topics in Critical Studies in Improvisation S [0.50]

Intended for students who have an interest in musical improvisation, this interdisciplinary course provides a forum to investigate the possibility of improvised artistic practices to inform community-building models and to shape public debate and policy decisions regarding the role of the arts in society.

Department(s): Office of Graduate Studies

UNIV*6050 The Integration of Science and Business in Agrifood Systems F-W [1.00]

Designed specifically for students enrolled in OMAFRA/UoG HQP Scholarship program but open to all students. To provide market-readiness for students as they enter business, government or academia. Teaching modules will cover business developments, intellectual property, patent and licence protection as well as societal issues impacting agriculture.

Restriction(s): Limited of 36 students. Priority to HQP Scholarship Program students

Department(s): Office of Graduate Studies

UNIV*6060 Mechanisms of Tissue and Cellular Mechanotransduction in Health and Disease F [0.50]

This course explores fundamental mechanisms and signalling pathways that dynamically regulate cell and tissues responses to physical forces in health and disease. It is relevant to a wide range of areas of study, from biomechanics and tissue engineering to gastro-intestinal health, food and nutrition.

Restriction(s): Instructor consent required.

Department(s): Office of Graduate Studies

UNIV*6070 Topics and Analysis in Sustainability F [0.50]

This course will allow students to examine, analyze and discuss the evolving concept of "sustainability" in a transdisciplinary context and build upon their knowledge and experience in this area. We will examine various current issues (e.g., climate change, natural resource management, environmental governance) at the interface of more than one discipline (transdisciplinary) and which require some degree of global understanding. Students will be encouraged to share their diverse backgrounds in discussions and assignments.

Offering(s): Offered in even-numbered years.

Restriction(s): Instructor consent required. Must be enrolled in a graduate program at the University of Guelph.

Department(s): Office of Graduate Studies

UNIV*6500 International Study Option U [0.00]

A period of study in another country as part of a graduate program at the University of Guelph. Details may be obtained from the Office of Graduate Studies.

Department(s): Office of Graduate Studies

UNIV*6600 Animal Care Short Course S,F,W [0.00]

The course includes on-line training modules covering the following topics: Legislation, Regulation & Guidelines, Ethological Considerations in Animal Management, Ethics in Animal Experimentation, Research Issues, The Three Rs of Humane Animal Experimentation, Occupational Health and Safety when Working with Animals, Euthanasia, Recognition and Alleviation of Pain and Distress in Animals. Graduate students using or caring for live animals or assisting in teaching courses involving live vertebrate animals also must attend the Animal Care Services species-specific Workshops as part of the Animal User Training Program.

Department(s): Office of Graduate Studies

UNIV*6710 Commercialization of Innovation F [0.50]

This course is designed to help participants better understand the process, the analytical tools that can assist the process and how best to prepare technologies to survive commercialization. The course includes elements of entrepreneurship, relationship building, organizational change, as well as project and personnel management.

Department(s): Office of Graduate Studies

UNIV*6800 University Teaching: Theory and Practice F [0.50]

Participants will critically examine aspects of teaching in higher education and develop teaching skills such as lecturing, demonstrating, leading discussions, and problem solving. Satisfactory (SAT) or unsatisfactory (UNS) will be used to evaluate the student's performance in this course.

Department(s): Office of Graduate Studies

UNIV*7100 Academic Integrity for Graduate Students S,F,W [0.00]

Academic integrity is a code of ethics for teachers, students, researchers, and writers. It is fundamental to the University of Guelph's educational mission and to ensuring the value of the scholarly work conducted here. This course provides definitions, examples, and exercises to help graduate students understand the importance of academic integrity and learn how to avoid academic misconduct in their own work. This course required of all graduate students to be completed within 20 days of commencing their graduate program.

Department(s): Office of Graduate Studies