Courses of Instruction

This section presents the descriptions of all courses offered at the University of Victoria. Courses are listed in alphabetical order by course abbreviation (BIOL, EDUC). The course abbreviations for all courses offered within each faculty are listed on page 248. A list of the course abbreviations and their corresponding subject areas is presented on page 249.

Please note that not all courses listed are necessarily offered every year; students should consult the department or faculty concerned for an official listing of the courses that will be offered in a given session. Registration and current timetable information is also available on the web at <uvic.ca/course-registration>.

Students must ensure that they are familiar with the program requirements and restrictions noted in the entry for each academic unit.
## Courses by Faculty

### Division of Medical Sciences
- NRSC  Neuroscience

### Faculty of Education
- ED-D  Educational Psychology and Leadership Studies
- EDCI  Curriculum and Instruction Studies
- EPHE  Exercise Science, Physical and Health Education
- IED  Indigenous Education

### Faculty of Engineering
- CIV  Civil Engineering
- CSC  Computer Science
- ELEC  Electrical Engineering
- MECH  Mechanical Engineering

### Faculty of Fine Arts
- AHVS  Art History and Visual Studies
- ART  Visual Arts
- CH  Cultural Heritage Management
- MUS  Music
- THEA  Theatre
- WRIT  Writing

### Faculty of Graduate Studies
- GS  Graduate Studies by Special Arrangement
- IN  Indigenous Nationhood
- INTD  Interdisciplinary Program

### Faculty of Human and Social Development
- ADMN  Public Administration
- CD  Community Development
- CYC  Child and Youth Care
- DR  Dispute Resolution
- HINF  Health Information Science
- HSD  Human and Social Development

### Faculty of Graduate Studies
- IGOV  Indigenous Governance
- IN  Indigenous Nationhood
- INGH  Indigenous Health Studies
- NUED  Nursing, Advanced Practice: Nurse Educator Option
- NUHI  Nursing and Health Information Science
- NUHP  Nursing, Advanced Practice: Nurse Practitioner Option
- NURA  Nursing, Advanced Practice: Nurse Leadership Option
- NURP  Nursing Policy and Practice
- PAAS  Pacific and Asian Studies
- PHIL  Philosophy
- SLSN  Slavic Studies
- SPAN  Spanish

### Faculty of Law
- IN  Indigenous Nationhood
- LAW  Law

### Faculty of Science
- ASTR  Astronomy
- ASTP  Astronomical and Astrophysical Sciences
BCMB  Biochemistry and Microbiology  
Department of Biochemistry and Microbiology  

BIOC  Biochemistry  
Department of Biochemistry and Microbiology  

BIOL  Biology  
Department of Biology  

CHEM  Chemistry  
Department of Chemistry  

EOS  Earth and Ocean Sciences  
School of Earth and Ocean Sciences  

FORB  Forest Biology  
Department of Biology  

MATH  Mathematics  
Department of Mathematics and Statistics  

MICR  Microbiology  
Department of Biochemistry and Microbiology  

MRNE  Marine Science  
Department of Biology  

PHYS  Physics  
Department of Physics and Astronomy  

STAT  Statistics  
Department of Mathematics and Statistics  

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**Faculty of Social Sciences**

ANTH  Anthropology  
Department of Anthropology  

CSPT  Cultural, Social and Political Thought  
Department of Political Science  

ECON  Economics  
Department of Economics  

ES  Environmental Studies  
School of Environmental Studies  

GEOG  Geography  
Department of Geography  

IN  Indigenous Nationhood  
Department of Political Science  

POLI  Political Science  
Department of Political Science  

PSYC  Psychology  
Department of Psychology  

SDH  Social Dimensions of Health  
Social Dimensions of Health Program  

SOCI  Sociology  
Department of Sociology  

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**Sardul S. Gill Graduate School of Business**

BUS  International Management and Organization  

ENTC  Entrepreneurship Certificate  

ENTD  Entrepreneurship Diploma  

MBA  Master of Business Administration  

MBME  Master of Business Administration + Master of Engineering  

MBA Program and Faculty of Engineering  

MBMS  Master of Business Administration + Master of Science (CSC)  

MBA Program and Faculty of Engineering  

MGB  Master of Global Business
Courses by Subject Area

Anthropology ANTH
  Faculty of Social Sciences

Art History and Visual Studies AHVS
  Faculty of Fine Arts

Astronomy ASTR
  Faculty of Science

Biochemistry BIOC
  Faculty of Science

Biochemistry and Microbiology BCMB
  Faculty of Science

Biology BIOL
  Faculty of Science

Chemistry CHEM
  Faculty of Science

Civil Engineering CIVE
  Faculty of Engineering

Child and Youth Care CYC
  Faculty of Human and Social Development

Community Development CD
  Faculty of Human and Social Development

Computer Science CSC
  Faculty of Engineering

Cultural Heritage Management CH
  Faculty of Social Sciences

Cultural, Social and Political Thought CSPT
  Faculty of Social Sciences

Curriculum and Instruction Studies EDCI
  Faculty of Education

Digital Humanities DHUM
  Faculty of Humanities

Dispute Resolution DR
  Faculty of Human and Social Development

Earth and Ocean Sciences EOS
  Faculty of Science

Economics ECON
  Faculty of Social Sciences

Educational Psychology and Leadership Studies ED-D
  Faculty of Education

Electrical Engineering ELEC
  Faculty of Engineering

English ENGL
  Faculty of Humanities

Entrepreneurship Certificate ENTC
  Sardul S. Gill Graduate School of Business

Entrepreneurship Diploma ENTD
  Sardul S. Gill Graduate School of Business

Environmental Studies ES
  Faculty of Social Sciences

Exercise Science, Physical and Health Education EPHE
  Faculty of Education

Forest Biology FORB
  Faculty of Science

French FRAN
  Faculty of Humanities

Geography GEOG
  Faculty of Social Sciences

Germanic Studies GMST
  Faculty of Humanities

Graduate Studies by Special Arrangement GS
  Faculty of Graduate Studies

Greek and Roman Studies GRS
  Faculty of Humanities

Health Information Science HINF
  Faculty of Human and Social Development

History HSTR
  Faculty of Humanities

Human and Social Development HSD
  Faculty of Human and Social Development

Indigenous Education IED
  Faculty of Education

Indigenous Governance IGOV
  Faculty of Human and Social Development

Indigenous Health Studies INGH
  Faculty of Human and Social Development

Indigenous Nationhood IN
  Faculty of Graduate Studies
  Faculty of Human and Social Development
  Faculty of Law
  Faculty of Social Sciences

Interdisciplinary Program INTD
  Faculty of Graduate Studies

International Management and Organization BUS
  Sardul S. Gill Graduate School of Business

Italian ITAL
  Faculty of Humanities

Law LAW
  Faculty of Law

Linguistics LING
  Faculty of Humanities

Marine Science MRNE
  Faculty of Social Sciences
Faculty of Science
Master of Business Administration ............................................. MBA
Sardul S. Gill Graduate School of Business
Master of Business Administration + Master of Engineering .......... MBME
Sardul S. Gill Graduate School of Business
Master of Global Business ............................................................ MGB
Sardul S. Gill Graduate School of Business
Mathematics .................................................................................. MATH
Faculty of Science
Mechanical Engineering ............................................................... MECH
Faculty of Engineering
Microbiology ................................................................................... MICR
Faculty of Science
Music ............................................................................................. MUS
Faculty of Fine Arts
Neuroscience .................................................................................. NRSC
Division of Medical Sciences
Nursing ........................................................................................... NURS
Faculty of Human and Social Development
Nursing and Health Information Science ...................................... NUHI
Faculty of Human and Social Development
Nursing Policy and Practice ........................................................... NURP
Faculty of Human and Social Development
Nursing, Advanced Practice: Nurse Educator Option ................. NUED
Faculty of Human and Social Development
Nursing, Advanced Practice: Nurse Leadership Option .............. NURA
Faculty of Human and Social Development
Nursing, Advanced Practice: Nurse Practitioner Option .............. NUNP
Faculty of Human and Social Development
Pacific and Asian Studies ............................................................. PAAS
Faculty of Humanities
Philosophy ..................................................................................... PHIL
Faculty of Humanities
Physics .......................................................................................... PHYS
Faculty of Science
Political Science .............................................................................. POLI
Faculty of Social Sciences
Psychology ...................................................................................... PSYC
Faculty of Social Sciences
Public Administration ..................................................................... ADMN
Faculty of Human and Social Development
Public Administration Dispute Resolution .................................. PADR
Faculty of Human and Social Development
Public Health and Social Policy ..................................................... PHSP
Faculty of Human and Social Development
Slavic Studies .................................................................................. SLST
Faculty of Humanities
Social Dimensions of Health ....................................................... SDH
Faculty of Social Sciences
Social Work ..................................................................................... SOCW
Faculty of Human and Social Development
Sociology ........................................................................................ SOCI
Faculty of Social Sciences
Spanish .......................................................................................... SPAN
Faculty of Humanities
Statistics .......................................................................................... STAT
Faculty of Science
Theatre ............................................................................................ THEA
Faculty of Fine Arts
Visual Arts ....................................................................................... ART
Faculty of Fine Arts
Writing ............................................................................................. WRIT
Faculty of Fine Arts
### How to use the Course Listings

<table>
<thead>
<tr>
<th>Course abbreviation and number</th>
<th>Units of credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses are listed alphabetically by course abbreviation of up to four letters (e.g., ANTH for Anthropology) and course number (e.g., 100). Three numbers are used for course number plus a letter as appropriate. The first digit indicates the year level: 0 university-level upgrading or undergraduate co-op work term</td>
<td>This is the number of units of credit assigned to a course. Some courses are listed with variable units (e.g., 1.5-3.0). Further information on the unit value of the course will usually be found in the course note. Students may also contact the department or faculty offering the course for information on variable unit courses.</td>
</tr>
<tr>
<td>1 to 4 undergraduate level</td>
<td>5, 6 graduate level</td>
</tr>
<tr>
<td>0 university-level upgrading or undergraduate co-op work term</td>
<td>7 Education Professional Year</td>
</tr>
<tr>
<td>8 Graduate co-op work term</td>
<td>8 Graduate co-op work term</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cross-listed courses</th>
<th>Hours of instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>The same course may be offered by two different departments. Such courses are listed twice, once under each department course abbreviation. Students may obtain credit for the course from either department, but not both.</td>
<td>These numbers refer to the hours of instruction per week:</td>
</tr>
<tr>
<td></td>
<td>• 1st digit: hours assigned for lectures or seminars</td>
</tr>
<tr>
<td></td>
<td>• 2nd digit: hours assigned for laboratory or practical sessions</td>
</tr>
<tr>
<td></td>
<td>• 3rd digit: hours assigned to tutorials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Former course abbreviation and number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>If a course was previously offered at UVic under another abbreviation and number, the former abbreviation and number are shown here.</td>
<td>Notes provide information about any restrictions on the assignment of credit in cases where content overlaps, as well as the maximum allowable credit for courses that may be taken more than once. Notes may also provide additional information about a course.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prerequisites and corequisites</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisites are courses or other requirements that must be completed before a student may register in a course. Corequisites are courses or other requirements that must be completed at the same time as a specific course. For more information on how to read prerequisites, see &lt;www.uvic.ca/prereq&gt;.</td>
<td>Courses that are not graded using standard letter grades include the alternative classifications for evaluation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Course Name</th>
<th>InP/CoM, N, F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMP 101</td>
<td></td>
</tr>
<tr>
<td>Units: 1.5</td>
<td>Hours: 3-0-1</td>
</tr>
<tr>
<td>Also: CD 100</td>
<td></td>
</tr>
<tr>
<td>Formerly: SAMP 100A</td>
<td></td>
</tr>
</tbody>
</table>

This sample course description illustrates the notations commonly found in a course description. Not all course descriptions include all the information shown in this sample. For clarification on any information presented in a course description, contact the department or faculty offering the course.

**Note:** Credit will be granted for only one of SAMP 101, SAMP 100A, CD 100.

**Prerequisite(s):** Admission to the program.

Course descriptions do not include information on when courses will be offered. That information is available at <www.uvic.ca/timetable>. 

Courses that are not graded using standard letter grades include the alternative classifications for evaluation.
ADMN

Public Administration
School of Public Administration
Faculty of Human and Social Development

Students enrolled in the MPA On Campus program should also see courses listed as PADR.

ADMN 502A Units: 1.5
Surveying, Appraising and Commissioning Information
Introduces students to essential skills and components of the research process, weaknesses and strengths. Key issues in research ethics and design are explored, including: research and data validity, measurement, qualitative methods, sampling, survey research techniques, questionnaire design, research design, measures of central tendency, dispersion, correlation, and computer-based analyses.

Note: Credit will be granted for only one of ADMN 502A, ADMN 557.

ADMN 502B Units: 1.5
Data Analysis and Interpretation
Develops skills in understanding, evaluating and applying techniques of data analysis relevant to policy analysis and management research. Topics include: descriptive and inferential statistics; techniques of estimation in the context of opinion polls and related survey research methods; statistical testing using data collected from survey research, correlational studies, and experimental and quasi-experimental research designs. The computer lab component will allow students to further develop spreadsheet skills using EXCEL.

Pre-requisite(s):
• One of ADMN 502A, PADR 502, or PADR 502A; or
• permission of the school.

ADMN 504 Units: 1.5
Government and Governance
Provides a foundation that helps students build and refine their understanding of Canadian public sector governance. Focus is on key governance institutions and processes, the efforts made to reform them, and theories behind those reform initiatives and changes. Specifically, examines strategic governance challenges and reforms in areas such as service delivery, regulation, policy making, budgeting, citizen engagement, federal-provincial relations, public sector ethics and accountability.

ADMN 507 Units: 1.5
Leadership and Ethics in the Public Sector
Public leadership requires an understanding of others and one’s self in order to mobilize effort in challenging environments. Provides frameworks and practical strategies for understanding personal capacity, team dynamics, and working with others within and across organizational boundaries. Introduces students to competing values and ethics, and equips them with skills and strategies for analyzing, motivating and managing change and the challenges they may face.

ADMN 509 Units: 1.5
Microeconomics for Policy Analysis
Provides a foundation in microeconomic principles, the rationale for public sector interventions in the market, and essential tools for economic policy analysis. Students will be introduced to rational choice theory, resource allocation methods, supply and demand, efficiency and equity, elasticity, income redistribution, externalities, public goods, and imperfect information. Relies on practical problem-based learning. Contemporary themes include behavioral and nudge economics, economic inequality, and the moral economy.

Pre-or Corequisite(s):
• One of ADMN 502A, PADR 502, PADR 502A; and
• ADMN 504; or
• permission of the school.

ADMN 512 Units: 1.5
Public Financial Management and Accountability
Explores the budgeting cycle: budget preparation and execution, internal and external auditing, financial statements, and performance budgeting and reporting. Examines management tools that support resource allocation decisions and accountability. Considers the rationale for alternative goods and services provision arrangements. Reviews evidence-based approaches for efficient resource allocation decisions, benchmarking performance, and incentives to motivate employees and contractors. Explores public sector fiscal challenges.

Pre-or Corequisite(s):
• One of ADMN 502A, PADR 502, PADR 502A; and
• ADMN 509; or
• permission of the school.

ADMN 523 Units: to be determined
Special Topics in Public Sector Management
Provides a unique chance to study selected topics drawn from the current literature in public sector management or related fields and an excellent opportunity to explore the academic theory underpinning current public sector functions.

Note: May be taken more than once for credit in different topics.

ADMN 531 Units: 1.5
Performance and Strategic Human Resource Management
Students explore the critical role of human capital in public organizations and how to align it with strategic objectives. Students learn about human resource management functions - planning, staffing, training and development, performance management, compensation, and labour relations - and theories and approaches to improving organizational performance. Considers some of the contemporary challenges, such as high public expectations, constrained budgets, demographic turnover, and technological change.

Note: Credit will be granted for only one of ADMN 531, ADMN 431.

Pre-requisite(s):
• ADMN 507 or PADR 504; or
• permission of the school.

ADMN 537 Units: 1.5
Program Evaluation and Performance Measurement
Examines program evaluation and performance measurement in public and nonprofit organizations. Emphasis is placed on acquiring skills needed to model programs, measure key constructs, select appropriate research designs, and conduct both quantitative and qualitative program evaluations. Issues involved in designing and implementing program performance measurement systems are introduced.

Note: Credit will be granted for only one of ADMN 537, ADMN 437.

Pre-requisite(s):
• One of ADMN 502A, PADR 502, or PADR 502A; and
• ADMN 502B; or
• permission of the school.

ADMN 544 Units: 1.5
Economic Evaluation Methods and Applications
A practical introduction to the theory and methods of economic evaluation, including cost-benefit analysis, cost-effectiveness analysis, and cost-utility analysis, with emphasis on public sector applications.

Pre-requisite(s):
• For students admitted to MPA program:
  • one of ADMN 502A, PADR 502, PADR 502A; and
  • ADMN 502B and ADMN 509;
• For students not admitted to MPA program:
  • permission of the school.

ADMN 547 Units: 1.5
Intergovernmental Relations in Canada
Examines the impact on public policy of relations between governments resulting from the distribution of powers among federal, provincial, and municipal governments in Canada. Topics will include the interpretive role of the courts, the instruments of fiscal federalism, administrative relationships, and the concepts of “executive federalism” and “intergovernmental governance”. Individual and team projects will explore how policy issues are handled at different stages and in different arenas of the intergovernmental process.

Note: Credit will be granted for only one of ADMN 547, ADMN 462, POL 462.

Recommendation(s):
ADMN 504 recommended prior to ADMN 547.

ADMN 548 Units: to be determined
Special Topics in Public Policy
A study of selected special topics in Public Policy drawn from the current literature in Public Administration or related fields.

Note: May be taken more than once for credit in different topics.

ADMN 550 Units: 1.5
Strategic Communication and Engagement
Communicating with and engaging stakeholders about policy priorities, problems, the design of policy and services, and implementation are crucial features of modern public and non-profit sector governance. Reviews theories, research, and practical strategies for identifying, analyzing and involving diverse groups in policy and program development, and developing multi-faceted communications strategies in the digital era. Students will also develop engagement and communications strategies.

Note: Credit will be granted for only one of ADMN 550, ADMN 470 (if taken with same topic).
ADMN 551 - Administrative Justice System in Canada

Units: 1.5

Examines constitutional and administrative law structures and principles that underlie Canada’s administrative justice system. Students develop critical understanding of (1) characteristics of federal and provincial systems, (2) legal principles under which statutory decision-making is done, (3) process and principles applied to development of administrative justice system legislation, (4) breadth and influence of tribunal decisions on activities of Canadians. Examples are drawn from federal and provincial levels, comparisons to US, UK and France as appropriate.

Note: Credit will be granted for only one of ADMN 551, ADMN 551A, ADMN 551B.

ADMN 553 - Understanding Cities

Units: 1.5

Cities are a basic building block to society, and offer an interesting opportunity to study political, social and economic issues. Examines European and North American/Canadian cities using academic and government resources to analyze and compare their various aspects.

ADMN 554 - Responsible Public Management

Units: 1.5

Designed to give students the opportunity to: understand the value dimensions of public management; reflect upon and enhance their own ethical reasoning skills; critically examine existing behavioural standards and guidelines for public managers; work with colleagues to establish what actions would be morally defensible in real administrative and policy making situations; and consider what steps can be taken to enhance responsible public management.

Note: Credit will be granted for only one of ADMN 554, ADMN 554A, ADMN 554B.

ADMN 556 - Managing Public Policy

Units: 1.5

Examines the theory and practice of public policy emphasizing the strategic aspects of problem identification, policy design, decision making, implementation and evaluation. Designed to provide students a thorough understanding of public policy and dynamics of the policy process and to apply this knowledge to important policy issues. Policy development is examined within the context of multi-level and multi-sector governance, and addresses the involvement of key players such as the courts, media, and other prominent stakeholders.

Note: Credit will be granted for only one of ADMN 556, ADMN 556A.

ADMN 557 - Public Sector Research Methods

Units: 1.5

Introduces research approaches and methodologies for policy analysis, evaluation and other analytical projects in the public and non-profit sectors and in preparation for the thesis. Introduces essential components of research for conceiving and conducting a research project: objectives of research, literature review, conceptual framing, research design and approaches, methods for data collection, analysis and presentation. The student identifies a topic and is supported to build a strong research proposal for their master’s thesis.

Note: Credit will be granted for only one of ADMN 557, ADMN 502A.

ADMN 558 - Strategic Planning and Implementation

Units: 1.5

Examines strategic planning and other types of planning in public and nonprofit sectors. Illustrates ten steps involved in the cycle of strategic planning. Explores strategic planning initiatives and teaches students to construct mandates, mission and vision statements, goals, objectives, strategies, measures, and targets. Develops skills to conduct a situation analysis that includes an environmental scan, SWOT/SWOC analysis, and stakeholder analyses. Discusses the relationship between budget and plan. Develops competencies in implementing and evaluating strategic plans.

Note: Credit will be granted for only one of ADMN 558, ADMN 502A.

ADMN 559 - European Union Urban Region Policies

Units: 1.5

Examines issues associated with the politics, policy analysis, and policy environment of cities and urban regions in the European Union (EU), including integration issues and Canada. Considers ways in which the EU intervenes to improve the policy capacity of urban/regional governments, looking at broad issues of economic development and growth, equity and redistribution in comparative perspective. Focuses on the responsibilities, functions, resources, bureaucracy, and multilevel governance issues linking the federal/state/local governments.

Note: Credit will be granted for only one of ADMN 559, ADMN 478, ADMN 548 (if taken in the same topic).

ADMN 560 - Qualitative Evaluation Methods and Applications

Units: 1.5

Explores the principles and practices of effective qualitative evaluation methods: planning, design strategies and sampling methods; data collection, analysis and reporting. Coursework includes: selecting appropriate design strategies and sampling methods; collecting data using in-depth, open-ended interviews, fieldwork-based observations, participant observation, and documents; analyzing large volumes of qualitative data to produce clear, credible and relevant findings. The course will also examine strategies for integrating multiple lines of qualitative findings in evaluations.

ADMN 561 - Quantitative Methods for Public Policy Analysis and Program Evaluation

Units: 1.5

Building on the knowledge acquired in 502B, describes the logic behind various quantitative methodologies used in conducting retrospective quantitative evaluations in public policy programs and research. Demonstrates the application of these methodologies using real world policy applications. Topics may include: simple and multiple regression, endogeneity, limited dependent variables, panel data, and experimental methods.

Note: Credit will be granted for only one of ADMN 561, ADMN 561B.

ADMN 562 - Topics in Evaluation and Performance Measurement

Units: 1.5

Designed to explore contemporary issues and problems in the field of evaluation and performance management. Topics will be selected for each offering of the course; examples of topics to be included are: contribution analysis; gaming of performance measurement; professionalizing evaluation; managing knowledge creation and its uses in complex organizations; understanding and influencing organization cultures to increase and sustain knowledge utilization; audit and evaluation; comparative evaluation; and evaluation in developing countries.

ADMN 563 - Directed Studies

Units: to be determined

Notes:
- May be taken more than once for credit in different topics with permission of the school.
- Pro Forma required.

ADMN 564 - Evaluation Project

Units: 4.5

The evaluation project is a substantial evaluation of a policy or program designed and conducted for a public sector or non-profit organization. Each evaluation project will have a client and will be supervised by a faculty member in the School of Public Administration. The completed project report will be assessed by a committee consisting of the academic supervisor, a second reader (both members of the School of Public Administration), and the client for the project.

Grading: INP, COM, N, F.

ADMN 565 - Master’s Project

Units: 4.5

A substantial analysis of a management, policy or program problem which may be done for a client in the non-profit or public sector. The Master’s Project is prepared under the supervision of a faculty member in the School of Public Administration and must be both practical and academically rigorous. Students have the choice of working individually or with a student partner. A written project report is defended in an oral examination.

Grading: INP, COM, N, F.
ADMN 599  Units: 6.0
Master's Thesis
Requires a substantial contribution to the knowledge in the field of Public Administration. An MPA Thesis will demonstrate a student's mastery of a substantive body of scholarly or practice literature as well as using appropriate and academically defensible methodologies to analyze research questions, test hypotheses or contribute new theoretical knowledge. Individual students will work with an academic supervisor in the School of Public Administration.
Grading: INP, COM, N, F.

ADMN 600  Units: 0
Doctoral Seminar
The doctoral seminar supports the advancement of research and writing skills. Students will develop competencies in preparing and publishing research. Students are asked to register in this course each term during their PhD program.
Grading: INP, COM, N, F.

ADMN 602  Units: 1.5
Research Methods in Public Administration
An overview of the most prominent research methods employed in public administration, concentrating on procedures for collecting and analyzing empirical data. Students are introduced to key methodological issues and debates and are required to critically appraise examples of applications of methods in the literature.

ADMN 604  Units: 1.5
Also: POLI 610
Theories of Public Management
Explores different theories and approaches to understanding public administration and reform. Considers variations in three areas: political and constitutional authority, accountability and responsibility, and the roles of elected and non-elected officials; government structures, responsibilities for policy and service delivery, and distributed governance; and patterns and trends in central decision-making, budgeting, control, transparency, and citizen engagement. Students will review seminal comparative studies on administrative practice and reform and undertake a comparative study on a selected topic.
Note: Credit will be granted for only one of ADMN 604, POLI 610.

ADMN 605  Units: 1.5
Also: POLI 607
Comparative Policy and Governance
Focuses on the study of diverging governance practices and policy outcomes in different jurisdictions. Examines: policy determinants such as history, culture, institutions, and the economy; policy dynamics and processes such as agenda-setting and decision-making, networks and communities, and policy change; and policy styles and transfer, referring to the state's ability to design, coordinate, implement, and learn from policy interventions. Students will review seminal studies and undertake a comparative policy project.
Note: Credit will be granted for only one of ADMN 605, POLI 507, POLI 607.

ADMN 607  Units: 1.5
Organizational Behaviour and Analysis
A review of the origins, analytic traditions, and evolution of the study of organizations, focusing on exploring and analyzing the behaviour of public organizations. Topics include goal formation, tasks, technology, formal structure, informal organization, motivation, perception, values, culture, information, decision making, group dynamics, conflict, leadership, empowerment, creativity, learning and innovation. Concepts and theories are complemented by reviewing seminal literature on private, public, and nonprofit organizations, and by undertaking field research.

ADMN 620  Units: 1.5
Policy and Institutional Design and Analysis
A review of the interdisciplin ary foundations of the analysis and design of public policy, and the institutions and strategies for implementing them. Examines the rationale, comparative advantage, and combinations of government hierarchies, markets, networks, and policy instruments. Considers how to meld different disciplinary and professional perspectives and techniques for addressing design and implementation challenges, and how to draw lessons from different policy domains and jurisdictions, through case studies and projects in selected policy domains.

ADMN 621  Units: 1.5
Policy and Program Evaluation and Performance
Compares and assesses different theoretical and methodological approaches that have emerged in the evaluation field. Students read intensively for seminar discussions and preparation of a series of short papers during the semester. Topics include post-positivist, constructivist, critical realist and pragmatic theoretical approaches, qualitative and quantitative methodological approaches to doing evaluations, and challenges and emerging trends in the whole field.

ADMN 645  Units: 1.5
Organizational Change and Development
Examines the philosophy, history, and evolving approaches associated with organizational change and development, with special focus on initiating and managing change in the public sector. Reviews the diverse perspectives on change and the special roles of those who seek to change and develop organizations. Includes topics such as planned and unplanned change, alternative interventions, resistance, leadership, and incremental versus radical change. Students will undertake case studies and assessments of organizational change initiatives.

ADMN 681  Units: 1.5
Quantitative Methods for Public Policy Analysis and Program Evaluation
Describes the logic behind various quantitative methodologies used in conducting retrospective quantitative evaluations in public policy programs and research. Demonstrates the application of these methodologies using real-world policy applications. Topics may include: simple and multiple regression, endogeneity, limited dependent variables, panel data and experimental methods.
Note: Credit will be granted for only one of ADMN 681, ADMN 581.

ADMN 690  Units: 1.0-3.0
Directed Studies
Notes:
• May be taken more than once for credit in different topics with permission of the school.
• Pro Forma required.

ADMN 693  Units: 3.0
PhD Candidacy Examination
Students enrol in ADMN 693 for the duration of their preparation for their candidacy examinations. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed.
Grading: INP, COM, N, F.

ADMN 699  Units: 30.0
Dissertation
Prerequisite(s): ADMN 693.
Grading: INP, COM, N, F.

AHVS

Art History and Visual Studies
Department of Art History and Visual Studies
Faculty of Fine Arts

AHVS 501  Units: 1.5
Formerly: HA 501
Colloquium in Theories and Practices
Notes:
• Credit will be granted for only one of AHVS 501, HA 501.
• A compulsory seminar for all master's students.

AHVS 502  Units: 1.5
Formerly: HA 502
Special Topics in Art History and Visual Studies
Note: Credit will be granted for only one of AHVS 502, HA 502.

AHVS 509  Units: 1.5
Formerly: HA 509
Workshop in Art Historical Writing
Notes:
• Credit will be granted for only one of AHVS 509, HA 509.
• A compulsory workshop
Prerequisite(s): AHVS 501 or HA 501.

AHVS 520  Units: 1.5
Formerly: HA 520
Seminar in Medieval Art
Note: Credit will be granted for only one of AHVS 520, HA 520.

AHVS 530  Units: 1.5
Formerly: HA 530
Seminar in the Contemporary Art of South and Southeast Asia
An intensive examination of selected themes, histories and case studies in the contemporary arts and art worlds of South and/or Southeast Asia.
Note: Credit will be granted for only one of AHVS 530, HA 530.
<table>
<thead>
<tr>
<th>Code</th>
<th>Units</th>
<th>Description</th>
<th>Former Code</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHVS 535</td>
<td>1.5</td>
<td>Seminar in Late Medieval and Early Renaissance Art, c. 1200-1500</td>
<td></td>
<td>Note: May be taken more than once for credit in different topics.</td>
</tr>
<tr>
<td>AHVS 540</td>
<td>1.5</td>
<td>Formerly: HA 540 Seminar in Renaissance Art</td>
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<tr>
<td>AHVS 545</td>
<td>1.5</td>
<td>Formerly: HA 545 Seminar in Early Modern Art, c. 1500-1750</td>
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<tr>
<td>AHVS 549</td>
<td>1.5</td>
<td>Formerly: HA 549 Seminar in Orientalism in Art and Architecture</td>
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<tr>
<td>AHVS 550</td>
<td>1.5</td>
<td>Formerly: HA 550 Seminar in Islamic Art and Civilization</td>
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<tr>
<td>AHVS 552</td>
<td>1.5</td>
<td>Formerly: HA 552 Seminar in the Arts of Mughal India</td>
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<tr>
<td>AHVS 554</td>
<td>1.5</td>
<td>Formerly: HA 554 Seminar in 19th- and/or 20th-Century Architecture</td>
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<tr>
<td>AHVS 555</td>
<td>1.5</td>
<td>Formerly: HA 555 Seminar in Canadian Art</td>
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<tr>
<td>AHVS 560</td>
<td>1.5</td>
<td>Formerly: HA 560 Seminar in Modern Art I (1870-1945)</td>
<td></td>
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<tr>
<td>AHVS 561</td>
<td>1.5</td>
<td>Formerly: HA 561 Seminar in Modern Art II (1945-1990)</td>
<td></td>
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<tr>
<td>AHVS 563</td>
<td>1.5</td>
<td>Formerly: HA 563 Seminar in Political Art</td>
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<tr>
<td>AHVS 564</td>
<td>1.5</td>
<td>Formerly: HA 564 Seminar in Contemporary Art</td>
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<tr>
<td>AHVS 565</td>
<td>1.5</td>
<td>Formerly: HA 565 Seminar in Contemporary North American Indigenous Arts</td>
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<tr>
<td>AHVS 567</td>
<td>1.5</td>
<td>Formerly: HA 567 Seminar in East Asian Art</td>
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<tr>
<td>AHVS 570</td>
<td>1.5</td>
<td>Formerly: HA 570 Seminar in the Arts of China</td>
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<tr>
<td>AHVS 571</td>
<td>1.5</td>
<td>Formerly: HA 571 Seminar in the Arts of China</td>
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<tr>
<td>AHVS 578</td>
<td>1.5</td>
<td>Formerly: HA 578 Seminar in Theory &amp; Film Culture</td>
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<tr>
<td>AHVS 580</td>
<td>1.5</td>
<td>Formerly: HA 580 Topics in Cultural Resource Management</td>
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<tr>
<td>AHVS 582</td>
<td>1.5</td>
<td>Formerly: HA 582 Seminar in Indigenous Arts</td>
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<tr>
<td>AHVS 584</td>
<td>1.5</td>
<td>Formerly: HA 584 Seminar in Contemporary Art: The Pacific Northwest</td>
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<tr>
<td>AHVS 590</td>
<td>1.5</td>
<td>Formerly: HA 590 Directed Studies MA Level</td>
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<tr>
<td>AHVS 593</td>
<td>1.5</td>
<td>Formerly: HA 593 Seminar on the Williams Collection</td>
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<tr>
<td>AHVS 598</td>
<td>4.5</td>
<td>Research Paper</td>
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<tr>
<td>AHVS 601</td>
<td>1.5</td>
<td>Colloquium in Theories and Practices</td>
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<tr>
<td>AHVS 609</td>
<td>1.5</td>
<td>Workshop in Art Historical Writing</td>
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<tr>
<td>AHVS 690</td>
<td>1.5-6.0</td>
<td>Directed Studies PhD Level</td>
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<td>AHVS 693</td>
<td>3.0</td>
<td>Candidacy Exam</td>
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<td>AHVS 699</td>
<td>30.0</td>
<td>PhD Dissertation</td>
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</tbody>
</table>
ANTH

Anthropology
Department of Anthropology
Faculty of Social Sciences

ANTH 500 Units: 1.5
Seminar in Anthropological Theory
Diverse perspectives in anthropological thought, focusing on epistemological issues, integrative practice among anthropology’s subfields, the collaborative dimensions of anthropological research, and implications for ethically engaged community-based research.
Prerequisite(s): Permission of the program.

ANTH 510H Units: 1.5
Medical Anthropology
Prerequisite(s): Permission of the program.

ANTH 511 Units: 1.5
Formerly: ANTH 501
Advanced Research Seminar in Inequality, Culture and Health
In-depth and critical survey of current issues, topics, theory and method in anthropology, with particular emphasis on inequality and health.
Note: Credit will be granted for only one of ANTH 511, ANTH 501.

ANTH 516 Units: 1.5
Seminar in Anthropological Research Methods
An advanced consideration of the assumptions which lie behind various approaches to conducting research in anthropology.

ANTH 520 Units: 1.5
Specialized Themes in Anthropology
Depending on the student’s interests and the availability of an instructor, studies may be selected in one or more of: ANTH 520A, ANTH 520B, ANTH 520C.
Note: May be taken more than once for credit in different topics with permission of the department.
Prerequisite(s): Permission of the program.

ANTH 520A Units: 1.5
Themes in Socio-cultural Anthropology

ANTH 520B Units: 1.5
Themes in Archaeology

ANTH 520C Units: 1.5
Themes in Biological Anthropology

ANTH 530 Units: 1.5
Ethnology of Selected Areas
Depending on the student’s interests and the availability of an instructor, studies may be selected in a geographic area of the student’s interest.
Note: May be taken more than once for credit in different topics with permission of the department.
Prerequisite(s): Permission of the program.

ANTH 542 Units: 1.5
Archaeology of a Selected Area
Prerequisite(s): Permission of the program.

ANTH 551 Units: 1.5
Formerly: ANTH 550
Advanced Research Seminar in Ecology and Evolution
In-depth and critical surveys of current issues, topics, theory and method in topics related to both human and non-human primate ecology and evolution, including both morphological and behavioural adaptations and evolution.
Note: Credit will be granted for only one of ANTH 550, ANTH 551.

ANTH 552 Units: 1.5
Selected Topics in Biological Anthropology
Depending on the student’s interests and the availability of an instructor, studies may be selected in one or more of: ANTH 552A, ANTH 552D, ANTH 552E.
Prerequisite(s): Permission of the program.

ANTH 552A Units: 1.5
Applied Topics in Osteological Methods
Prerequisite(s): Permission of the program.

ANTH 552B Units: 1.5
Advanced Topics in Biological Anthropology
Prerequisite(s): Permission of the program.

ANTH 557 Units: 1.5
Advanced Research Seminar in Visual Anthropology and Materiality
In-depth and critical survey of current issues, topics, theory and method relating to visual anthropology and materiality in historical and contemporary contexts.

ANTH 558 Units: 1.5
Advanced Research Seminar in Space, Place, Knowledge and Power
Critical survey of contemporary theory and method in anthropology, with specific emphasis on space, place, knowledge, and power. Course content varies at discretion of instructor.

ANTH 590 Units: 1.5-3.0
Directed Studies
Note: Pro Forma required.
Prerequisite(s): Permission of the program.

ANTH 597 Units: 0.0-3.0
Thesis Proposal Development
Offered every term, for MA students who are preparing their thesis proposals. After the proposal is approved, students enrol in 599.
Grading: INP, COM, N, F.

ANTH 598 Units: 0
Comprehensive Examinations
Note: Enrollment restricted to non-thesis MA’s only.
Grading: INP, COM, N, F.

ANTH 599 Units: 7.5
Thesis
Grading: INP, COM, N, F.

ANTH 600 Units: 1.5
Professional Development in Anthropology
Addresses the responsibilities of anthropologists in communicating the results of their work to academia and the public. Topics covered include (but are not limited to): research ethics, grants and contracts, teaching, conference paper presentation and publishing. Required for students in the PhD program in Anthropology, and Interdisciplinary PhD students with Anthropology as one of their disciplines.

ANTH 611 Units: 1.5
Advanced Research Seminar in Inequality, Culture and Health
In-depth and critical survey of current issues, topics, theory and method in anthropology, with particular emphasis on inequality and health.

ANTH 612 Units: 1.0
Graduate Colloquium
A compulsory colloquium for PhD-students in Anthropology that meets weekly from late September until mid-April. Papers are presented by graduate students, faculty, and visiting scholars. PhD-students are required to participate during the two years they are meeting the PhD residency requirement. Participation includes attendance, assistance with the organization of the colloquia and at least one paper presentation by the end of the second academic year of the PhD-student’s program.
Grading: INP, COM, N, F.

ANTH 651 Units: 1.5
Advanced Research Seminar in Ecology and Evolution
In-depth and critical survey of current issues, topics, theory and method in topics related to both human and non-human primate ecology and evolution, including both morphological and behavioural adaptations and evolution.

ANTH 671 Units: 1.5
Advanced Research Seminar in Visual Anthropology and Materiality
In-depth and critical survey of current issues, topics, theory and method relating to visual anthropology and materiality in historical and contemporary contexts.

ANTH 685 Units: 1.5
Advanced Research Seminar in Space, Place, Knowledge and Power
Critical survey of contemporary theory and method in anthropology, with specific emphasis on space, place, knowledge, and power. Course content varies at discretion of instructor.

ANTH 690 Units: 1.5
Specialized Directed Study
Intended to prepare students to participate in and contribute to research and knowledge development in one or more of their particular areas of specialization within the discipline.
PhD students must take any one of the following: ANTH 690A, ANTH 690C, ANTH 690D, ANTH 690E, ANTH 690F.
ANTH 690C - ASTR 505

ANTH 690C  
Specialized Directed Study in Inequality, Culture, Health  
Units: 1.5

ANTH 690D  
Specialized Directed Study in Evolution and Ecology  
Units: 1.5

ANTH 690E  
Specialized Studies in Method and Theory  
Units: 1.5

ANTH 690F  
Specialized Directed Study in Visual Anthropology and Materiality  
Units: 1.5

ANTH 690G  
Specialized Directed Study in Space, Place, Knowledge and Power  
Units: 1.5

ANTH 693  
PhD Candidacy Examinations  
Units: 3.0

Students enroll in ANTH 693 while completing their candidacy requirements. In addition to completing their coursework, PhD students must fulfill the language requirement, pass their comprehensive examinations, and defend their dissertation proposal in order to advance to candidacy.

Grading: INP, COM, N, F.

ANTH 699  
PhD Dissertation  
Units: 20

Prerequisite(s): ANTH 693.

Grading: INP, COM, N, F.

ART 500  
First Year Drawing  
Units: 9.0

ART 501  
Second Year Drawing  
Units: 9.0

ART 511  
First Year Painting  
Units: 9.0

ART 512  
Second Year Painting  
Units: 9.0

ART 521  
First Year Sculpture  
Units: 9.0

ART 522  
Second Year Sculpture  
Units: 9.0

ART 541  
First Year Photography  
Units: 9.0

ART 542  
Second Year Photography  
Units: 9.0

ART 551  
First Year Digital Media  
Units: 9.0

ART 552  
Second Year Digital Media  
Units: 9.0

ART 570  
Directed Study  
Units: 3.0

An independent study course normally taken during the term between the student's first and second year.

ART 580  
First Year Seminar  
Units: 6.0

ART 581  
Second Year Seminar  
Units: 6.0

The graduate seminar meets weekly, serving as a forum for active investigation of contemporary art practices as they pertain to student and faculty research areas. The seminar also serves as an occasional forum for visiting artists and critics. Students are expected to make presentations based on their work and research, to participate actively in discussion and to demonstrate their critical and analytical abilities in dealing with the material presented.

ART 598  
MFA Degree Exhibition  
Units: 0

MFA Degree Exhibition  
This final exhibition will be the major source of evaluation for the student's attainment of the MFA and should be regarded as the equivalent of the scholarly thesis of an academic discipline. The degree exhibition will be evaluated by the student's committee which will submit its decision to the department for approval. Graduating students will speak to their work and answer questions from the examining committee. The committee may ask questions about the cultural, social and theoretical relations apparent in the student's work. Students are required to provide documentation of their graduating exhibition which will be on file in the department. This documentation will take the form of slides, photographs, videotapes or other forms appropriate to the student's production.

Grading: INP, COM, N, F.

ASTR 501  
Stellar Interiors and Evolution  
Units: 1.5

The physics of stars and stellar explosions. Interior structure and evolution including the origin of the elements. Stellar properties as a function of mass and metallicity. Computational simulations of stars and stellar physics processes, such as mixing, and corresponding observables.

ASTR 503  
The Interstellar Medium  
Units: 1.5

Spectral line formation and notation. Processes in the interstellar medium including collisional excitation/ionization, line transfer effects (e.g., resonance and fluorescence), continuum and recombination processes. The theory of photoionized regions. Dust and metals - formation, measurement and chemistry. The application of these physical processes to current research topics, including the composition of the Milky Way and Local Group galaxies and the interstellar media of high redshift galaxies.

ASTR 504  
A Theoretical Perspective on Galaxies  
Units: 1.5

The current theoretical framework for understanding the formation and evolution of galaxies and galaxy systems. Topics may include the origin of the initial density perturbations during inflation, the hierarchical clustering paradigm, the physics driving the evolution of cosmic baryons, and the latest tools used by theorists to study structure formation.

ASTR 505  
An Observational Perspective on Galaxies  
Units: 1.5

The formation and evolution of galaxies from a modern research perspective. Topics may include the observed properties of galaxies, the growth of galaxies from initial conditions, the development of galactic scaling relations, the relationship between galaxies and large-scale structure and the physical evolution of galaxies.
ASTR 506 Units: 1.5
Stellar Populations
The properties of star clusters and their use in improving our understanding of stellar evolutionary theory. The use of star clusters and theoretical stellar models to study the formation of galaxies in the early Universe in addition to the chemical and dynamical evolution of galactic systems.

ASTR 507 Units: 1.5
Stellar Archaeology
The properties of stars and stellar populations in the Milky Way Galaxy. Topics may include stellar chemistry and the analysis of model atmosphere, stellar and cluster kinematics, astronomical instrumentation, and big data surveys.

ASTR 508 Units: 1.5
Cosmology
Modern research problems in cosmology. Topics may include the measurement of cosmological parameters, universal expansion, large-scale structure, big bang nucleosynthesis and the cosmic microwave background.

ASTR 511 Units: 1.5
Advanced Topics in Astronomy
Advanced topics covering research in the fields of extragalactic and stellar astronomy.
Note: May be taken more than once for credit in different topics.

ASTR 512 Units: 1.5
Astronomical Instrumentation
A multi-wavelength overview of astronomical instrumentation. Practical optics and signal processing (e.g., spread functions, resolution, aberrations, sampling, sources of noise, calibrations). Multiwavelength techniques, including interferometry and adaptive optics. Astronomical detectors. Spectroscopy (long and multi-slit, echelle, Fabry-Perot and integral field units). An overview of various observational facilities and ground and space facilities, their design and objectives. Application of theory to practice: designing your own observations and writing telescope proposals.

ASTR 561 Units: 1.5
Student Seminar (MSc)
Seminar participants take turns hosting the meeting, typically by presenting a paper on recent or ongoing astronomical research. This is a continuing course that is taken throughout the MSc program, but credit is not granted until completion of the program.
Grading: INP, COM, N, F.

ASTR 580 Units: 1.0-3.0
Directed Studies
Notes:
• May be taken more than once for credit in different topics.
• Pro Forma required.

BCMB 589 Units: 0.5-1.5
Special Topics in Biochemistry or Microbiology
Instruction in a specific or highly specialized aspect of biochemistry or microbiology not otherwise offered in the department's graduate programs.
Note: May be taken more than once for credit in different topics to a maximum of 1.5 units.

BCMB 602 Units: 0
Journal Club II
Journal club designed to introduce students to relevant biochemical and microbiological research literature. Selected papers will encompass the following research themes: (1) molecular pathogenesis; (2) gene expression and signaling; (3) diagnostics, therapeutics and vaccines; (4) protein chemistry, structure and function; and (5) proteomics.
Prerequisite(s): BCMB 502.
Grading: INP, COM, N, F.

BCMB 693 Units: 3.0
PhD Candidacy Examination
Students enroll in BCMB 693 upon provisional transfer to the BCMB or MICR PhD program and remain enrolled until all candidacy requirements are complete.
Grading: INP, COM, N, F.

BIOL 506B - BIOL 509B
Neurobiology: Molecules to Behaviour
Notes:
• Credit will be granted for only one of BIOL 509B, BIOL 409A, BIOL 367.
• A combined undergraduate and graduate course.
• Please contact instructor for more information.
### BIOL 509D - BIOL 560

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 509D</td>
<td>1.5</td>
<td>Ion Channels: Structure and Function</td>
<td>Electrical signals in neurons are produced by voltage-gated and ligand-gated ion channels. Any disturbance in the function of ion channels can lead to major neurological disorders. This course will allow students to learn the structure and function of some of the major voltage- and ligand-gated ion channels. Mechanisms of ligand binding, gating and ion selectivity will be covered. The structure of the course will be based primarily on critical discussion of research papers.</td>
</tr>
<tr>
<td>BIOL 513</td>
<td>1.5</td>
<td>Developmental Biology</td>
<td>Cellular and molecular mechanisms underlying animal development: fertilization, gastrulation, body axis formation and patterning, formation of the eye, nervous system, neural crest, limb, germ cells and gonads. Emphasis on human developmental disorders, experimental design and hypothesis testing. Notes: Credit will be granted for only one of BIOL 513, BIOL 309. Please contact instructor for more information.</td>
</tr>
<tr>
<td>BIOL 516</td>
<td>1.5</td>
<td>Neuroethology</td>
<td>Examination of the neural basis of behaviour. Insights into the neuronal organization of behaviour through examination of neural solutions that have evolved in animals to solve problems encountered in their particular environments. Examples in individual species will be used to illustrate how neuronal systems integrate information to shape behaviour in a real-world context. Critical evaluation of research papers and seminar presentations based on the primary literature will be emphasized. Notes: Credit will be granted for only one of BIOL 516, BIOL 448. A combined undergraduate and graduate course. Please contact instructor for more information.</td>
</tr>
<tr>
<td>BIOL 521</td>
<td>1.5</td>
<td>Advanced Topics in Marine and/or Freshwater Algae</td>
<td>Phytoplankton eco-physiology, and connections between phytoplankton physiology and broad oceanographic issues, such as the dynamics of nutrient cycling, carbon export, paleoceanographic proxies, ocean warming and marine ecosystem changes.</td>
</tr>
<tr>
<td>BIOL 522</td>
<td>1.5</td>
<td>Sensory Biology</td>
<td>Cellular and molecular mechanisms underlying sensory systems: sensory receptor coding logic, signal transduction, neuronal circuitry, developmental biology, comparative analysis of model organisms, related clinical disorders and therapeutic strategies. Focus placed on recent advances in the primary literature and on promoting skills for developing hypotheses and designing experiments. Notes: Credit will be granted for only one of BIOL 522, BIOL 404. A combined undergraduate and graduate course. Please contact instructor for more information.</td>
</tr>
<tr>
<td>BIOL 535</td>
<td>1.5</td>
<td>Molecular Epidemiology</td>
<td>Basic principles and applications of molecular epidemiology in epidemiological research on infectious and chronic diseases as well as risk factors in human populations. An overview of terminology and definitions, the use of statistics, and ethical consideration. Notes: Credit will be granted for only one of BIOL 540, BIOL 439. A combined undergraduate and graduate course. Please contact instructor for more information.</td>
</tr>
<tr>
<td>BIOL 536</td>
<td>1.5</td>
<td>Molecular Evolution</td>
<td>Using population genetic and evolutionary principles to understand how and why genes and genomes change, and to reconstruct the evolutionary history of genes, genomes, and organisms. Notes: Credit will be granted for only one of BIOL 544, BIOL 435. A combined undergraduate and graduate course. Please contact instructor for more information.</td>
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</table>

### BIOL 550 - BIOL 550E

<table>
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<tr>
<th>Course Code</th>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>BIOL 550</td>
<td>1.0-6.0</td>
<td>Directed Studies</td>
<td>Notes: May be taken more than once in any of the below areas under the appropriate faculty member. Pro Forma required.</td>
</tr>
<tr>
<td>BIOL 550A</td>
<td>1.0-6.0</td>
<td>Evolution</td>
<td>Notes: May be taken more than once for credit in different topics with permission of the department. Pro Forma required.</td>
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<tr>
<td>BIOL 550B</td>
<td>1.0-6.0</td>
<td>Ecology</td>
<td>Notes: May be taken more than once for credit in different topics with permission of the department. Pro Forma required.</td>
</tr>
<tr>
<td>BIOL 550C</td>
<td>1.0-6.0</td>
<td>Physiology</td>
<td>Notes: May be taken more than once for credit in different topics with permission of the department. Pro Forma required.</td>
</tr>
<tr>
<td>BIOL 550D</td>
<td>1.0-6.0</td>
<td>Cell Biology</td>
<td>Notes: May be taken more than once for credit in different topics with permission of the department. Pro Forma required.</td>
</tr>
<tr>
<td>BIOL 550E</td>
<td>1.0-6.0</td>
<td>Molecular Biology</td>
<td>Notes: May be taken more than once for credit in different topics with permission of the department. Pro Forma required.</td>
</tr>
<tr>
<td>BIOL 555</td>
<td>1.0-6.0</td>
<td>Paleocology and Environmental Change</td>
<td>Fundamental principles of paleocology with emphasis on species, community and ecosystem responses to environmental change over the past 2 million years. Topics include: using fossil remains to infer ecological dynamics and climate change since the last glaciation; ice age megafaunal extinctions; role of paleocology in conservation. Notes: Credit will be granted for only one of BIOL 557, BIOL 457, BIOL 550B (if taken in the same topic). A combined undergraduate and graduate course.</td>
</tr>
<tr>
<td>BIOL 560</td>
<td>1.0</td>
<td>Annual Biology Graduate Symposium</td>
<td>Required of all graduate students every year of their degree program except by permission of the department. Shall be treated, in its grading, as the thesis or the dissertation and shall be given one unit of credit upon completion. Grading: INP, COM, N, F.</td>
</tr>
</tbody>
</table>
INTRODUCTION TO ISSUES IN RESEARCH ETHICS AND PROFESSIONALISM

PhD Dissertation

The candidacy examination must be held within 21 months of requirement completion. Students transferring from the MSc to the PhD program must complete the exam within 18 months from their entry into the program. Students must complete the exam within 21 months from their entry into the PhD program. Students transferring from the MSc to the PhD program must complete the exam within 18 months from their entry into the PhD program. Students transferring from the MSc to the PhD program must complete the exam within 18 months from their entry into the PhD program.

BIOLOGY WORKSHOP

Advanced workshops providing intensive theoretical and practical training in thematic areas of biology. Workshops are designed to provide the tools for experimental design to address biological questions at all levels from the genome to the whole organism.

Notes:
- May be taken more than once for credit in different topics.
- Pro Forma required.

BUSINESS

International Management and Organization
Peter B. Gustavson School of Business

Research Foundations
Builds a strong foundation for PhD studies in the field of international management and organization. Covers what the academy is and the academy's role in the Academy as well as in the greater societal context, the role of the academy with respect to international business practice, philosophy of science with respect to the management literature, the historical development of the management literature, what constitutes good management research.

Strategy
Examines the current state of knowledge in strategic management. Topics may include the sources of competitive advantage, the role of industry evolution and technology, the organization of top management, and managerial decision-making and cognition. Introduces alternative theoretical perspectives and available empirical evidence related to these topics.

Business and Sustainability
Changing societal and ecological dynamics, from global to local levels, are rapidly shaping new landscapes for the management of organizations - affecting their institutional contexts, interactions with an expanding range of stakeholders, strategic priorities and operational realities. Rethinking the role of business in society has added new concepts to organization theory, including corporate social responsibility, ecological sustainability and resilience, triple-bottom line management, natural capital, shared or sustainable value creation and social entrepreneurship.

Comparative Human Resource Management
Focuses on human resource management (HRM) practices and outcomes in international organizations, as well as identifies causal factors accounting for differences across nations in HRM structures, practices and outcomes.

Micro Organizational Behaviour
Focuses on the behaviour of individuals and groups in organizations. Introduces several key topics in the field and aims for a critical analysis of each topic to develop a framework for understanding the breadth and depth of the research done to date in each topic and to identify the gaps in the literature. Covers the major theories and empirical research, including conceptual and methodological issues.

Macro Organizational Theory
Introduces the major schools of thought in organization and management theory. Considers the development of the field, major and foundational works in these schools of thought, and provides a cognitive map with which to evaluate contemporary research and debates. Provides understanding of the strengths and weaknesses of each major perspective.

BUSINESS ADMINISTRATION

Research Methods Fundamentals
Builds methodological foundation for organizational research and provides an overview of a broad range of research methodologies for organizational research. Topics include an overview of quantitative and qualitative research methods, theory building process, reliability and validity, mediation and moderation, survey research design, and a brief introduction to Structural Equation Modeling and Experimental Design.

Mixed-Methods Research Design
Provides a conceptual and practical understanding of combining traditional qualitative research methods with ethnographic, qualitative and other non-traditional research methodologies to advance theory in management research. Develops skills in evaluating the appropriateness of the research design to the research question, the adequacy of the methodology and evidence used to support claims made, and the persuasiveness of the arguments.

Selected Topics in Research Methods and Analysis
Course content will reflect faculty members' research expertise and current Management research methodologies. Topics may include advanced statistical techniques and research methodologies. The content, credit value and method of evaluation must be approved by the PhD Program Director.

Grading:
- May be taken more than once for credit in different topics to a maximum of 9 units.

Global Management and Society I
Provides an overview of international business and management with special emphasis on the environmental and societal impact of global organizations over two semesters. Covers a team-taught, integrative survey of selected topics introducing students to a variety of theoretical and disciplinary perspectives laying down a strong foundation for understanding today's complex global organizational realities.

Global Management and Society II
Further develops topics covered in BUS 655.

Grading:
- IND, COM, N, F.

Academic Career Development
Provides a holistic viewpoint on the life and work of a management professor towards a fulfilling academic career. Focuses on professional development skills and understandings, including research, teaching, presenting, and being a positive contributing member of the academy.

Grading:
- IND, COM, N, F.

Teacher Training
Under guidance of a senior faculty member, PhD students will participate in training as teachers.

Grading:
- IND, COM, N, F.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 688</td>
<td>0</td>
<td>International Fellowship Outgoing</td>
<td>Students register in this course while participating in an international residency with a university outside of Canada. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 689</td>
<td>1.5-4.5</td>
<td>International Fellowship Incoming</td>
<td>Students register in this course while participating in an international residency from a university outside of Canada. <strong>Note:</strong> May be taken more than once for credit in different topics. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 690</td>
<td>1.5-4.5</td>
<td>Directed Studies for Business PhD Program</td>
<td>The content, credit value and method of evaluation must be approved by the PhD Program Director as well as the instructor offering the area of individual study prior to registration. <strong>Notes:</strong> May be taken more than once for credit in different topics. Pro Forma required. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 693</td>
<td>3.0</td>
<td>Doctoral Candidacy Exam</td>
<td>PhD students write a Candidacy Exam made up of three components including two written content exams on core subject material and a critical review of an empirical research manuscript. These written responses will be combined with an oral examination to assess whether the student has reached a sufficient level of expertise to allow him or her to proceed to the next stage of the program. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 694</td>
<td>0</td>
<td>Dissertation Proposal Defence</td>
<td><strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 695</td>
<td>0.5-4.5</td>
<td>Special Topics in Business Administration</td>
<td>The content, credit value and method of evaluation must be approved by the PhD Program Director. <strong>Note:</strong> May be taken more than once for credit in different topics to a maximum of 20 units. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>BUS 699</td>
<td>15</td>
<td>PhD Dissertation</td>
<td><strong>Prerequisite(s):</strong> BUS 693. <strong>Grading:</strong> INP, COM, N, F.</td>
</tr>
<tr>
<td>CD 501</td>
<td>1.5</td>
<td>Anchoring a Change Agenda: Foundations</td>
<td>Grounds students in a solid understanding of the multiple historical, theoretical and conceptual frameworks of the role of civil society and the social economy in advancing progressive economic, political and social change, including the economics of social justice. The powerful intersection of theory and practice will be examined and critically assessed in the context of the capacity of co-operatives, non-profits and community development organizations to respond to key contemporary societal issues, global trends, and to consider implications for the future. <strong>Prerequisite(s):</strong> Admission to MA program in Community Development; permission of the program.</td>
</tr>
<tr>
<td>CD 504</td>
<td>1.5</td>
<td>Practices and Perspectives on Forging Change</td>
<td>The ideologies, assumptions, and practices of diverse models of change that engage citizens, organizational and institutional stakeholders for social benefit will be explored. Introduces a range of models, their strengths, limits and applications with particular focus on governance, power, influence and socioeconomic innovation. Challenges students to analyze and assess the relevance and value to their fields of interest, whether community economic development, co-operatives or non-profits. Uses a range of readings, case studies and practice experience drawing upon Canadian and international settings.</td>
</tr>
<tr>
<td>CD 505</td>
<td>1.5</td>
<td>Community-Based Research: Foundations</td>
<td>Explores the values, goals and assumptions of community-based research and its methodologies. Participatory action research methods and lessons learned from best practices will be introduced. Students will experience a variety of approaches and develop the capacity to evaluate appropriate methods and their application for practice settings. This course will help shape the student's major project.</td>
</tr>
<tr>
<td>CD 506</td>
<td>1.5</td>
<td>Enterprise Development for Community Benefit</td>
<td>Analyzes the strategy, models and processes of planning and decision making for developing enterprises that link social and economic benefit to the community. Students will develop a clear understanding of key concepts within financial, information and community technologies, leadership and community capacity building elements that accompany organizational and community enterprise development. Stream-specific readings and practices will complement the core content.</td>
</tr>
<tr>
<td>CD 509</td>
<td>1.5</td>
<td>Developing Capacities to Lead and Manage in the Non-Profit Sector</td>
<td>Focuses on developing the capacities of strategic planning, strategy and program management, resource generation, financial and human resource management, performance, information and communication technology, communications management, and ensuring accountability to multiple stakeholders. Students will develop an in-depth understanding of leading edge management frameworks and examine their relevance to leading and managing in the community sector.</td>
</tr>
<tr>
<td>CD 510</td>
<td>1.5</td>
<td>Leadership, Management and Governance within Organizations</td>
<td>Develops the competencies required to effectively lead and manage organizations from the ‘inside’, focusing on leadership capacities, human resources (staff, boards and volunteers), governance, internal and external stakeholder relations. Through a blend of theory, practice and experiential simulations, students will integrate their learning as well as appreciate the unique dimensions of co-operatives, social enterprises and non-profit organizations. <strong>Prerequisite(s):</strong> Admission to MA program in Community Development; permission of the program.</td>
</tr>
<tr>
<td>CD 512</td>
<td>1.5</td>
<td>Program and Project Design, Management and Evaluation</td>
<td>Examines the various perspectives and approaches to program and project design, management and evaluation. Highlights the analytical activities and decisions involved in effective design, planning, implementation, reporting, and evaluation focusing on innovative and practical tools and processes that ensure effective outcomes and accountability. Attention will be paid to managing the complexity of multiple and collaborative projects and programs.</td>
</tr>
<tr>
<td>CD 518</td>
<td>1.5</td>
<td>Citizen Participation and Democratic Governance</td>
<td>Introduces students to concepts of citizenship, democracy and governance and addresses different histories and forms of democracy. The meanings of citizenship and its relationship to identity, engagement and participation are discussed. Explores different models of governance and reviews governance practices and structures at multiple levels in different jurisdictions. Also investigates the role of accountability in democratic governance, including forms and techniques of accountability.</td>
</tr>
<tr>
<td>CD 522</td>
<td>1.5</td>
<td>Understanding and Mainstreaming Gender</td>
<td>Considers a range of conceptual and practical issues faced in the quest for a gender-just society. Topics include: definition and understanding of gender, gender based violence, gender in institutions as well as the creation of gender-sensitive environments. Course material and online discussions encourage critical analysis of diverse contemporary debates and perspectives. Also includes exercises and questions to stimulate critical thinking and reflection upon gender attitudes and perceptions.</td>
</tr>
</tbody>
</table>

**Note:** The content, credit value and method of evaluation must be approved by the PhD Program Director as well as the instructor offering the area of individual study prior to registration. **Grading:** INP, COM, N, F.
### CD 524 - CH 571

#### CD 524  
**Leadership and Organizational Development for Communities**
Explains leadership beliefs, values, and attitudes, and analyzes perspectives in shaping leadership in civil society, community development and the social economy. Introduces management, assessment, concepts and tools for developing strategic priorities and planning frameworks for organizations and communities. Includes scenario based exercises set in a variety of practice contexts relevant to students’ experience and systems. 

**Prerequisite(s):**  
- Admission to MA program in Community Development;  
- permission of the program.

#### CH 562

**Curatorial Planning and Practice**
Considers how traditional concepts of curatorial have shifted significantly in the face of more democratic relations with community, more subjective perspectives of knowledge, and increasing emphasis on the museum’s social and educative roles. Explores the nature and scope of contemporary critical curatorial theory and practice and focuses on the ways in which curators engage with cultural heritage resources, develop sustainable collections, and generate and share associated knowledge to meet the needs of diverse communities. 

**Notes:**  
- Credit will be granted for only one of CH 562, AHVS 488X.  
- A combined undergraduate and graduate course.

#### CH 563

**Visitor Experiences**
Explores the evolving concept and implications of an holistic approach to visitor engagement in museums and other cultural heritage institutions, and focuses on museums’ relationships with their publics, their capacity to serve as social spaces, strategies for audience research, the characteristics of visitors, communications, exhibitions, formal and informal learning activities, and evaluation strategies. 

**Notes:**  
- Credit will be granted for only one of CH 563, AHVS 488Y.  
- A combined undergraduate and graduate course.

#### CH 570

**Heritage Conservation In Context**
Addresses the complex range of principles and practices that influence heritage preservation and conservation planning and decision-making. The implications of international and national charters, principles, standards and guidelines, are discussed, along with legal, programmatic and financial incentives and constraints. 

**Notes:**  
- Credit will only be granted for one of CH 570, AHVS 489K, HA 489K.  
- A combined undergraduate and graduate course.

#### CH 571

**Determining Significance of Heritage Resources**
Focuses on the definition of the heritage value or significance of a historic place or resource as a key step in the management of cultural heritage resources. It explores the range of historical aesthetic, social and scientific values that establish the character-defining elements of historic resources, including buildings, structures, historic districts and cultural landscapes. Various methods of inventory and evaluation are discussed along with their roles in guiding subsequent conservation planning and decision-making.

**Notes:**  
- Credit will only be granted for one of CH 571, AHVS 489C, HA 489C.  
- A combined undergraduate and graduate course.

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### CD 524

**Units: 1.5**

**Leadership and Organizational Development for Communities**
Explore leadership beliefs, values, and attitudes, and analyzes perspectives in shaping leadership in civil society, community development, and the social economy. Introduces management, assessment, concepts and tools for developing strategic priorities and planning frameworks for organizations and communities. Includes scenario based exercises set in a variety of practice contexts relevant to students’ experience and systems. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

**Prerequisite(s):**  
- Admission to MA program in Community Development;  
- permission of the program.

**CD 525**

**Units: 1.5**

**Managing Organizations, Systems and Community Transformations**
Develops key competencies for personal, group, organizational and community leadership in: teamwork, facilitation, presentation skills, negotiation, conflict resolution, group dynamics, and collaboration. Examines systemic factors that encourage or challenge innovation. Analysis of cases that demonstrate successful scaling, practices or particular innovations. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

**CD 526**

**Units: 1.5**

**Agenda for Social Change: Moving Forward**
Surveys the key leverage points for exercising strategic leadership for addressing key trends at the local and regional level. Exemplary practice and understanding of key policy innovations are drawn from local and international sources. Provides an opportunity for students to engage in generative dialogue to explore learning that strategically advances civil society, social economy and strengthens communities. Understanding local and international key policy innovations are linked with the formulation of recommendations for action for moving forward. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

**Prerequisite(s):**  
- Admission to MA program in Community Development;  
- permission of the program.

**CD 590**

**Units: 1.5**

**Directed Studies**
An international or local exchange, a study tour, self-directed reading, or an innovative personal learning design. Must be applicable to the field of study. Primary consideration will be given to its role and relevance in deepening skills and knowledge to strengthen the capacity of the student to provide leadership in the future. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

**Prerequisite(s):**  
- Admission to MA program in Community Development;  
- permission of the program.

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### CD 591

**Units: 1.5**

**Selected Topics Course**
A study of selected topics drawn from the current literature and practices in the social economy or related fields. 

**Note:**  
- May be taken more than once for credit in different topics with permission of the faculty.

**CD 596**

**Units: 4.5**

**Group Project**
A substantial analysis of a management, policy or program problem in the community development sector, which may be done for a client. The Group Project is prepared under the supervision of a faculty member in the School of Public Administration and must be both practical and academically rigorous. A written project report is defended in an oral examination. 

**Grading:**  
- INP, COM, N, F.

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### CD 598

**Units: 4.5**

**Master’s Project**
A substantial analysis of a management, policy or program problem in the community development sector, which may be done for a client. The Master’s Project is prepared under the supervision of a faculty member in the School of Public Administration and must be both practical and academically rigorous. A written project report is defended in an oral examination. 

**Grading:**  
- INP, COM, N, F.

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### CH

#### Cultural Heritage Management

**Department of Art History and Visual Studies and Division of Continuing Studies**

**Faculty of Fine Arts**
All Cultural Heritage Management courses are subject to differential fees; Consult Fees for Graduate Programs.

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#### CH 560

**Units: 1.5**

**Cultural Heritage Stewardship and Sustainability**
Explores cultural heritage in all its diverse forms, along with the critical roles it plays in defining, reinforcing and contributing to a sustainable world. Discusses the scope and meaning of cultural heritage in contemporary society, and analyzes how diverse approaches to the conservation, access to and management of cultural heritage are continuing to evolve in response to philosophical changes and social, economic, cultural and environmental needs. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

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#### CH 561

**Units: 1.5**

**Social Engagement**
Explores the profound social changes that are reshaping the nature and purposes of museums and other cultural heritage organizations in a pluralistic society. Considers the implications for all aspects of their specialized functions with a particular focus on how such organizations serve as dynamic social spaces for community engagement and action. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

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#### CH 590

**Units: 1.5**

**Directed Studies**
An international or local exchange, a study tour, self-directed reading, or an innovative personal learning design. Must be applicable to the field of study. Primary consideration will be given to its role and relevance in deepening skills and knowledge to strengthen the capacity of the student to provide leadership in the future. 

**Notes:**  
- May be taken more than once for credit in different topics with permission of the faculty.

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#### CH 591

**Units: 1.5**

**Selected Topics Course**
A study of selected topics drawn from the current literature and practices in the social economy or related fields. 

**Note:**  
- May be taken more than once for credit in different topics with permission of the faculty.

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#### CH 596

**Units: 4.5**

**Group Project**
A substantial analysis of a management, policy or program problem in the community development sector, which may be done for a client. The Group Project is prepared under the supervision of a faculty member in the School of Public Administration and must be both practical and academically rigorous. A written project report is defended in an oral examination. 

**Grading:**  
- INP, COM, N, F.

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#### CH 598

**Units: 4.5**

**Master’s Project**
A substantial analysis of a management, policy or program problem in the community development sector, which may be done for a client. The Master’s Project is prepared under the supervision of a faculty member in the School of Public Administration and must be both practical and academically rigorous. A written project report is defended in an oral examination. 

**Grading:**  
- INP, COM, N, F.
CH 572  
Units: 1.5  
Heritage Conservation Planning  
Focuses on approaches to planning and heritage conservation decision-making, and discusses the components of the heritage conservation planning process, including alignment with local and regional planning priorities, community involvement and consultation, the acquisition and integration of technical and regulatory information and professional expertise, and the integration of planning in the long-term management of heritage resources.  
Notes:  
- Credit will only be granted for one of CH 572, AHVS 489L, HA 489L.  
- A combined undergraduate and graduate course.

CH 588  
Units: 1.5  
Special Studies in Museum Studies  
May be taken in conjunction with a Cultural Resource Management course in the AHVS 488 series with permission of the Program Adviser.  
Note: This course may be taken more than once for credit in different topic areas.  
Prerequisite(s): Permission of the program.

CH 589  
Units: 1.5  
Special Studies in Heritage Conservation  
May be taken in conjunction with a Cultural Resource Management course in the AHVS 489 series with permission of the Program Adviser.  
Note: This course may be taken more than once for credit in different topic areas.  
Prerequisite(s): Permission of the program.

CH 591  
Units: 1.5  
Practicum in Cultural Heritage  
A placement in a cultural heritage setting, designed to build knowledge and skills in a specialized area of practice.  
Grading: INP, COM, F, N.

CHEM 509  
Units: 1.0  
Seminar  
Grading: INP, COM, N, F.

CHEM 511  
Units: 1.5  
Topics in Instrumental Analysis

CHEM 521  
Units: 1.5  
Advanced Inorganic Chemistry  
Advanced topics in inorganic chemistry from across the periodic table, building on principles established in 222, 324 and 353. Topics may include: main group organometallics, coordination chemistry, reactivity, catalysis, inorganic polymers, zeolites, fullerenes, metal-metal and metal-ligand multiple bonding, bioinorganic chemistry, metal clusters, or chemistry of the lanthanides and actinides.  
Note: Credit will be granted for only one of CHEM 251, CHEM 524, CHEM 526 (if taken in the same topic).

CHEM 523  
Units: 1.5  
Organometallic Chemistry

CHEM 526  
Units: 1.5  
Topics in Advanced Inorganic Chemistry  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CHEM 533  
Units: 1.5  
Organic Synthesis

CHEM 537  
Units: 1.5  
Biological and Medicinal Chemistry  
An introduction to medicinally important biological systems and the small molecules that perturb them. Topics will include: chemical aspects of proteomics, biological target identification, mechanisms of action for important drugs, lead identification and development, and enzyme inhibitor design.

CHEM 555  
Units: 1.5  
Statistical Thermodynamics

CHEM 556  
Units: 1.5  
Topics in Advanced Physical Chemistry  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CHEM 560  
Units: 0.5  
Research Tools and Special Topics  
This course will be offered as multiple 0.5-unit modules that count as graduate lecture courses for the purposes of Chemistry graduate program requirements. Consult the course coordinator for offerings in a particular year.  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CHEM 590  
Units: 0.5-3.0  
Directed Studies  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CHEM 599  
Units: 15.0  
MSc Thesis  
Grading: INP, COM, N, F.

CHEM 633  
Units: 1.5  
Topics in Advanced Organic Chemistry  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CHEM 647  
Units: 1.5  
Materials Science

CHEM 670  
Units: 1.5  
Property-Directed Synthesis Discussion  
Note: May be taken more than once for credit in different topics.

CHEM 676  
Units: 1.5  
Polymer Science

CHEM 680  
Units: 1.5  
Reactivity, Dynamics and Spectroscopy Discussion  
Note: May be taken more than once for credit in different topics.

CHEM 693  
Units: 3.0  
PhD Candidacy Examination  
Students enrol in 693 concurrently with 699 until 693 is entered. If the candidacy examination cannot be completed until the following term, an INP (in progress) grade will be entered.  
Grading: INP, COM, N, F.

CHEM 699  
Units: 37.5-39.0  
PhD Dissertation  
Pre- or Corequisite(s): CHEM 693.  
Grading: INP, COM, N, F.

CIVE 510  
Units: 1.5  
Industrial Metabolism  
Methods of material and substance flow analysis in the context of technology and environmental change. Topics include: evolution of technology, environmental footprints, impacts and boundaries, industrial / societal use of dominant elements and compounds; critical metals; resource decoupling; transformation of global infrastructure systems.

CIVE 511  
Units: 1.5  
Methods in Life Cycle Assessment  
A variety of methods and applications of life cycle assessment (LCA) including process-based methods and input-output (IO) techniques. Topics include: consequential and attributional LCA; streamlined LCA; life cycle sustainability assessment; environmentally extended IO analysis; multi-regional and multi-scale IO analysis; applications of environmental LCA in product design and policy.
CIVE 512 - Industrial Symbiosits and Recycling
Reducing costs, adding value and improving the environment through the sharing of services, utility, and by-products between industries. The historical development and future prospects of industrial symbiosits at the eco-park, municipal and regional scales. Advances in waste management, recycling technologies and limits to the circular economy.

CIVE 513 - Sustainable Cities
Urban metabolism and sustainable infrastructure development. Design of the built environment based on energy and material flows through cities. Sustainable transportation, green buildings, urban climatology, vegetation, water systems and energy supply in urban neighbourhood designs. Measuring urban metabolism to account for greenhouse gas emissions and other environmental impacts of cities.

CIVE 540 - Uncertainty in Water Resources
Basic and advanced methods in uncertainty analysis in water resources modelling. Bayesian statistics, fuzzy sets and fuzzy numbers are used with applications to water resources. Typical methods used in physically-based modelling including GLUE.

CIVE 541 - Hydrologic Modeling
Analytical, numerical, statistical and physical approaches from local to global scales including surface water-groundwater interactions; analysis and prediction; discuss different approximations of hydrologic process equations and limitations and uncertainty associated with different process representations.

CIVE 542 - Environmental Modeling
Basic and advanced methods in spatial statistics for point, area and continuous variables. All the levels (from visual to analytical) of possible spatial analysis techniques for each type of variable and applications in environmental modelling are used to illustrate the concepts.

CIVE 545 - Groundwater Hydrology

CIVE 546 - Urban Water Systems
The planning and management of urban water systems; handling of wastewaters; drainage and flood prevention; urban agriculture and nutrient recycling; and recreational water uses. All elements of urban water infrastructure from water source, pumping, storage, transmission and distribution, to the hydraulics and network design of sewerage and drainage. Maintenance and repair of pipe networks, adaptation to climate change and sustainable approaches such as low impact development, grey-water systems, rainwater harvesting.

CIVE 547 - Water Treatment Processes
Theory and application of physical, chemical and biological processes for the treatment of water and wastewater. Topics include sedimentation, coagulation, filtration, and disinfection, activated sludge, biological nutrient removal, and anaerobic processes for waste treatment. Lecture material is supported by laboratory experiments.

CIVE 550 - Green Building Design
Definition of green building, design and construction concepts, site selection, materials and origin, water resource, energy use and generation, retrofit and recycling, indoor environment, occupant behaviour, durability, life cycle analysis, net-zero buildings, green building rating systems.

CIVE 551 - Advanced Building Science
Scope and definition: heat-air-moisture transport mechanisms, hygrothermal properties, test methods, climate characterization, moisture management, durability index, energy efficient building envelopes, whole building energy performance, application of numerical simulation tools, forensic investigations.

CIVE 552 - Sustainable Construction
Sustainability in urban and remote communities, case studies to highlight some of the recent trends in sustainable construction in North America and around the globe. Topics for case studies will include (but not limited to): light gauge steel technology for mass construction, insulated stay-in-place formwork technology for mass construction, shotcrete, precast and prestressed construction, and rammed earth construction. Will also include an introduction to use of BIM for managing construction projects.

CIVE 553 - Advanced Mechanics of Materials
This mechanics of materials course covers advanced topics including beams on elastic foundations, unsymmetrical bending, curved beams, shear flow and torsion in closed and open sections, elastic stability and shells of revolution.

CIVE 556 - Advanced Concrete Technology
Microstructure of hydration products and its effect on properties of concrete. Mechanisms and interaction of chemical admixtures and industrial wastes to produce sustainable and durable concrete. Evaluation of fresh and hardened properties of conventional and cement-based composites. Will include a project component focusing on specialized concretes not limited to fiber reinforced concrete, self-consolidating concrete, high strength concrete, light weight concrete, and carbon negative concrete. Note: Credit will only be granted for one of CIVE 456, or CIVE 556.

CIVE 557 - Behaviour and Design of Steel Structures
The behaviour and design of trusses, frames, members and connections in steel building and bridge structures. Ultimate strength, stability, and postbuckling are emphasized in topical examples including plate girders, composite steel/concrete girders, second-order frame behaviour, high-strength bolted and welded framing connections. Special topics including concrete filling, fire protection and plastic analysis of hollow structural section connections are also covered. Canadian design standards and the Limit States Design concepts are used.

CIVE 560 - Urban Transportation Planning
The full suite of skills required in urban transportation planning including travel demand modelling, analysis of transportation land-use interactions, quantification of social and environmental impacts, and project evaluation in the context of broader planning issues and policies. Focus is primarily given to passenger transportation, including walking and cycling, with introduction to freight transport. Theoretical foundations of disaggregate choice models and other techniques in travel demand modeling are introduced.

CIVE 561 - Urban Transit
Focuses on the planning and operation of public transit systems, covering the hierarchy of modes from buses and bus-rapid transit through streetcars and light-rail to subways and heavy rail. Topics include: factors affecting transit performance and demand; design of networks and node interchanges; station design; vehicle operations and scheduling, design of transit priority; use of information technology and other innovations in transit planning; project evaluation.

CIVE 580 - Selected Topics
Note: May be taken more than once for credit in different topics.

CIVE 590 - Directed Studies
A wide range of topics will be available. Note: Pro Forma required.

CIVE 595 - Sustainability Seminars I
Definitions, practices and approaches to sustainability in local to global civil engineering problems with a focus on case studies and integration across diverse disciplines in this seminar-based class. The specific topics change annually and the course is team-taught by several Civil Engineering faculty members.

CIVE 599 - MAsc Thesis
Grading: INP, COM, N, F.

CIVE 601 - Research Methods
The laboratory, numerical and analytical methodologies of the various Civil Engineering research groups.
**CIVE 693**  
**Candidacy Examination**  
Units: 3.0  
Grading: INP, COM, N, F.

**CIVE 695**  
**Sustainability Seminars II**  
Definitions, practices and approaches to sustainability in local to global civil engineering problems with a focus on case studies and integration across diverse disciplines in this seminar-based class. The specific topics change annually and the course is team-taught by several civil engineering faculty members.  
Grading: INP, COM, N, F.

**CIVE 699**  
**PhD Dissertation**  
Prerequisite(s): CIVE 693  
Grading: INP, COM, N, F.

**CSC**  
**Computer Science**  
**Department of Computer Science**  
**Faculty of Engineering**

**CSC 505**  
**Computer Graphics**  
Provides students with a solid background in interactive, generative graphics techniques and hands-on experience programming a modern high resolution, raster display workstation. Covers the hardware and software structures of modern workstations, raster algorithms and data structures (Bresenham’s line and circle algorithms, polygon clipping, region filling, colour), transformations (two- and three-dimensional translation, scaling, and rotation as matrix operations), viewing and representation of three-dimensional shapes, approximation of curves and shapes, hidden line and hidden surface elimination algorithms.

**CSC 510**  
**Advanced Human-Computer Interaction**  
Topics of design methodologies, evaluation methodologies (both lab and field studies), human information processing, human movement, cognition, and perception are studied. Introduces students to research methods in HCI, and includes research topics such as: groupware and computer-supported co-operative work; customizable and adaptive systems; small screen, large screen, and tabletop displays; hypertext and multimedia; and virtual and augmented reality.

**CSC 511**  
**Information Visualization**  
An introduction to visualization, or the use of interactive visual representations of data to support human cognition. Principles of visualization design are presented from a human perceptual and cognitive standpoint. Topics include: design, interaction, perception and cognition, evaluation and applications.

**CSC 520**  
**Analysis of Algorithms**  
General techniques for designing and analyzing algorithms; an in-depth examination of several problems and algorithms with respect to their time and space requirements; advanced data structures; sorting and searching; graph algorithms; geometric algorithms; backtracking; NP complete problems; approximation algorithms.

**CSC 522**  
**Graph Algorithms**  
Detailed study, from the algorithmic point of view, of some tractable and intractable graph problems. Some tractable problems are path problems, spanning trees, network flows, matchings, and planarity testing. Some intractable problems are clique, independent set, vertex cover, Hamiltonian cycle, and colouring problem. Various strategies for handling intractable problems are presented including intelligent backtracking, distributed and parallel computing, parameterized complexity, restrictions to graph sub-classes, randomized and approximation algorithms.

**CSC 523**  
**Randomized Algorithms**  
Basic techniques in design and analysis of randomized algorithms: moments and deviations, Markov chains and random walks, martingales, and algebraic techniques. Other topics include: the probabilistic method, random structures and complexity. Algorithms are selected from: parallel algorithm, routing networks, combinatorial optimization, data structure, approximate solutions to intractable problems, cryptography, pattern matching, and computational geometry.

**CSC 524**  
**Computational Complexity**  
Elements of the theory of computational complexity. Topics covered include: the distinction between tractable and intractable problems; definition of computational models and complexity classes; techniques for comparing the complexity of problems; the classes P and NP, completeness; auxiliary pushdown automata; alternating Turing machines; the polynomial time hierarchy; the classes Polynomial Space and Logarithm Space; probabilistic complexity classes; models of parallel computation; randomized computation.

**CSC 525**  
**Computational Biology Algorithms**  
The design, analysis and implementation of algorithms used in Computational Biology. Typical topics include algorithms for sequence alignment, database searching, gene finding, phylogeny and structure analysis.

**CSC 526**  
**Computational Geometry**  
An introduction to algorithms and data structures which are used to solve geometrical problems. Topics include geometric searching, convex polygons and hulls, Voronoi diagrams, plane sweep algorithms, proximity and intersections. Application areas discussed include computer graphics, VLSI design and graph theory.

**CSC 528**  
**Combinatorial Algorithms**  
Focuses on the interfaces between combinatorics and Computer Science. Algorithms and data structures that are used to manipulate, generate, and randomly select combinatorial objects are studied. Such objects include sets, permutations, combinations, trees, graphs. Methods for analyzing combinatorial algorithms such as recurrence relations, asymptotics, and amortized complexity are presented.

**CSC 529**  
**Cryptography**  
Paradigms and principles of modern cryptography. Topics include: review of classical and information-theoretic cryptography, block ciphers, DES, Cryptanalysis of DES, modes of operation, AES, Cryptographic hash functions and message authentication codes; public key cryptography, RSA, ElGamal and other public key systems, signature schemes; introduction to security protocols; secret sharing schemes and zero knowledge techniques.

**CSC 535**  
**Compiler Construction**  
An introduction to important topics in the design and implementation of a compiler for a modern programming language such as Java. Topics include parsing, syntax directed translation, intermediate code representation, static single assignment form, dataflow analysis, simple optimizations, and code generation for a simple architecture.

**CSC 540**  
**Numerical Analysis I**  
Numerical Linear algebra. Topics include: Gaussian elimination and its variants; sparse positive definite linear systems; sensitivity of linear systems; condition and stability; orthogonal matrices and least squares; eigenvalues and eigenvectors; the QR algorithm; the singular value decomposition.

**CSC 545**  
**Operations Research I**  
Linear programming and its applications. Topics discussed include the following: the simplex method; the revised simplex method; computer implementation of linear programming, duality, dual simplex and primal dual algorithms, parametric analysis and postoptimality analysis. Applications are selected from: the transportation problem, the assignment problem, blending problems, inventory problems, activity analysis, game theory and network analysis.

**CSC 546**  
**Operations Research II**  
An introduction to model design using queuing theory and simulation techniques. Topics covered include a brief introduction to queuing theory, basic ideas in simulation, random number generators, sampling, critical event and time slice methods, organization of a simulation study, and basic concepts of simulation programming.
CSC 552 - Units: 1.5
Advanced Switching Theory
A selection of topics in switching theory and their application to the design of digital systems. The emphasis is on techniques suited to computer-aided design (CAD). Topics to be covered are selected from: formal aspects of switching theory, spectral logic, combinational and sequential circuit synthesis; algorithmic state machines; and the software aspects of hardware design such as hardware description languages.

CSC 554 - Units: 1.5
Fault Tolerant Computing
Issues of fault tolerant computing are discussed, ranging from the choice of fault tolerant architectures, to expert systems for the design and test of integrated circuits. Topics include: design and test of defect free integrated circuits, fault modelling, built in self test, data compression, error correcting codes, simulation software/hardware, fault tolerant system design, CAD tools for design for testability.

CSC 560 - Units: 1.5 Hours: 3-3-0
Design and Analysis of Real-Time Systems
Fundamental issues in the design of real-time operating systems and application software. Typical topics include: hard real-time scheduling, interrupt driven systems, process communication and synchronization, language requirements for real-time systems, decomposition of real-time requirements into process model, and case studies. A project involving design, implementation and testing of a real-time executive and real-time application software will also be included.
Note: Not open to students registered in or with credit in CSC 460.

CSC 561 - Units: 1.5
Multimedia Systems
Introduction to multimedia systems and applications. Topics include multimedia system design issues, representation, processing and retrieval of temporal and non-temporal media types, compression techniques, JPEG and MPEG encoding, multimedia system architecture, operating systems, networking, quality of service and database system issues, object-oriented multimedia programming, user interface, virtual worlds.

CSC 562 - Units: 1.5
Distributed Computing
Recent developments and advanced research topics in the area of distributed computing. Topics include: distributed operating systems, interprocess communications, remote procedure calls, network transparency, file server, execution location, and failure transparency, fault tolerant distributed systems, process replication, load balancing, task migration and performance issues, interconnection strategies, network configurations, problem decomposition, distributed updating of multiple copies, global object addressing, centralized and decentralized control mechanisms, reliability and the reconnection problem, and finally case studies of some of the more significant distributed systems.

CSC 564 - Units: 1.5
Concurrency
Introduction to the foundations of concurrency theory and the issues of specification and verification of concurrent systems. Topics include models of concurrency such as Petri nets, labelled transition systems, and traces; specification of concurrent systems/programs in formalisms including process algebras, statecharts, Petri nets and temporal logics; verification techniques such as simulation and model checking, verification using existing research tools. Case studies will be taken from coordination problems, controller design, communication and security protocols, hardware and user interface design.

CSC 565 - Units: 1.5
Massive Data Sets, Scalability and Concurrency
A cross section of topics from computer science disciplines, including databases, operating systems, architecture, programming languages and theory, and considers challenges associated with concurrency from multiple perspectives. Students will be exposed to research involving programming paradigms and software practices for concurrent systems, algorithmic techniques for new paradigms, low level mechanisms for the implementation of practical primitives, applications including data mining and cloud computing, systems support for multicore computation, and pedagogy for concurrency in modern curriculum.

CSC 567 - Units: 1.5
Switching, Network Traffic and Quality of Service

CSC 569 - Units: 1.5
Wireless and Mobile Networks
The recent developments and advanced research topics in wireless and mobile networks. Topics include radio propagation models, mobility models, location management, protocols particularly tailored for wireless and mobile networks, and analytical performance evaluation of wireless and mobile networks.

CSC 571 - Units: 1.5
Advanced Databases
Important and recent developments in databases are covered in detail. Topics include: storage technology, data structures adapted to secondary storage, query optimization, advanced transaction management, parallel or distributed databases, databases and grid computing, multidimensional data and indexes, On-Line Analytic Processing (OLAP), information integration, streaming data, SML and semistructured data, fine-grained access control and anonymization techniques.

CSC 575 - Units: 1.5
Music Retrieval Techniques
A comprehensive advanced overview of the emerging research area of Music Information Retrieval (MIR). Topics include techniques from signal processing, machine learning, information retrieval, human-computer interaction and software engineering that are applied in the design and development of MIR algorithms and systems. Integration of knowledge from different research areas to solve concrete problems.

CSC 578A - Units: 1.5
Formerly: CSC 578
Topics in Software Applications
Notes:
• Credit will be granted for only one of CSC 578A, CSC 578B, CSC 578C, CSC 578D (if taken in the same topic), CSC 578E (if taken in the same topic).
• May be taken more than once for credit in different topics.

CSC 578B - Units: 1.5
Formerly: CSC 578
Topics in Software Applications
Notes:
• Credit will be granted for only one of CSC 578A, CSC 578B, CSC 578C, CSC 578D (if taken in the same topic), CSC 578E (if taken in the same topic).
• May be taken more than once for credit in different topics.

CSC 578C - Units: 1.5
Topics in Software Applications
Notes:
• Credit will be granted for only one of CSC 578A, CSC 578B, CSC 578C, CSC 578D (if taken in the same topic), CSC 578E (if taken in the same topic).
• May be taken more than once for credit in different topics.

CSC 578D - Units: 1.5
Formerly: CSC 578
Topics in Software Applications
Notes:
• Credit will be granted for only one of CSC 578A, CSC 578B, CSC 578C, CSC 578D (if taken in the same topic), CSC 578E (if taken in the same topic).
• May be taken more than once for credit in different topics.

CSC 579 - Units: 1.5
Overlay and Peer-to-Peer Networking
Focuses on the recent developments and advanced research topics in Layer 3 and above and the control plane of the Internet. Topics include: overlay network architectures, peer-to-peer application models, end-to-end control mechanisms, inter- and intra-domain routing protocols, service provisioning, network measurement, and related best current practices on the Internet.

CSC 581A - Units: 1.5
Formerly: CSC 581
Topics in Artificial Intelligence
Notes:
• Credit will be granted for only one of CSC 581A, CSC 581B, CSC 581C, CSC 581D (if taken in the same topic).
• May be taken more than once for credit in different topics with permission of the department.
### Topics in Artificial Intelligence

**CSC 581B**  
Units: 1.5  
Formerly: CSC 581  
Topics: Artificial Intelligence  
Notes:  
- Credit will be granted for only one of CSC 581B, CSC 581 if taken in the same topic), CSC 581A (if taken in the same topic), CSC 581C (if taken in the same topic), CSC 581D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

**CSC 581C**  
Units: 1.5  
Formerly: CSC 581  
Topics: Artificial Intelligence  
Notes:  
- Credit will be granted for only one of CSC 581C, CSC 581 (if taken in the same topic), CSC 581A (if taken in the same topic), CSC 581B (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

### Topics in Theoretical Computer Science

**CSC 582A**  
Units: 1.5  
Formerly: CSC 582  
Topics: Theoretical Computer Science  
Notes:  
- Credit will be granted for only one of CSC 582A, CSC 582 (if taken in the same topic), CSC 582B (if taken in the same topic), CSC 582C (if taken in the same topic), CSC 582D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

**CSC 582B**  
Units: 1.5  
Formerly: CSC 582  
Topics: Theoretical Computer Science  
Notes:  
- Credit will be granted for only one of CSC 582B, CSC 582 (if taken in the same topic), CSC 582A (if taken in the same topic), CSC 582C (if taken in the same topic), CSC 582D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

### Topics in Programming Languages

**CSC 583A**  
Units: 1.5  
Formerly: CSC 583  
Topics: Programming Languages  
Notes:  
- Credit will be granted for only one of CSC 583A, CSC 583 (if taken in the same topic), CSC 583B (if taken in the same topic), CSC 583C (if taken in the same topic), CSC 583D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

**CSC 583B**  
Units: 1.5  
Formerly: CSC 583  
Topics: Programming Languages  
Notes:  
- Credit will be granted for only one of CSC 583B, CSC 583 (if taken in the same topic), CSC 583A (if taken in the same topic), CSC 583C (if taken in the same topic), CSC 583D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

### Topics in Numerical Analysis and Operations Research

**CSC 584A**  
Units: 1.5  
Formerly: CSC 584  
Topics: Numerical Analysis and Operations Research  
Notes:  
- Credit will be granted for only one of CSC 584A, CSC 584 (if taken in the same topic), CSC 584B (if taken in the same topic), CSC 584C (if taken in the same topic), CSC 584D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

**CSC 584B**  
Units: 1.5  
Formerly: CSC 584  
Topics: Numerical Analysis and Operations Research  
Notes:  
- Credit will be granted for only one of CSC 584B, CSC 584 (if taken in the same topic), CSC 584A (if taken in the same topic), CSC 584C (if taken in the same topic), CSC 584D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

### Topics in Hardware and Computer Architecture

**CSC 585A**  
Units: 1.5  
Formerly: CSC 585  
Topics: Hardware and Computer Architecture  
Notes:  
- Credit will be granted for only one of CSC 585A, CSC 585 (if taken in the same topic), CSC 585B (if taken in the same topic), CSC 585C (if taken in the same topic), CSC 585D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.

**CSC 585B**  
Units: 1.5  
Formerly: CSC 585  
Topics: Hardware and Computer Architecture  
Notes:  
- Credit will be granted for only one of CSC 585B, CSC 585 (if taken in the same topic), CSC 585A (if taken in the same topic), CSC 585C (if taken in the same topic), CSC 585D (if taken in the same topic).  
- May be taken more than once for credit in different topics with permission of the department.
CSPT 501 - CYC 558

CSPT 501 Units: 1.5
Contemporary Cultural Social and Political Thought I
An exploration of contemporary themes and issues in cultural, social and political thought. The emphasis will be on relating current ideas and issues in various disciplines to one another and exploring 20th and 21st century thinkers whose influence has transcended cultural and disciplinary boundaries.

CSPT 590 Units: 1.5 or 3
Directed Readings
Individual study, under the direction of a participating faculty member, of a topic or topics in cultural, social and political thought.
Notes:
• May be taken more than once for credit in different topics.
• A student in the Program may substitute POLI 590 or SOCI 590 for CSPT 590, with permission of the Director of the Program.

CSPT 600 Units: 1.5
Advanced Topics in Cultural, Social and Political Thought
An interdisciplinary PhD Seminar on selected topics in Cultural, Social and Political Thought.
Notes:
• May be taken more than once for credit in different topics with permission of the faculty to a maximum of 6 units.
• Content will vary from term to term.
Prerequisite(s):
• Admission to a graduate program in Social Sciences or Humanities; and
• permission of the program.

CSPT 601 Units: 1.5
Contemporary Cultural Social and Political Thought II
A continuation of 501, this seminar is designed for students proceeding to a doctoral candidacy examination in Cultural Social and Political Thought. The focus will be on themes and thinkers important to contemporary cultural and political thought but as yet unfamiliar to the students participating in the seminar.

CSPT 690 Units: 1.5
Directed Readings
Individual study, under the direction of a participating faculty member, of a topic or topics in cultural, social and political thought.
Notes:
• May be taken more than once for credit in different topics.
• A student in the Program may substitute POLI 690 or SOCI 690 for CSPT 690, with permission of the Director of the Program.

CYC

Child and Youth Care
School of Child and Youth Care
Faculty of Human and Social Development

CYC 541 Units: 1.5
Historical and Contemporary Theories in Child and Youth Care
An exploration of diverse historical and contemporary perspectives in child and youth care. Students survey and critically debate a range of theoretical frameworks for CYC and identify theoretical perspectives that fit with their emerging practice and research focuses. Significant issues and trends impacting children, youth, families and communities (e.g., settler colonialism, globalization, and salient socio-political issues) are investigated through various theoretical and ideological lenses.

CYC 543 Units: 1.5
Qualitative Research Methods in Child and Youth Care
An overview of approaches to qualitative research that are applicable to child and youth care practice. Students will explore the underlying theoretical assumptions of qualitative research design, compare and apply a range of methodological and conceptual approaches, and practice techniques for generating, analyzing and engaging with various forms of qualitative data.

CYC 545 Units: 1.5
Quantitative Research Methods in Child and Youth Care
Students will be expected to learn and be able to apply the techniques of quantitative research methodology to the field of child and youth care. Topics will include: research design and problem formulation, sampling, measurement and scaling, research ethics, and data analysis.

CYC 546 Units: 1.5
Human Change Processes: From Theory to Practice
A practice-based course that requires students to work with individuals and families in simulated role play scenarios. It begins with the micro contexts of families and moves outward to understand how change occurs in communities and organizations. Human change theory and processes form the foundation of the course in order to explore traditional and contemporary theories of change that highlight gendered and cultural differences and similarities.

CYC 547 Units: 1.5
Professional Leadership in Child and Youth Care
Aspects of professional leadership, including ethical practice, teams and teamwork, change management and managing transitions, diversity and cultural competence, transformational learning, learning organizations and environments, strategic thinking and participative management will be explored with special emphasis on the multidisciplinary evolution and transformation of child and youth care settings and programs.

CYC 549 Units: 1.5
Program Design and Development in Child and Youth Care
Learners will engage in exploring a range of issues relevant for program planners and implementers in contemporary human services. Issues such as managing complexity, evidence-based practices, outcome measures, budget restraints, leadership of change and creating organizational cultures will be explored.

CYC 552 Units: 1.5
Ethics in Practice
The primary purpose of this course is to enable students to expand their thinking by critically reflecting on professional and applied ethics from multiple perspectives and traditions. Developing a familiarity with various conceptual resources and ethical decision-making frameworks, discerning the morally relevant features of various ethical dilemmas, appreciating the complexity, plurality and uncertainty of everyday CYC practice, and critically appraising the adequacy of decision-making tools for responding to ethical concerns and challenges are key course objectives.

CYC 553 Units: 1.5 or 3.0
Practicum in Child and Youth Care
The supervised field placement is designed to provide CYC students with an opportunity to apply their skills working with children, youth, families, and communities in a supervised setting. Placements which involve individual, family and/or group counseling, can only be undertaken with qualified (i.e. Master’s level) supervisors, and require a minimum commitment of 300 hours (3.0 units).
Notes:
• Those students who have not completed a practicum as part of their undergraduate degree will also be required to enroll in the 3.0 unit course. Regular contact with the course instructor and consultations between the student, placement supervisor and instructor will be required.
• Students registered in the 1.5 unit course will be required to complete a minimum of 165 hours. Students registered in the 3.0 course will be required to complete a minimum of 300 hours.
Prerequisite(s):
• 10.5 units of 500-level CYC courses; or
• permission of the school.
Grading: INP, COM, N, F.

CYC 554 Units: 1.5
Diversity in Practice
Explores the complexity of diversities that shape the contexts of professional practice with children, youth and their families who come from different communities, represent a wide range of social networks, familial structures and belief systems. The attitudes and skills necessary to equip professionals to be attentive to the socially and culturally diverse populations that they face will be the focus of this course.

CYC 558 Units: 1.5
Applied Research Seminar
Engages students in the process of proposal writing in preparation for either their master’s research thesis or applied research project. Students focus on developing their own topic area in conjunction with their supervisor and supervisory committee, through writing that includes a consideration of the Human Research Ethics application, specialized information literacy training, and other issues of writing and research. Students are expected to produce a draft of their research or project proposal.
Note: CYC 553 Practicum in CYC can be taken concurrently.
Prerequisite(s): All of program core courses.
CYC 561  
**Units: 1.5 or 3**  
**Special Topics in Child and Youth Care Theory**  
Explores specialized areas of theoretical interest in the field of Child and Youth Care.  
**Notes:**  
- May be taken more than once for credit in different topics.  
- Topics will vary.

CYC 562  
**Units: 1.5 or 3**  
**Special Topics in Child and Youth Care Intervention**  
Students will study models of intervention in child and youth care which are specific to their area of specialization.  
**Notes:**  
- May be taken more than once for credit in different topics.  
- Topics will vary.

CYC 563  
**Units: 1.5**  
**Specialized Practicum in Child and Youth Care**  
In consultation with a faculty adviser, students will select a special setting for advanced work and training. In some settings, this may take the form of a clinical internship. Students will work under supervision and will consult regularly with both the practicum supervisor and faculty course instructor. Students may be required to complete a specialized theory or intervention course in their area of focus prior to undertaking the specialized practicum. Students are required to complete a minimum of 165 hours.  
**Prerequisite(s):** CYC 553.  
**Grading:** INP, COM, N, F.

CYC 565  
**Units: 1.5**  
**Child and Adolescent Development in Context**  
This course provides a contextualized perspective of child and adolescent development highlighting the importance of culture, historical, social, economic and political contexts to human development. Texts addressing alternative understandings of human development will constitute a significant part of the course.

CYC 590  
**Units: 1.5 or 3**  
**Directed Studies in Child and Youth Care**  
Individual studies under the direct supervision of one or more faculty members. The content, credit value and method of evaluation must be approved by the instructor and School of Child and Youth Care graduate adviser prior to registering in the course.  
**Note:** May be taken more than once for credit in different topics.

CYC 598  
**Units: 4.5**  
**Applied Research Project**  
The student will undertake an applied research project which could, for example, include: (1) program development, (2) program needs assessment, (3) development of an assessment tool/protocol for clients, (4) evaluation of an existing program, (5) cost/benefit analysis of program models, or (6) secondary analysis of existing agency data. The research project should be developed in consultation with the student's supervisory committee.  
**Note:** Students who have completed CYC 590 may request permission to register in the course.  
**Prerequisite(s):**  
- CYC 558 or  
- permission of the school  
**Grading:** INP, COM, N, F.

CYC 599  
**Units: 4.5**  
**Thesis**  
Specialized research on a topic chosen in consultation with the student's supervisory committee. The thesis should be an original piece of research that would be suitable for publication in a professional journal or presentation at a professional meeting.  
**Note:** Students who have completed CYC 590 may request permission to register in the course.  
**Prerequisite(s):**  
- CYC 558, or  
- permission of the school  
**Grading:** INP, COM, N, F.

CYC 641  
**Units: 3.0**  
**Generating Knowledge in Child and Youth Care**  
This doctoral seminar invites students to start "thinking with theory" when considering policy, research and practice in the field of Child and Youth Care. Students will be exposed to a range of contemporary social, political and psychological theories. Throughout the course students will be invited to explore how each theory provides different lenses, tools, and approaches, for taking action in the world.  
**Grading:** INP, COM, N, F.

CYC 643  
**Units: 1.5**  
**Qualitative Research in Child and Youth Care**  
This course examines the theoretical underpinnings and strategies commonly used in qualitative methods, with an emphasis on understanding the relationship between the research question and the methodological decisions involved in choosing approaches for data gathering and analysis. Methodologies that will be considered include but are not restricted to: grounded theory, critical theory, ethnography, phenomenology, and narrative research and their epistemological and ontological similarities and differences.  
**Note:** Students who have completed 3 units of graduate-level research coursework (covering research designs, qualitative data analysis, statistical data analysis and reporting) may request permission to register in the course.  
**Prerequisite(s):** Permission of the school.

CYC 645  
**Units: 1.5**  
**Quantitative Research in Child and Youth Care**  
Students explore and apply quantitative methods for studying issues related to child and youth care such as clinical practice and program evaluation. Statistical techniques include approaches for use with small sample sizes as well as parametric and nonparametric statistical techniques.  
**Note:** Students who have completed 3 units of graduate-level research coursework may request permission to register in the course.  
**Prerequisite(s):** Permission of the school.

CYC 671  
**Units: 1.5**  
**Social and Cultural Contexts of Child and Youth Care Policy, Practice, Research and Pedagogy**  
The course places contemporary CYC issues into social, historical and cultural contexts. Each student identifies a key issue in CYC policy, practice, research and/or pedagogy and, first, provides a critical perspective on the issue, before developing a change agenda designed to transform the issue and its implications.  
**Prerequisite(s):** CYC 641.

CYC 682A  
**Units: 1.5**  
**Internship in Child and Youth Care Research**  
Leamers may be involved in an ongoing research project in CYC or a closely related field in which they will play an active role in some aspect(s) of conducting the research. Learners will be expected to spend a minimum of 10 hours per week in the practicum and to meet with a faculty supervisor on a regular basis for a minimum of 150 hours.  
**Note:** Learners may not be paid for work on this research project during the time that they are undertaking the practicum course for university credit.  
**Grading:** INP, COM, N, F.

CYC 682B  
**Units: 1.5**  
**Practice Internship in Child and Youth Care**  
A practice internship provides opportunities for the student to be actively involved and supervised in a practice setting. Practice settings may include teaching environments, face to face counselling settings, international contexts, or work in policy development with a specific Ministry. Normally students will work for 10 hours per week for a maximum of 150 hours. In addition, students will meet with the practicum co-ordinator throughout the term.  
**Note:** Learners may not be paid for work on this research project during the time that they are undertaking the practicum course for university credit.  
**Grading:** INP, COM, N, F.

CYC 690  
**Units: 1.5 or 3.0**  
**Directed Studies in Child and Youth Care**  
Individual study at the doctoral level under the direct supervision of one or more faculty members. The content, credit value and method of evaluation must be approved by the instructor and School of Child and Youth Care graduate adviser prior to registration in the course.  
**Notes:**  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

CYC 693  
**Units: 3.0**  
**Candidacy Exams**  
Students will be expected to complete two candidacy papers (one focused on the substantive area of interest including related theories, and the other on methodology related to their area and topic of interest) and an oral examination before qualifying to undertake PhD research and a dissertation. Within thirty-six months of registration as a provisional doctoral student and at least six months before the final oral examination, a student must pass a candidacy examination.  
**Grading:** INP, COM, N, F.

CYC 699  
**Units: 16.5**  
**PhD Dissertation**  
**Prerequisite(s):** CYC 693.  
**Grading:** INP, COM, N, F.
DHUM

Digital Humanities
Faculty of Humanities

DHUM 501  Units: 1.5  Hours: 3-0-0
Introduction to Digital Humanities
Surveys and explores intellectual traditions and emergent concerns associated with computing in the arts and humanities. Topics include digital representation, analysis, communication and creation, and involve theoretical considerations and pragmatic approaches.

Notes:
- Credit will be granted for only one of DHUM 501, ENGL 507.
- Typically offered the week before the Digital Humanities Summer Institute (see www.dhsi.org).

DHUM 502  Units: 1.5  Hours: 3-0-0
Core Concepts and Skills
Focuses on fundamental concepts and skills in the Digital Humanities, with curriculum offered by the Digital Humanities Summer Institute (see www.dhsi.org) or equivalent topical seminars listed annually by the Faculty of Humanities. Typical offerings include DHSI’s Textual Encoding Fundamentals, Digitisation Fundamentals, Fundamentals of Programming/Encoding for Humanists.

Note: Credit will be granted for only one of DHUM 502, ENGL 509 (if taken in the same topic).

DHUM 503  Units: 1.5  Hours: 3-0-0
Remediation and Curation
Focuses on intellectual traditions, emergent concerns, and applications related to digital remediation and curation, with curriculum offered by the Digital Humanities Summer Institute (see www.dhsi.org) or equivalent topical seminars listed annually by the Faculty of Humanities. Examples include XSLT, Databases, Drupal, Digital Editions, Pre-Digital Book.

Note: Credit will be granted for only one of DHUM 503, ENGL 509 (if taken in the same topic).

DHUM 504  Units: 1.5  Hours: 3-0-0
Creation, Communication and Dissemination
Focuses on intellectual traditions, emergent concerns, and applications related to creation, communication, and dissemination, with curriculum offered by the Digital Humanities Summer Institute (see www.dhsi.org) or equivalent topical seminars listed annually by the Faculty of Humanities. Examples include Multimedia, Social Media, Mobile Computing, Physical Computing.

Note: Credit will be granted for only one of DHUM 504, ENGL 509 (if taken in the same topic).

DHUM 505  Units: 1.5  Hours: 3-0-0
Analysis, Teaching, and Administration
Focuses on intellectual traditions, emergent concerns, and applications pertinent to analysis, teaching, and administration, with curriculum offered by the Digital Humanities Summer Institute (see www.dhsi.org) or equivalent topical seminars listed annually by the Faculty of Humanities. Examples include GIS, Text Analysis, Augmented Reality, Computer Gaming, SEASR, Digital Pedagogy, Large Project Planning and Administration.

Note: Credit will be granted for only one of DHUM 505, ENGL 509 (if taken in the same topic).

DHUM 590  Units: 1.5
Directed Reading

DR

Dispute Resolution
School of Public Administration
Faculty of Human and Social Development

Students enrolled in the MA in Dispute Resolution program should also see courses listed as PADOR.

DR 502  Units: 1.5
Conflict, Culture, and Diversity
Cross-cultural conflicts involve navigating among diverse identities, meanings and ever-changing perceptions. Uses experiential education and dialogue to explore processes, capacities, and tools to bridge cultural conflicts that draw on multiple intelligences. Develops fluency with ways of naming, framing, and taming conflict across cultural contexts, and fluency with culture as it animates and offers creative ways through conflict. Participants will apply theory and research to interpersonal, intercommunal, and international conflicts.

DR 503  Units: 1.5
Also: LAW 372
Public Policy, Law, and Dispute Resolution
Looks at the nature and scale of conflict in civil society and at the primary strategies that society employs to cope with it. Examines a range of contemporary issues of governance. Focuses on the interaction of legislative, judicial, and administrative institutions around two major themes: how programs and public policy are developed and how conflict is managed.

Note: Credit will be granted for only one of DR 503, LAW 372.

DR 506  Units: 1.5
Mediation Processes and Skills
This course couples mediation processes with practice in communication skills needed for effective third party facilitative intervention. Using the paradigm of Attitude, Process and Skills, students learn and practice mediation as a dispute resolution tool, integrated with prior learning in conflict analysis and diagnosis. Through lectures, clinical exercises, demonstrations, coached role play, reflective listening skills practice, and group discussions, students connect skills with theoretical and philosophical foundations of mediation required to satisfactorily conclude mediated agreements.

Note: Credit will be granted for only one of DR 506, DR 510 (if taken in the same topic).

Prerequisite(s): DR 501 or PADR 501.

DR 507  Units: 1.5
Also: LAW 373
International Human Rights and Dispute Resolution
Explores linkages between international human rights law, conflict analysis and dispute resolution. Participants explore literature from several disciplines including international law, history, philosophy, anthropology, political science and conflict studies. United Nations, regional and national human rights instruments and mechanisms are examined for their efficacy in human rights protection. Concerns of individuals, including women and children, non-state groups and indigenous peoples are addressed. Students develop skills in human rights analysis, advocacy and dialogue.

DR 508  Units: 1.5
Dispute Resolution and Indigenous Peoples
Explores the theory and practice of negotiation and mediation within the context of public issues and disputes involving indigenous peoples. Includes a comparative examination of perspectives on negotiation of dominant society and indigenous peoples in Canadian and other settings. A critical approach is taken to the application of dominant society models of negotiation and mediation to conflict situations involving indigenous people, including the examination of historical factors, dynamics of power, and cross-cultural factors.

Prerequisite(s):
- DR 501 or PADOR 501;
- DR 502; or
- Permission of the department

DR 509  Units: 1.5
Dispute Resolution System Design and Public Interest Disputes
Introduction to designing, assembling and implementing systems to prevent, manage and/or resolve a series or stream of disputes arising out of a single organization and/or relationships. Examines models of conflict intervention and the design process within organizations. Introduces the theory and practice of negotiating public-interest issues and managing stakeholder conflicts.

DR 510  Units: 1.5
Special Topics in Dispute Resolution
A study of selected special topics in Dispute Resolution drawn from the current literature and practice.

Note: May be taken more than once for credit in different topics.

Prerequisite(s): Set by department depending upon topic.

DR 511  Units: 1.5
Conflict Specialists as Leaders
A role of a conflict specialist is to support organizations and/or groups to replace traditional public policy decision-making processes with collaborative governance processes. As change agents, both dispute resolution process and leadership competencies are required. Students will build and bridge these competencies by learning communication skills, design analysis, and implementation strategies for deliberation and engagement, as well as leadership skills to support change.

Recommendation(s): All of DR 502, DR 503, DR 506, DR 509 recommended prior to DR 511.
ECE

Electrical and Computer Engineering

Department of Electrical and Computer Engineering
Faculty of Engineering

ECE 503  Units: 1.5
Formerly: ELEC 503
Optimization for Machine Learning
The steepest-descent, Newton, conjugate, and quasi-Newton algorithms for unconstrained optimization. Inexact line-search techniques. Application of optimization methods to classification, logistic regression, and support vector machines for signal processing and machine intelligence involving audio, image, video and other types of data. Introduction to constrained optimization. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 503, ECE 403, ELEC 403, ELEC 503.

ECE 504  Units: 1.5
Formerly: ELEC 504
Random Signals
Review of random variables, moments and characteristic functions; random processes, noise models, stationarity, ergodicity, correlation and power spectrum, spectrum measurements; response of linear systems to random inputs, cross-spectral densities, narrow band noise; introduction to discrete time and space processes. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 504, ELEC 400, ELEC 504.

ECE 509  Units: 1.0
Formerly: ELEC 509
Seminar
Expose Master’s students to different areas of research through seminar participation and provide a forum for the presentation of graduate student research. Required for all Master’s students every year of their program as an addition to the normal program except by departmental permission. One unit of credit shall be given upon completion.

Note: Credit will be granted for only one of ECE 509, ELEC 509.

Grading: INP, COM, N.

ECE 511  Units: 1.5
Formerly: ELEC 511
Error Control Coding
The channel coding problem; coding approaches and characteristics; linear block codes; bounds on codes; finite fields; cyclic, BCH and Reed-Solomon codes; convolutional codes and the Viterbi algorithm; error control in data storage and transmission systems. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 511, ECE 405, ELEC 405, ELEC 511.

ECE 512  Units: 1.5
Formerly: ELEC 512
Digital Communications
Source and channel descriptions. Source digitization, entropy and the rate distortion tradeoff, lossless source codes (Huffman and run length codes), optimal and adaptive quantization. Digital modulation techniques, optimal coherent receivers, performance evaluation, the incoherent case. Special topics - case studies, fiber optics, satellite systems, mobile radio systems. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 512, ECE 450, ELEC 512, ELEC 450.

ECE 514  Units: 1.5
Formerly: ELEC 514
Design and Analysis of Computer Communication Networks
Markov chains and techniques for studying their transient and steady-state behaviour. Queuing theory and discrete time queues. Queuing models for media access, error control and traffic management protocols. Quality of service. Modelling of traffic and inter-arrival time. Self similar distributions and traffic analysis and design of switching fabrics. Switch design alternatives and performance modelling. Simulation of networks. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 514, ECE 463, CENG 461, ELEC 514.

ECE 515  Units: 1.5
Formerly: ELEC 515
Information Theory
Information theory and its relationship to probability, statistics, and data compression; entropy, relative entropy and mutual information; Huffman coding, arithmetic coding and Lempel-Ziv coding; channel capacity, group codes; generator and parity check matrices; Hamming codes and bounds; bounds on the dimension of a linear code; random coding bounds; code construction.

Note: Credit will be granted for only one of ECE 515, ELEC 515.

ECE 516  Units: 1.5
Formerly: ELEC 516
Advanced Wireless Communications
Statistical fading channel models, digital communications over fading channels, diversity techniques for fading mitigation, channel adaptive transmission, multicarrier modulation/OFDM, spread spectrum techniques/CDMA, MIMO systems and space-time coding.

Note: Credit will be granted for only one of ECE 516, ECE 519A (if taken in the same topic), ELEC 516, ELEC 519A (if taken in the same topic).

ECE 517  Units: 1.5
Formerly: ELEC 517
Software Defined Radio
Software defined radio architectures. Receiver design: radio frequency, digital signal processing, software. Application to analog and digital communications, cognitive radio, dynamic spectrum access. Implementation of software radio algorithms using GNU Radio, Simulink or other platforms. Students are required to complete a project.

Note: Credit will be granted for only one of ECE 517, ECE 417, ECE 539A (if taken in the same topic), ELEC 417, ELEC 517, ELEC 539A (if taken in the same topic).
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<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Formerly</th>
<th>Notes</th>
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<tr>
<td>ECE 519A</td>
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<td>ELEC 519A, ELEC 619A</td>
<td>Selected Topics in Digital Communications</td>
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<tr>
<td>ECE 519B</td>
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<td>ELEC 519B, ELEC 619B</td>
<td>Selected Topics in Computer Communications</td>
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<td>ECE 519C</td>
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<td>ELEC 519C, ELEC 619C</td>
<td>Selected Topics in Secure Communications</td>
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<tr>
<td>ECE 522</td>
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<td>ELEC 522</td>
<td>Antennas and Propagation</td>
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<tr>
<td>ECE 524</td>
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<td>ELEC 524, ELEC 624</td>
<td>Theory and Design of Waveguide Components</td>
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<td>ECE 525</td>
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<td>ELEC 525</td>
<td>Advanced Photonics</td>
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<td>ECE 526</td>
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<td>ELEC 526, ELEC 623</td>
<td>Advanced Optical Systems</td>
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<tr>
<td>ECE 529A</td>
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<td>ELEC 529A, ELEC 629</td>
<td>Selected Topics in Micro Millimeter Waves and Optical Engineering</td>
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<td>ECE 534</td>
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<td>ELEC 534</td>
<td>Applications of Digital Signal Processing Techniques</td>
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<tr>
<td>ECE 535</td>
<td>1.5</td>
<td>ELEC 535</td>
<td>Data Analysis and Pattern Recognition</td>
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<td>ECE 536</td>
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<td>Computer Vision</td>
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<td>ECE 539A</td>
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<td>Selected Topics in Digital Signal Processing</td>
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<tr>
<td>ECE 539B</td>
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<td>ELEC 539B, ELEC 639B</td>
<td>Selected Topics in Image Processing</td>
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<tr>
<td>ECE 539C</td>
<td>1.5</td>
<td>ELEC 679, ELEC 539C</td>
<td>Selected Topics in Underwater Acoustic Systems</td>
</tr>
</tbody>
</table>

**Antennas and Propagation**
- Fundamentals, Friis transmission formula, radar equation, Maxwell's equations for radiation problems, antenna parameters, mutual coupling, aperture antennas, array theory, microwave propagation, and fading.
- Antenna measurement techniques, surface-wave and ionospheric propagation, microwave and millimeter wave propagation.

**Theory and Design of Waveguide Components**
- Modern integrated waveguide technologies, numerical analysis aspects and design strategies, mode-matching techniques.
- Waveguides, transformers, and transformer prototypes.
- Waveguide filters, multiplexers, polarizers, transducers, and converters.

**Advanced Photonics**
- Methods to understand optical devices. Following a basic review of electromagnetics, methods for analyzing photonic devices will be provided. Among other applications, these methods will be applied to the analysis of sensors and optical interconnects.

**Advanced Optical Systems**
- Overview of basic technologies and system design principles for modern optical communications.
- Component fundamentals, including optical fibers, lasers, photodetectors, and optical amplifiers.
- Modulation, optical signal processing, and multiplexing techniques.

**Selected Topics in Digital Signal Processing**
- Decimation and interpolation of discrete signals.
- Least-squares signal modeling. The LMS algorithm and application in adaptive interference cancellation.
- Basic multirate DSP systems and polyphase representation.

**Data Analysis and Pattern Recognition**
- Statistical data analysis and random processes, ergodicity and stationarity, Bayesian decision theory, feature extraction and selection, parametric and non-parametric pattern recognition.
- Applications to big data, data science, and computer security problems.

**Selected Topics in Image Processing**
- Theory and application of modern data analysis and machine learning methodologies to larger scale real-world data analytics problems.
- Impacts of outliers, normalization processes, feature selection and extraction, data set biases, and noise on analysis quality.

**Selected Topics in Underwater Acoustic Systems**
- Overview of underwater acoustic systems and techniques.
- Applications to wide-area and broadband systems.

**Notes**
- Credit will be granted for only one of ECE 519A, ELEC 519A (if taken in the same topic), ELEC 619A (if taken in the same topic).
- May be taken more than once for credit in different topics to a maximum of 3 units.
- Variable content course.

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**Prerequisite(s):**
- One of ECE 485, ECE 535, ELEC 485, ELEC 535, or permission of the department.
ECE 543  Units: 1.5  
Formerly: ELEC 543  
**Design of Digital and VLSI Systems**  
Advanced combinational and sequential logic design. Optimization of finite state machines, timing methodologies and synchronization issues. Hardware description languages (HDL): structural and behavioral descriptions, simulations and testbenches, coding styles, design with HDL and FPGA implementation. Design for test: testing concepts, scan-based design and built-in self-test (BIST). Design for high-speed timing analysis, pipelining and retiming. Design for low-power sources of power dissipation, design transformations. Students will be required to complete a project.  
**Note:** Credit will be granted for only one of ECE 543, ECE 441, CENG 441, ELEC 543.

ECE 545  Units: 1.5  
Formerly: ELEC 545  
**Nanotechnology**  
Nanoscale materials and devices. Techniques and tools of nanostructure fabrication and characterization. Properties of low-dimensional materials. Semiconductor nanostructures, metallic nanoparticles, carbon nanotubes, organic molecules, quantum dots. Applications including nanoelectronics and molecular devices, biotechnology, nanoscale computation, nanomechanical devices and nanophotonics. Students are required to complete a project.  
**Note:** Credit will be granted for only one of ECE 545, ECE 420, ELEC 420, ELEC 545.

ECE 546  Units: 1.5  
Formerly: ELEC 546, ELEC 642  
**Mapping DSP Algorithms onto Processor Arrays**  
**Note:** Credit will be granted for only one of ECE 546, ECE 546, ELEC 642.

ECE 547  Units: 1.5  
Formerly: ELEC 547  
**Electronic Devices**  
Study of the operation of bipolar and field-effect devices in VLSI design. Study of photonic and opto-electronic devices used in transmission, modulation, demodulation and receiving. Principles, construction and design of lasers and their applications. Study of display devices, thin-film devices, imaging devices, transducers and micromachines and their interfacing. Sensor arrays and related system design. Students are required to complete a project.  
**Note:** Credit will be granted for only one of ECE 547, ECE 412, ELEC 412, ELEC 547.

ECE 548  Units: 1.5  
Formerly: ELEC 548  
**Cyber-System Security**  
Introduction to abstract algebra and finite field arithmetic. Hardware attacks and mitigation techniques. Hardware trojans and hardware trojan detection techniques. Trusted design in FPGAs. Security in embedded systems. Design for hardware trust. Security and testing. Crypto-processors and design for security. Students will be required to complete a project.  
**Note:** Credit will be granted for only one of ECE 548, ECE 448, CENG 448, ELEC 548.

ECE 549A  Units: 1.5  
Formerly: ELEC 549A, ELEC 688  
**Selected Topics in Electronics**  
**Notes:**  
- Credit will be granted for only one of ECE 549A, ELEC 549A (if taken in the same topic). ELEC 688 (if taken in the same topic).  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.

ECE 549B  Units: 1.5  
Formerly: ELEC 549B, ELEC 649B  
**Selected Topics in VLSI Design**  
**Notes:**  
- Credit will be granted for only one of ECE 549B, ECE 549B, ELEC 649B (if taken in the same topic).  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.

ECE 553  Units: 1.5  
Formerly: ELEC 553  
**Introduction to Parallel and Cluster Computing**  
Overview of massively parallel and cluster computers. Processing models (shared memory versus message passing). Processes and threads. Standard algorithms utilizing parallelism. Matrix and vector operations. N-body problems, collective communications. Parallel application environments (MPI and OpenMP). Includes significant exposure to parallel applications including developing and coding of sample parallel codes. Students are required to complete a project.  
**Note:** Credit will be granted for only one of ECE 553, ECE 457, CENG 453, ELEC 553.

ECE 559A  Units: 1.5  
Formerly: ELEC 559A, ELEC 659A  
**Selected Topics in Robotics**  
**Notes:**  
- Credit will be granted for only one of ECE 559A, ELEC 559A (if taken in the same topic), ELEC 659A (if taken in the same topic).  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.

ECE 559B  Units: 1.5  
Formerly: ELEC 559B, ELEC 659B  
**Selected Topics in Automatic Control**  
**Notes:**  
- Credit will be granted for only one of ECE 559B, ELEC 559B (if taken in the same topic), ELEC 659B (if taken in the same topic).  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.

ECE 564  Units: 1.5  
**Neural Networks and Their Implementation**  
Biological inspiration, historical background, learning in neural nets (backpropagation, hebbian, etc.), single- and multi-layer networks, associative memories, classification and clustering models, recurrent networks. Neural network technology, implementation software and hardware technologies, algorithm definitions, computational requirements, solution methods, parallel processing hardware. VLSI and optical implementations of neural networks.  
**Note:** Credit will be granted for only one of ECE 564, ELEC 564.

ECE 567  Units: 1.5  
Formerly: ELEC 567  
**Advanced Network Security**  
Presents, from a practical perspective, underlying principles and techniques of network security. Students will be exposed to ethical hacking, and penetration testing. Various protection methods, used in practice to detect and respond to malicious network attacks, will be presented. Students will also learn how to implement successful security policies and defense mechanisms and strategies, with a particular focus on firewalls, intrusion detection and response, virtual private networks, and biometrics technologies.  
**Note:** Credit will be granted for only one of ECE 567, ELEC 567.

ECE 568  Units: 1.5  
**System-on-Chip Engineering for Signal Processing**  
Design and System-on-Chip (SOC) implementation for signal processing applications. SOC design and testing methodologies, Platform-based design, Intellectual Property (IP) reuse, and built-in self-test. Controlling power consumption in SOC implementations. SOC multi-technology integration of analog and digital electronics, sensors and MEMS. Students are required to complete a project.  
**Note:** Credit will be granted for only one of ECE 568, ECE 466, ELEC 466, ELEC 568.

ECE 569A  Units: 1.5  
**Selected Topics in Computer Engineering**  
**Notes:**  
- Credit will be granted for only one of ECE 569A, ELEC 569A (if taken in the same topic), ELEC 669 (if taken in the same topic).  
- May be taken more than once for credit in different topics to a maximum of 3 units.  
- Variable content course.
ECE 570  Units: 1.5
Formerly: ELEC 570
Computer Forensics Methodologies
Digital forensics notions and techniques used in the investigation of cybercrimes. Legal awareness of computer security and forensics, evidentiary process techniques, computer forensics methodologies with an emphasis on computer incident response and Information Technology (IT) systems’ protection. Ethics, rules of evidence, effective communications, search and seizure relative to privacy legislation. Threats, how they can be detected, and controls to reduce the likelihood of their occurrence.
Note: Credit will be granted for only one of ECE 570, ELEC 570.
Prerequisite(s): ECE 567 or ELEC 567.

ECE 571  Units: 1.5
Formerly: ELEC 571
Underwater Acoustic Systems
Note: Credit will be granted for only one of ECE 571, ELEC 571.

ECE 572  Units: 1.5
Formerly: ELEC 572
Security, Privacy, and Data Analytics
Explores the underlying theoretical foundations of information security and privacy issues from an engineering perspective. Applications of information-theoretic concepts, techniques, and methods to the problem of quantifying achieved levels of security and privacy in larger-scale systems in the presence of adversaries. Students are required to complete a project.
Note: Credit will be granted for only one of ECE 572, ELEC 572.
Prerequisite(s): ECE 567 or ELEC 567.

ECE 573  Units: 1.5
Formerly: ELEC 573, ELEC 603
Advanced Engineering Design by Optimization
Note: Credit will be granted for only one of ECE 573, ELEC 573, ELEC 603.

ECE 574  Units: 1.5
Formerly: ELEC 574
Practice of Information Security and Privacy
Aims to present a holistic view of various security engineering topics through practical case studies. Topics include enterprise security architecture, security threat and risk assessment, education and awareness, monitoring, investigation and forensics, application security, media handling and intellectual property, privacy, physical and environmental security, and business continuity planning. Also introduces information security-related certification and relevant professional associations. Students are required to complete a project.
Note: Credit will be granted for only one of ECE 574, ELEC 574, SENG 460.

ECE 581  Units: 1.5
Formerly: ELEC 581
Power Electronics
Characteristics of power semiconductor switching devices, e.g., silicon controlled rectifiers, bipolar and MOS power transistors, insulated gate bipolar transistors, gate-turn-off thyristors. Basic principles of phase controlled converters, dc to dc choppers, dc to ac inverters (sine wave and pulse width modulated), switching power supplies, resonant converters. Applications to communication and computer power supplies, electric drives, induction heating, etc.
Note: Credit will be granted for only one of ECE 581, ELEC 581.

ECE 583  Units: 1.5
Formerly: ELEC 583
Digital Video Processing
Note: Credit will be granted for only one of ECE 583, ECE 483, ELEC 483, ELEC 583.

ECE 584  Units: 1.5
Formerly: ELEC 584
Dynamics and Control of Switched Mode Power Supplies
Introduction to switch mode power supplies. Detailed analysis of non-isolated converters (Buck, Boost, Buck-boost, Cuk, etc) and isolated converters (Flyback, Forward, Push-pull, Half bridge, Full bridge, Current Source converters, etc). State space averaging technique to model converters. Design of multi-loop controllers (inner current loop and outer voltage loop). Introduction to PWM switch model as an alternative to state space averaging technique. Students will need to complete a project.
Note: Credit will be granted for only one of ECE 584, ECE 461, ELEC 461, ELEC 584, ELEC 689 (if taken in the same topic).

ECE 585  Units: 1.5
Formerly: ELEC 585
Motor Drive Dynamics
Note: Credit will be granted for only one of ECE 585, ECE 462, ELEC 462, ELEC 585, ELEC 689 (if taken in the same topic).

ECE 586  Units: 1.5
Formerly: ELEC 586
Multiresolution Signal and Geometry Processing With C++
Multirate signal processing, upsampling, downsampling, sampling rate conversion, polyphase techniques, multirate filter banks, multiresolution signal representations, wavelets, digital geometry processing, polygon meshes, subdivision surfaces/wavelets, efficient multiresolution signal processing. Applications in data compression, computer graphics/animation, geometric modeling, communications, and signal processing. C++ programming language, libraries such as OpenGL and CGAL. Students are required to complete a project.
Note: Credit will be granted for only one of ECE 586, ECE 486, ELEC 486, ELEC 586.

ECE 589A  Units: 1.5
Formerly: ELEC 589A, ELEC 689
Selected Topics in Power Electronics
Notes:
• Credit will be granted for only one of ECE 589A, ELEC 589A (if taken in the same topic), ELEC 689 (if taken in the same topic).
• May be taken more than once for credit in different topics to a maximum of 3 units.
• Variable content course.
Prerequisite(s): Permission of the department.

ECE 590  Units: 1.5
Formerly: ELEC 590
Directed Study
Graduate course in the Electrical and Computer Engineering program administered by the Faculty of Graduate Studies. A wide range of topics will be available.
Notes:
• Credit will be granted for only one of ECE 590, ELEC 590 (if taken in the same topic).
• Pro Forma required.
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<td>ECE 596A</td>
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<td>Selected Topics in Electrical and Computer Engineering. Presents material in an emerging field or one not covered in regular offerings. Some topics may require laboratory work as well as lectures. Entrance is restricted to students who meet the prerequisites specified for the topic to be offered.</td>
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<td>ECE 596B</td>
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<td>Selected Topics in Electrical and Computer Engineering. Presents material in an emerging field or one not covered in regular offerings. Some topics may require laboratory work as well as lectures. Entrance is restricted to students who meet the prerequisites specified for the topic to be offered.</td>
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<tr>
<td>ECE 596C</td>
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<td>Selected Topics in Electrical and Computer Engineering. Presents material in an emerging field or one not covered in regular offerings. Some topics may require laboratory work as well as lectures. Entrance is restricted to students who meet the prerequisites specified for the topic to be offered.</td>
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<td>ECE 596D</td>
<td>1.5</td>
<td></td>
<td>Selected Topics in Electrical and Computer Engineering. Presents material in an emerging field or one not covered in regular offerings. Some topics may require laboratory work as well as lectures. Entrance is restricted to students who meet the prerequisites specified for the topic to be offered.</td>
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<tr>
<td>Note:</td>
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<tr>
<td>ECE 597</td>
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<td>Capstone Project. Prerequisite(s): Admission to MENG program in Telecommunications and Information Security.</td>
</tr>
<tr>
<td>ECE 598</td>
<td>5.0</td>
<td>Formerly: ELEC 598</td>
<td>MEng Project. Note: Credit will be granted for only one of ECE 598, ELEC 598.</td>
</tr>
<tr>
<td>ECE 599</td>
<td>12.0</td>
<td></td>
<td>PhD Dissertation. Note: Credit will be granted for only one of ECE 599, ELEC 599.</td>
</tr>
<tr>
<td>ECE 609</td>
<td>1.0</td>
<td>Formerly: ELEC 609</td>
<td>Seminar. Exposure to PhD students to different areas of research through seminar participation and provide a forum for the presentation of graduate student research. Required for all Doctoral students every year of their program as an addition to the normal program except by departmental permission. One unit of credit shall be given upon completion.</td>
</tr>
<tr>
<td>ECE 693</td>
<td>3.0</td>
<td>Formerly: ELEC 693</td>
<td>PhD Candidacy Examination. The PhD Candidacy Examination consists of an oral examination. This examination should be taken and passed not later than three years from initial PhD registration. Required of all PhD students every term of their program until the oral examination is passed.</td>
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<tr>
<td>ECE 699</td>
<td>30.0-36.0</td>
<td></td>
<td>PhD Dissertation. Note: Credit will be granted for only one of ECE 699, ELEC 699.</td>
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<td>Note:</td>
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<td></td>
<td></td>
<td>Pre- or Corequisite(s): ECE 693 or ELEC 693.</td>
</tr>
</tbody>
</table>

### Course Listings ECE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Prerequisite(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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<td>ECE 596A</td>
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<tr>
<td>ECE 596B</td>
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<tr>
<td>ECE 596C</td>
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<tr>
<td>ECE 596D</td>
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<td>Selected Topics in Electrical and Computer Engineering. Presents material in an emerging field or one not covered in regular offerings. Some topics may require laboratory work as well as lectures. Entrance is restricted to students who meet the prerequisites specified for the topic to be offered.</td>
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</tbody>
</table>
Faculty of Social Sciences
Department of Economics

ECON 500 Units: 1.5
Microeconomic Analysis
An introduction to consumer demand, production, and market organization. Topics covered will generally include: consumer demand; duality; choice under uncertainty; intertemporal choice; measuring welfare change; the competitive firm; the two sector model; properties of competitive equilibrium; market structure; and externalities.

ECON 501 Units: 1.5
Macroeconomic Analysis
An introduction to macroeconomic analysis. Long-run growth, business cycles, trade, and fiscal policy are analyzed using dynamic general equilibrium models. Classical and Keynesian models are used to examine inflation, unemployment, the open economy, and monetary policy. Limitations and extensions of the models are discussed and developed.

ECON 506 Units: 1.5
Monetary Theory and Policy
The examination of selected contributions to contemporary monetary theory and policy, and their relationship to macroeconomics.

ECON 510 Units: 1.5
Industrial Organization and Public Policy
Provides a framework in which to examine policy issues with respect to industrial competition and regulation. Begins with the firm and its relation to the market, and then examines issues relating to market structure and regulation. Topics may include: durable goods monopoly; price discrimination; product differentiation; product quality; advertising; predatory pricing; mergers; and the natural monopoly.

ECON 515 Units: 1.5
Labour Economics
Introduction to contemporary empirical and applied theoretical research into labour markets. Topics may include: labour supply; labour demand; human capital; discrimination; labour market dynamics; unemployment; and behaviour of the household.

ECON 516 Units: 1.5
Cost-Benefit Analysis
Methods of cost-benefit analysis with applications to public policy. Develops a normative foundation for policy analysis, addressing issues of efficiency and wealth redistribution together with the techniques of cost-benefit analysis. Focuses on contemporary Canadian policy issues.

ECON 520 Units: 1.5
Economic Development
The processes and problems of development in the economies of the Developing World. Topics may include: theories of economic development; poverty and inequality; gender and development; nutrition and food policies; agricultural and rural development; employment and migration.

ECON 523 Units: 1.5
Formerly: ECON 517
The Economics of Canadian Health Care
Analysis of the structure, function and performance of the medical market with emphasis on physician and hospital services.
Note: Credit will be granted for only one of ECON 523, ECON 517.

ECON 524 Units: 1.5
Health Economics
An overview of selected issues in contemporary health economics. Topics may include: microeconomic models of physician and patient behavior, econometric methods relevant to the analysis of health data, health insurance, social determinants of health, and the economics of health-affecting behaviors such as smoking and alcohol use.

ECON 525 Units: 1.5
Public Finance and Fiscal Policy
Seminar in selected topics in fiscal policy and public finance including the incidence and effects of taxation, government expenditure programs and public debt operations.

ECON 529 Units: 1.5
Economics of Finance
The basic theory of finance under uncertainty. Topics include expected utility maximization, state preference theory, analysis of capital asset pricing, and option pricing.

ECON 530 Units: 1.5
Economics of Natural Resources
Seminar in the economics of natural resources including a survey of relevant theoretical literature and selected topics covering problems of resource industries.

ECON 531 Units: 1.5
Environmental Economics
An introduction to environmental economics and policy. Develops a normative foundation for policy analysis, addressing issues of efficiency, intergenerational equity and sustainability. A range of policy regimes are covered, including command-and-control regulation, market-based instruments, and legal liability, with applications to a variety of domestic and international environmental issues.

ECON 539 Units: 1.5
Econometric Analysis
The basics of estimation and hypothesis testing in the classical linear regression model, with empirical exercises using economic data. Topics typically include: testing and imposing linear restrictions; dummy variables; specification error; multicollinearity; measurement error; serial correlation; heteroskedasticity; and simultaneity.

ECON 546 Units: 1.5
Themes in Econometrics
A systematic presentation of the principal themes in econometric inference, such as Maximum Likelihood, Instrumental Variables, Method of Moments, Bayesian Inference, Likelihood Ratio, Wald, and Lagrange Multiplier tests. A discussion of Nonparametric and Semiparametric inference, asymptotic distribution theory and Monte Carlo simulation methods. Application of these methods in empirical projects.

ECON 547 Units: 1.5
Time-Series Econometrics
Time-series theory and its application. Topics may include: ARMA modelling; detecting non-stationarity; structural breaks; multiple unit roots; seasonality; cointegration tests VAR and VECM models.

ECON 548 Units: 1.5
Applied Econometric Modelling
Explores a range of practical estimation and testing issues in the context of different types of econometric models. Topics may include: panel models, nonparametrics and semiparametrics; latent variable models; simultaneous equations models; resampling methods, and the methodology-practice gap.

ECON 549 Units: 1.5
Computational Methods in Economics and Econometrics
An introduction to numerical methods and their application in economics and econometrics. Topics will typically include: iterative fixed point methods; methods for solving problems of nonlinear equations; methods for solving initial value problems and boundary value problems, methods for solving static and dynamic optimization problems, Monte Carlo methods, resampling techniques, and Gibbs sampling.

ECON 550 Units: 1.5
Game Theory in Economics
Provides a game theoretic perspective on interactions between economic agents, covering a variety of game-theoretic modelling techniques and their applications. Topics will generally include: normal and extensive form games; Nash equilibrium and refinements; repeated and sequential games; learning and evolution in games; the Nash bargaining solution; and co-operative games.
Note: Credit will be granted for only one of ECON 550, ECON 540A.

ECON 551 Units: 1.5
Information and Incentives
Introduction to the incentive problems that arise from asymmetric information in a game-theoretic framework. Assumes a knowledge of basic game theory. Topics covered include moral hazard, adverse selection and mechanism design, illustrated in the context of applications drawn from a variety of areas, including industrial organization, public economics and labour.
Note: Credit will be granted for only one of ECON 551, ECON 540C.

ECON 552 Units: 1.5
Macroeconomic Issues
An exploration of contemporary macroeconomic issues using advanced modelling techniques. Topics may include: search and matching theory; unemployment; endogenous innovation; worker displacement due to technological change; the macroeconomic implications of imperfect competition; international macroeconomics; multiple equilibria; coordination; stability; inflation; and finance issues.
ECON 556 - Experimental Economics
An introduction to the theory and practice of experimental economics using laboratory and field experiments. Topics include state of the art methods in experimental economics including experimental design, subject sampling, laboratory techniques, and the use of financial incentives. The objectives will be pursued through the development of experiments and a review of the method's application to a number of topics of interest to economists.

ECON 565 - The Econometrics of Cross-Section Data
An overview of the models, estimation techniques and tests used when analyzing cross-section data. The methods studied are particularly applicable to labour and health economics and industrial organization. Theory and empirical applications are covered. Topics may include binary and multinomial logit and probit models, limited dependent variable models, count data, and duration analysis.

ECON 575 - Advanced Topics in Econometrics
Advanced topics in econometric theory and practice. Topics may include: recent developments in time-series analysis; estimation and testing with panel data; the use of nonparametric and semiparametric techniques; limited and qualitative dependent variables models; modelling financial data; switching-regimes models; specification analysis and model selection; and applications of Bayesian inference.

ECON 595 - Directed Studies in Economics
Individual titles will be assigned to each lettered section A-Z. Note: Pro Forma required.

ECON 598 - Extended Essay
Grading: INP, COM, N, F.

ECON 599 - Thesis
Grading: INP, COM, N, F.

ECON 693 - PhD Candidacy Examinations
Students enrol in ECON 693 for the duration of their preparation for candidacy examinations. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed. Grading: INP, COM, N, F.

ECON 694 - Scholarship Skills Seminar
Focus on developing essential skills such as writing, presenting, developing research proposals, critically reading research, writing a literature review, refereeing papers, writing grant proposals, avoiding plagiarism, and submitting articles for publication. Note: Students admitted to MA and other PhD programs may request permission to register in the course. Prerequisite(s): Admission to a doctoral program in Economics (second-year); or permission of the department.

ECON 699 - Dissertation
Prerequisite(s): ECON 693. Grading: INP, COM, N, F.

ED-D - Educational Psychology and Leadership Studies
Department of Educational Psychology and Leadership Studies
Faculty of Education

ED-D 500 - Learning Principles
A survey of the literature on commonly stated principles of instrumental and classical conditioning, generalization, transfer and retention.

ED-D 501 - Theory of Measurement
A study of the main psychometric theories, concepts and procedures associated with the development and analysis of educational and psychological measurement, and the application of these to the development and use of tests in educational and research situations.

ED-D 503 - Program Development and Evaluation
An examination of the issues, practices, and methods of program evaluation at the institutional, organizational, and classroom levels. Prerequisite(s): Admission to MA program in Counselling Psychology; or permission of the department.

ED-D 505 - Advanced Concepts in Human Development
A seminar on the science of human development from early childhood through emerging adulthood.

ED-D 506A - Cognitive Development
A survey of what is currently known about cognitive development in the first two decades of life. Topics may include biological bases of cognition, perception, memory, conceptual thought, social cognition, language, reading, mathematics, scientific thinking and intelligence.

ED-D 506B - Social and Emotional Development
A seminar with an in-depth focus on social-emotional development and learning. Topics covered may include neurobiological bases, temperament, attachment, theory of mind, self and emotion regulation, family, peer, school, and cultural influences.

ED-D 506C - Adolescent Development
A seminar with an in-depth focus on adolescence. Pubertal, neurobiological, familial, social, educational, cultural, and historical influences are explored.

ED-D 508 - Theories of Learning in Educational Psychology
An examination of psychological interpretations of learning from modern behaviourist and cognitive approaches to contemporary conceptions of learning.

ED-D 509 - Psychology of Learning and Instruction
An in-depth analysis of selected issues and contemporary research in the application of psychology to instruction including problem solving, learning processes and strategies and instructional interventions.

ED-D 514 - Assessment in Counselling
The use of testing, diagnosis, and other aspects of assessment within a counselling perspective for adults, adolescents and children. Topics addressed include: basic concepts in assessment, the relationship between counselling and assessment, ethical issues, diversity, reliability and validity, test selection and administration, test evaluation, a variety of assessments and assessment reports. Notes: Credit will be granted for only one of Ed-D 514, Ed-D 591 (if taken in the same topic). Students who have Counselling or related background may request permission to register in the course. Prerequisite(s): Admission to MA program in Counselling Psychology; or permission of the department.

ED-D 515 - Advanced Assessment in Special Education
An intensive course specializing in Level B assessment techniques and intervention-based academic assessment methods, including curriculum-based measurement, to support the educational programming of students with special needs. Prerequisite(s): Admission to MA or MEd in Educational Psychology Masters program in Special Education; or permission of the department.

ED-D 516 - Advanced Intervention in Special Education
An intensive course specializing in academic interventions for students with special needs. Intervention design, implementation, and monitoring will be involved within the context of special education service delivery. Prerequisite(s): ED-D 515; or permission of the department.

ED-D 518 - Advanced Seminar in Theories of Counselling Psychology
Contemporary theories and approaches to counselling and psychotherapy for individuals, couples, and families across the lifespan. Prerequisite(s): Admission to MA program in Counselling Psychology; or permission of the department.
ED-D 519A  Units: 1.5
Child and Adolescent Development and Counselling
A study of issues and counselling interventions with children and adolescents. Topics include developmental context; identity; assessment; counsellor roles; consultation with teachers, other professionals and parents or guardians; family issues; career/educational planning; and individual and group interventions.
Note: Credit will be granted for only one of ED-D 519A, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519C  Units: 1.5
Ethics and Legal Issues in Counselling
An examination of professional, ethical, and legal issues related to practice and research in counselling. Personal beliefs, values, and biases will be examined, as well as the professional codes and literature of the discipline.
Note: Credit will be granted for only one of ED-D 519C, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519D  Units: 1.5
Creative Arts Therapy
The study and practice of creative and artistic approaches to counselling. Specific focus may include counselling using art, movement, writing, play, drama and bibliotherapy.
Note: Credit will be granted for only one of ED-D 519D, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519H  Units: 1.5
Career Development and Counselling Across the Lifespan
Lifespan and career development as a dynamic and holistic enterprise. Theories and techniques of career development, assessment, and consultation are explored. The practice of career counselling for diverse populations including work-related issues.
Note: Credit will be granted for only one of ED-D 519H, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519L  Units: 1.5
Group Counselling
The conceptualization and practice of group counselling and therapy. Leadership skills will be examined. Particular attention will be given to leadership skills and exploring the foundation and application of experiential learning in groups.
Note: Credit will be granted for only one of ED-D 519L, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519N  Units: 1.5
Diversity, Culture, and Counselling
Theory and practice of counselling diverse clientele. Specific emphasis on awareness, knowledge and strategies for developing cultural competencies.
Note: Credit will be granted for only one of ED-D 519N, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519P  Units: 1.5
Trauma Counselling
Theoretical and practical understanding of issues related to treatment of psychological trauma. Topics typically include definitions, safety/stabilization, symptoms, disorders, assessment/diagnosis and outcomes.
Note: Credit will be granted for only one of ED-D 519P, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519R  Units: 1.5
Indigenous Development and Counselling across Generations
Indigenous concepts and theories of development and growth across the lifespan. Exploration of intergenerational models of development and identity. Topics include child, adolescent and adult growth and change in family, community, and work contexts.
Note: Credit will be granted for only one of ED-D 519R, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 519S  Units: 1.5
Addictions Counselling
A study of addictive behaviour and the change process to understand how addictions develop and how addicted people recover. Topics include concepts and theories of addiction, brain physiology, specific substance and process addictions, controversies, challenges, interventions and treatments for addiction in counselling contexts.
Note: Credit will be granted for only one of ED-D 519S, ED-D 591 (if taken in the same topic).
Prerequisite(s):
• Admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 520  Units: 1.5
Educational Research Apprenticeship
An individualized opportunity for students to develop their research skills by assisting with faculty research or engaging in their own research. Students are expected to spend a minimum of 9 hours a week participating in research activities. Includes a range of potential activities, including but not limited to: data collection, coding, and entering; management of computerized databases; completion of ethics applications; analysis of data; literature search and review; and preparation of materials for publication.
Note: Students may repeat this course, but credit will be granted only once.
Prerequisite(s):
• Admission to an EPLS Masters program; or
• permission of the department.
Grading: INP, COM, N, F.

ED-D 521  Units: 1.5
Theory and Practice in Family Counselling
Theoretical approaches and intervention strategies related to family counselling with diverse clientele. Through discussion, experiential activities, and role playing, students will become familiar with current concepts and techniques.
Prerequisite(s):
• ED-D 522 or permission of the department; and
• admission to MA program in Counselling Psychology; or
• permission of the department.

ED-D 522  Units: 3.0
Skills and Practice for Counselling
Provides basic counselling interventions with an emphasis on the therapeutic relationship. Extensive opportunity to role play and to self-reflect on role as counsellor and issues related to boundaries and power. Sequenced skill training, with extensive counselling simulation and supervision of practice in a field setting. Includes direct client contact under the supervision of a qualified professional with diverse client populations.
Note: Students may repeat this course until practicum hourly requirements are met but credit will be granted only once.
Prerequisite(s): Admission to MA program in Counselling Psychology.
Corequisite(s): Either ED-D 518 and ED-D 519N, or ED-D 518C and ED-D 519L.
Grading: INP, COM, N, F.

ED-D 523  Units: 3.0
Internship in Counselling
Provides intensive practice in advanced counselling techniques and approaches under the supervision of a professional counsellor in community settings. Lectures focus on case presentations, models of consultation, supervisor-supervisee relationship, roles and responsibilities of health professionals, counsellor identity, professional organizations, record keeping. Two term course.
Notes:
• Students may repeat this course until practicum hourly requirements are met but credit will be granted only once.
• Enrolment is limited due to availability of placements.
Prerequisite(s):
• ED-D 522; and
• admission to MA program in Counselling Psychology.
Grading: INP, COM, N, F.
<table>
<thead>
<tr>
<th>COURSE LISTINGS ED-D</th>
<th>279</th>
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<tbody>
<tr>
<td>ED-D 524</td>
<td>Units: 1.5</td>
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<tr>
<td>Facilitation of Counselling Practicum</td>
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<tr>
<td>Preparation for future work as trainer, facilitator, or instructor through practice in facilitating 414 or 417 under the supervision of course instructor. Integration of theory and practice of helping, development of skills through modelling, observing, and coaching, enhancement of relationship and group processes.</td>
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<tr>
<td>Notes:</td>
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<tr>
<td>• May be taken more than once to include facilitation practicum with both a ED-D 414 and ED-D 417 instructor normally to a maximum of 3 units.</td>
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<td>• Cannot be used to fulfill elective requirements for program.</td>
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<tr>
<td>Prerequisite(s): Admission to MA program in Counselling Psychology.</td>
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<tr>
<td>Grading: COM, N, F.</td>
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<tr>
<td>ED-D 525</td>
<td>Units: 1.5</td>
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<tr>
<td>Indigenous Healing and Spirituality</td>
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<tr>
<td>Indigenous values, worldviews, and spirituality as the foundation for helping and healing. Topics include traditional knowledge, holistic healing, role of elders, and Indigenous spiritual practices.</td>
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<tr>
<td>Prerequisite(s):</td>
<td></td>
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<tr>
<td>• Admission to a master’s program in Indigenous Communities Counselling; or</td>
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<tr>
<td>• permission of the department.</td>
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<tr>
<td>Grading: COM, N, F.</td>
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<tr>
<td>ED-D 531</td>
<td>Units: 1.5 or 3.0</td>
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<tr>
<td>Concepts and Theory of Organization</td>
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<tr>
<td>Critical examination of the classical, modern, and emerging literatures of administrative studies in the organizational context, with emphasis on philosophy of leadership, decision making processes, power and authority, leadership studies, and contemporary issues and perspectives.</td>
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<tr>
<td>Note: Credit will be granted for only one of ED-D 531, ED-D 532.</td>
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<tr>
<td>ED-D 532A</td>
<td>Units: 1.5</td>
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<tr>
<td>Formerly part of ED-D 532</td>
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<tr>
<td>Educational Program Leadership</td>
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<tr>
<td>Models for program design and review range from external, objective-based processes to participatory action research. Examines issues of implementation, collaboration, accountability, inclusiveness and responsiveness to community. Offers practical experiences in a range of evaluative methods.</td>
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<td>Note: Credit will be granted for only one of ED-D 532A, ED-D 532, ED-B 532.</td>
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<tr>
<td>ED-D 533A</td>
<td>Units: 1.5</td>
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<tr>
<td>Politics and Policy-Making in Organizations</td>
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<tr>
<td>An examination of politics in educational and related organizations: concepts of influence, authority, power, and control; frameworks for analyzing and understanding politics and policy; actors and agendas; interest and pressure groups; conflict and conflict resolution; the interface of leadership and politics; implications for governance and administrative practice.</td>
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<tr>
<td>Note: Credit will be granted for only one of ED-D 533A, ED-B 533A.</td>
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<tr>
<td>ED-D 533B</td>
<td>Units: 1.5</td>
</tr>
<tr>
<td>Decision-Making and the Law</td>
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<tr>
<td>Develops awareness of the legal considerations and principles which apply to decision-making in school and other workplaces. Contains introductions to the interface between law, legislation and policy; statutes and the delegation of powers to decide, and the common law principles which govern decision-making by those with statutory authority. An array of case studies is used.</td>
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<tr>
<td>Note: Credit will be granted for only one of ED-D 533B, ED-B 533B.</td>
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<tr>
<td>ED-D 533C</td>
<td>Units: 1.5</td>
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<tr>
<td>Servant Leadership</td>
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<tr>
<td>An inquiry into the philosophy of servant-leadership as a vehicle for the development of moral literacy in democratic, caring, serving institutions with an investment in the common good.</td>
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<tr>
<td>Note: Credit will be granted for only one of ED-D 533C, ED-D 539 (if taken in the same topic).</td>
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<tr>
<td>ED-D 533D</td>
<td>Units: 1.5</td>
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<tr>
<td>Critical Discourses in Leadership</td>
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<tr>
<td>An examination of general leadership concepts, and practices as they apply to educational institutions, other workplaces, organizations and the community.</td>
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<td>Note: Credit will be granted for only one of ED-D 533D, ED-B 533D, ED-B 537C.</td>
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<tr>
<td>ED-D 534</td>
<td>Units: 1.5 or 3.0</td>
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<tr>
<td>Leadership for School Improvement</td>
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<tr>
<td>Surveys contemporary thinking about professional learning communities and learning teams, emphasizing how leaders can build and support collaborative and inclusive learning environments in order to effect positive school change.</td>
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<td>Note: Credit will be granted for only one of ED-D 534, ED-B 534.</td>
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<tr>
<td>ED-D 535</td>
<td>Units: 1.5</td>
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<tr>
<td>Global Comparative Perspectives on Leadership and Education</td>
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<tr>
<td>Explorations of diverse leadership and education theories and practices in school, institutions, workplaces, and/or community across Canada and around the world.</td>
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<td>Note: Credit will be granted for only one of ED-D 535, ED-D 535A, ED-D 535B.</td>
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<tr>
<td>ED-D 536</td>
<td>Units: 1.5 or 3.0</td>
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<tr>
<td>Philosophy of Leadership</td>
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<tr>
<td>An examination of the relevant interaction of philosophy and leadership, with a view to clarifying philosophical concepts and theories and their application to the analysis, by individuals in leadership positions, of their own and others’ actions.</td>
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<td>Note: Credit will be granted for only one of ED-D 536, ED-B 536.</td>
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<tr>
<td>ED-D 537A</td>
<td>Units: 1.5 or 3.0</td>
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<tr>
<td>Educational Change</td>
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<tr>
<td>An analysis of change theory and the processes associated with change in education, with a view to assisting school leaders to facilitate reforms.</td>
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<td>Note: Credit will be granted for only one of ED-D 537A, ED-B 537A.</td>
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<tr>
<td>ED-D 537B</td>
<td>Units: 1.5</td>
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<tr>
<td>Leadership, Education and Diversity</td>
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<tr>
<td>An exploration of the social, cultural, and political complexities of contemporary education in a pluralistic society. Focuses on issues of racism, homophobia, sexism, ableism and how they affect schools, workplaces, and/or communities and society as a whole.</td>
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<tr>
<td>Note: Credit will be granted for only one of ED-D 537B, ED-D 539 (if taken in the same topic).</td>
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<td>Course Code</td>
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<tr>
<td>ED-D 540</td>
<td>Gender, Leadership and Learning</td>
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<td>ED-D 541</td>
<td>Leadership in Rural Education</td>
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<tr>
<td>ED-D 542</td>
<td>A Comprehensive Investigation of Servant Leadership</td>
</tr>
<tr>
<td>ED-D 560</td>
<td>Statistical Methods in Education</td>
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<tr>
<td>ED-D 561A</td>
<td>Methods in Educational Research</td>
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<tr>
<td>ED-D 561B</td>
<td>Research Methods in Leadership</td>
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<tr>
<td>ED-D 562</td>
<td>Advanced Statistical Methods in Education</td>
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<tr>
<td>ED-D 563</td>
<td>Qualitative Research Methods</td>
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<tr>
<td>ED-D 564</td>
<td>Indigenous Research and Program Evaluation</td>
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<td>ED-D 568</td>
<td>Inclusive Education in the 21st Century</td>
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<tr>
<td>ED-D 569</td>
<td>Developmental Psychopathology and Disorders</td>
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<td>ED-D 570</td>
<td>Self-Regulated Learning</td>
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<tr>
<td>ED-D 571</td>
<td>Advanced Assistive Technology in the Inclusive Classroom</td>
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<tr>
<td>ED-D 590</td>
<td>Directed Studies in Educational Psychology and Leadership Studies</td>
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<tr>
<td>ED-D 591A</td>
<td>Selected Topics Learning, Development and Instructional Sciences</td>
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<tr>
<td>ED-D 591B</td>
<td>Selected Topics Measurement, Evaluation and Computer Applications</td>
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<tr>
<td>ED-D 591C</td>
<td>Selected Topics in Special Education</td>
</tr>
<tr>
<td>ED-D 591D</td>
<td>Selected Topics in Counselling</td>
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</table>
ED-D 591E Units: 1.5
Selected Topics in Leadership Studies
Note: May be taken more than once for credit in different topics.

ED-D 597 Units: 1.5
Comprehensive Examination - Educational Psychology and Leadership Studies
A required element of all MEd programs. Typically held within one month of completion of all coursework. Examination format may be either written or oral, as decided upon by the program supervisor in consultation with the candidate. Areas of examination and examiners are established by each program area (counselling, educational psychology, special education, leadership studies).
Grading: INP, COM, N, F.

ED-D 598 Units: 3.0
Project - Educational Psychology and Leadership Studies
Evidence of independent research work in the form of a project, extended paper(s), work report, etc., as determined within the department. Planned and carried out with a project supervisor.
Grading: INP, COM, N, F.

ED-D 599 Units: 6.0
Thesis - Educational Psychology and Leadership Studies
Grading: INP, COM, N, F.

ED-D 600 Units: 1.5
Learning and Teaching in Higher Education
Explores instructional research and contemporary practices in higher education. Topics include using effective teaching strategies, developing course curriculum, and exploring various instructional models and media. Content is guided by recent research in the psychology of learning and instruction.
Notes:
• Students who are not in the LATHE Program and wish to take a course in this area may consider ED-D 614.
• With permission of the department, students who have taken ENGL 502 or WRIT 509 may obtain credit for ED-D 600.
Prerequisite(s): Admission to Graduate Certificate in Learning and Teaching in Higher Education (LATHE).

ED-D 605 Units: 3.0
Educational Psychology: Apprenticeship in Teaching in Higher Education
Explores research and rhetoric associated with numerous models of instruction found frequently in post-secondary contexts such as lecture, recitation, small-group discussion, and online learning. As each instructional model is examined, students will practice supporting instructional skills and strategies.
Prerequisite(s): Admission to Graduate Certificate in Learning and Teaching in Higher Education (LATHE).
Pre- or Corequisite(s): ED-D 600 or EDCI 560.
Grading: COM, N, F.

ED-D 610 Units: 1.5
Contemporary Issues in Higher Education
Critically examines the problems and issues that dominate current thought and discussion in higher education in Canada and internationally. Topics considered will include globalization and internationalization, university governance, teaching and learning, the nature of academic work, corporatization of postsecondary institutions, credentialism, and relations between higher education and the state.
Prerequisite(s): Permission of the department.

ED-D 614 Units: 1.5
University Teaching
An extensive review of research and instructional practices at the post-secondary level. Topics include models of instruction, teaching strategies, course development principles, and assessment practices.
Prerequisite(s): Admission to a graduate program.

ED-D 615 Units: 1.5 or 3.0
Individual Apprenticeship in University Teaching
Students undertake an individualized apprenticeship experience with a sponsoring faculty member. The broad aim of the apprenticeship is to offer students guided practice in university instruction.
Note: May be taken more than once for credit in different topics with approval of the student's supervisory committee.
Prerequisite(s): Admission to a graduate program.
Grading: COM, N, F.

ED-D 620 Units: 1.5
Educational Psychology: Doctoral Apprenticeship in Research
Individualized opportunity for doctoral students to develop advanced research skills by apprenticing in faculty research or extra-to dissertation research. Students are expected to spend approximately 9-10 hours a week participating in research activities. The apprenticeship typically involves a range of activities including organization and training of research assistants, submission of an ethics application, management of research databases, data analysis, and preparation and submission of materials for publication and/or presentation.
Note: Students may repeat this course, but credit will be granted only once.
Prerequisite(s): Admission to a doctoral program; or permission of the department.
Grading: INP, COM, N, F.

ED-D 660 Units: 1.5
Doctoral Seminar in Contemporary Issues in Educational Psychology
A seminar for doctoral students examining contemporary issues in educational psychology. Attention is also given to guidelines for scholarly and professional practice.

ED-D 690 Units: 1.5-3.0
Advanced Directed Studies in Educational Psychology
Note: May be taken more than once for credit in different topics with permission of the department to a maximum of 4.5 units; however, no more than 3 units from the same instructor will be accepted except under exceptional circumstances.

ED-D 691 Units: 1.5 or 3.0
Advanced Special Topics in Educational Psychology
The content of these courses varies depending upon student interests and faculty areas of expertise. Courses often focus on timely issues and topics in the field.
Note: May be taken more than once for credit in different topics.

ED-D 693 Units: 3.0
Doctoral Candidacy Exam in Educational Psychology
PhD students write candidacy examinations in research methodology and in their area of focus within educational psychology. The format will consist of two written papers followed by an oral examination. In the oral examination, the candidate will be examined in both research methodology and his/her area of focus.
Normally, within thirty six months of registration as a provisional doctoral student and at least six months before the final oral examination, a student must pass the candidacy examination.
Grading: INP, COM, N, F.

ED-D 699 Units: 30.0
PhD Dissertation
Grading: INP, COM, N, F.

EDCI Curriculum and Instruction Studies
Department of Curriculum and Instruction
Faculty of Education
EDCI 510 Units: 1.5
Research Issues and Studio Development in Art
Review of contemporary art education research issues; development of a teaching creed and proposal; studio exploration linked to current instructional practice.
Note: Credit will be granted for only one of EDCI 510, ED-A 570.

EDCI 511 Units: 1.5
Research in Drawing and Studio Development
Review of literature on the development of drawing; analysis of theory and current teaching practices; an investigation of ideas and approaches through actual engagement in drawing.
Note: Credit will be granted for only one of EDCI 511, ED-A 571.

EDCI 512A Units: 1.5
Formerly: Half of EDCI 512
Digital Arts
An extensive exploration of digital studio practices focusing on visual expression, graphics, and fine art. Working in the digital studio, students will learn to generate creative ideas, collect resources, produce artwork, and integrate digital and traditional processes using industry-standard software packages. Emphasis on the production and teaching of digital arts for creative, educational and studio environments. No previous computer experience is required.
Note: Credit will be granted for only one of EDCI 512A, EDCI 512.
EDCI 512B Units: 1.5
Formerly: half of EDCI 512
Digital Presentation
An extensive exploration of the tools and processes used in presenting studio media in digital formats. Students will learn how to organize existing studio materials, processes, ideas, and resources into dynamic presentation structures using still/motion visuals, text and audio. A strong focus will be given to the production formats required for final graduate presentations. 
Note: Credit will be granted for only one of EDCI 512B, EDCI 531.

EDCI 513 Units: 3.0
Community Art Education
Issues related to community art programs that play a role in sociocultural development and raising awareness about aesthetics.

EDCI 514 Units: 1.5
Educational Discourses
An opportunity for engagement in the research community, advancing the development of student’s own capacity for research, and a critical examination of contemporary literature on functional educational concepts, research issues and implications for curriculum and instruction.

EDCI 515 Units: 1.5
e-Research: Harnessing and Understanding Technology in Research
A blended multi-media/research course that focuses on relevant issues involved in using information and communication technologies (ICT) and the Internet for research purposes. In addition to developing some foundational skills, students will learn about methods, techniques, as well as ethical and practical issues.
Note: Credit will be granted for only one of EDCI 515, ED-B 515.

EDCI 517 Units: 1.5
Formerly: EDCI 542A
Reading Processes in the School Curriculum: Research and Processes
Examines and analyzes research and models of reading, and the processes of reading and reading development. 
Note: Credit will be granted for only one of EDCI 517, EDCI 542A, EDCI 542, ED-B 542.

EDCI 518 Units: 1.5
Formerly: EDCI 540A
Research in Language and Literacy: Curriculum Development
A critical analysis of theories and research related to curriculum development and implementation in language and literacy. 
Note: Credit will be granted for only one of EDCI 518, EDCI 540, EDCI 540A, ED-B 540.

EDCI 520 Units: 1.5 or 3.0
Seminar in Contemporary Educational Issues in Philosophical Perspective
A survey of issues selected from leading contemporary thinkers and how they relate to the basic values, purposes and problems of education. 
Note: Credit will be granted for only one of EDCI 520, ED-B 520.

EDCI 521 Units: 1.5
Contemporary Educational Issues in Historical Perspective
Historical examination of significant educational writings, the social context in which they were written, and their influence on contemporary educational issues. Special emphasis is placed on writings that illuminate themes of educational change and that illustrate the relationship between the character of a society and the nature of its educational institutions. 
Note: Credit will be granted for only one of EDCI 521, EDCI 521A, EDCI 521B, ED-B 521A, ED-B 521B.

EDCI 523 Units: 1.5
Diverse Voices and Visions in Education
An examination of diverse educational and cultural perspectives in education and ways of knowing not usually encompassed in other courses. Students will explore how these diverse perspectives shape, challenge, and enrich established educational methodologies.

EDCI 531 Units: 1.5
Introduction to Curriculum as Discourse
An overview of the field of curriculum studies from the early 20th century forward. Invites students to reflect on implications of curriculum as discourse within their own educational concepts and practices and to imagine new possibilities. 
Note: Credit will be granted for only one of EDCI 531, EDCI 531A, EDCI 531B, ED-B 535A, ED-B 535B.

EDCI 532 Units: 1.5
Emerging Trends and Topics in Curriculum Studies
An examination of recent publications, presentations and conference proceedings to identify and discuss emerging trends and topics in the field of curriculum studies.

EDCI 533 Units: 1.5
Theory and Practice in Curriculum Design and Change
Description of traditional and alternative approaches to curriculum planning and implementation in terms of origins, underlying assumptions, utility in various settings and effects. Invites students to identify and characterize their own approaches to curriculum planning and implementation. 
Note: Credit will be granted for only one of EDCI 533, ED-B 536, ED-B 537.

EDCI 536 Units: 1.5
Language Processes in the School Curriculum: Oracy
An examination of processes through which competence in listening and speaking is developed. Includes analysis of research, methods and materials relevant to oracy. 
Note: Credit will be granted for only one of EDCI 536, EDCI 543, EDCI 543A, ED-B 543.

EDCI 546 Units: 1.5
Literacies Research
A critical review of research methodologies used in the general area of language arts. Consideration of the appropriateness of specific methodologies to research in classroom problems. 
Note: Credit will be granted for only one of EDCI 546, ED-B 546.

EDCI 548 Units: 1.5
Development and Implementation of the Curriculum
Application of relevant theories and models to the design and development of school curricula in a specific area. 
Note: Credit will be granted for only one of EDCI 548, EDCI 548A, EDCI 548B, EDCI 548C, ED-B 558.

EDCI 549 Units: 1.5
Gender and Pedagogy
Draws upon historical and contemporary perspectives to provide lenses for analyzing various research issues and concerns in relation to educational policy and classroom practice. Inclusion and transformation are critical elements of the concepts developed in this course. Issues of gender influencing educational policy and practices will be examined, including areas such as curriculum development, teaching strategies, selection of curricular materials, professional interactions, and selection of teaching specialty areas. 
Note: Credit will be granted for only one of EDCI 549, EDCI 591 (if taken in the same topic).

EDCI 550 Units: 1.5
Seminar: Research in Early Childhood Education
Analysis, interpretation, and evaluation of selected research in early childhood education through study of its conceptual and methodological bases. 
Note: Credit will be granted for only one of EDCI 550, ED-B 550.
Prerequisite(s):
• 1.5 units of EDCI course numbered 550 or higher, or
• permission of the department.

EDCI 551 Units: 1.5
The Young Child in Today’s Society
An exploration of topics related to young children (birth through age 9) and their education in the context of Canadian society. Addresses several major questions, including: Who are today’s young children? What are the issues and challenges facing Canadian children and families? How can early childhood programs address these challenges? 
Note: Credit will be granted for only one of EDCI 551, ED-B 551.

EDCI 552 Units: 1.5
Contemporary Trends in Early Childhood Education
An examination of perspectives that influence early childhood education in national and international contexts. Topics include: the inclusion of children’s knowledge in early childhood settings; the potential role of families in early years’ programming; the creation of programs that support children’s holistic development; the impact of cultural values on young learners; and the commonalities and differences of global, early learning settings. 
Note: Credit will be granted for only one of EDCI 552, ED-B 552.

EDCI 554 Units: 1.5
Comparative Early Childhood Education: Curriculum, Context and Culture
Analysis and evaluation of approaches to curriculum, administration, and assessment in programs for preschool, kindergarten, and primary-aged children in cross-cultural contexts. 
Note: Credit will be granted for only one of EDCI 554, ED-B 549.
EDCI 556  
Units: 1.5  
Language Processes in the School Curriculum: Writing and Representing  
An examination of processes through which skills and competence in composition are developed. Includes analysis and evaluation of research, methods and materials relevant to instruction in composition.  
Note: Credit will be granted for only one of EDCI 556, EDCI 543, EDCI 543B, ED-B 543.

EDCI 558  
Units: 1.5  
Differentiated Instruction: Needs of Diverse Learners  
Examines research and practice of differentiated instruction across the curriculum, with an emphasis on literacy at all levels. Investigates the philosophy and theory behind differentiated instruction and exemplary practices. Focuses on flexibility in how curriculum content, processes and representations of knowledge are designed within a differentiated model. Discussion of differentiated instructional models in relation to current trends in Canadian curriculum.  
Note: Credit will be granted for only one of EDCI 558, EDCI 591 (if taken in the same topic).

EDCI 565  
Units: 1.5  
Research and Practice of Learning Design  
An in-depth look at the research and practice of learning design and its application to technology-enabled interactive learning environments. Students will critically examine theories and principles of learning design, explore how they can maximize the effectiveness, efficiency and appeal of learning experiences for learners; and teach for understanding.

EDCI 566  
Units: 1.5  
EDUCoaching for Technology Integration  
An exploration of principles and models of educational change through professional development coaching within the context of technology adoption theories. Students will actively coach or be coached during this course.

EDCI 567  
Units: 1.5  
Interactive and Multimedia Learning Theories  
An in-depth analysis of theories and applications of multimedia learning in interactive learning environments. Students will explore the latest research, compare, and critique current practices and emerging technologies such as touch input devices, for creating rich educational experiences.

EDCI 568  
Units: 1.5  
Discourse on Social Media for Connected and Personalized Learning  
Exploration of current research on communities of learning to situate discussion on connected practices for both personalized and professional learning. Critical discourse will focus on the balance of opportunities afforded by connected learning as well as issues such as cyber bullying, safety, and privacy in online environments.

EDCI 569  
Units: 1.5  
The Distributed, Blended and Open Classroom  
An examination of current research and models of distributed learning and the theories that drive successful learning experiences in a variety of configurations such as online, blended, multi-access, and open learning.

EDCI 570  
Units: 1.5  
Research in Curriculum and Instruction in the Elementary Grades  
Review of the critical issues, analysis of significant research on curriculum development at the elementary school level.  
Note: Credit will be granted for only one of EDCI 570, EDCI 570A, EDCI 570B, EDCI 570C, EDCI 570D, EDCI 570E, ED-E 540.

EDCI 571  
Units: 1.5  
Research in Curriculum and Instruction in the Secondary Grades  
Review of the critical issues, analysis of significant research on curriculum development at the secondary level.  
Note: Credit will be granted for only one of EDCI 571, EDCI 571A, EDCI 571B, EDCI 571C, EDCI 571D, EDCI 571E, EDCI 571F, ED-E 541.

EDCI 572  
Units: 1.5  
Development and Implementation of the Curriculum  
Application of relevant theories and models to the design and development of school curricula in a specified area.  
Note: Credit will be granted for only one of EDCI 572, EDCI 572A, EDCI 572B, EDCI 572C, EDCI 572D, EDCI 572E, EDCI 572F, ED-E 558.

EDCI 574  
Units: 1.5  
Environmental Education Perspectives  
A multi-disciplinary approach to exploring goals for environmental and outdoor education; cultural differences in perceptions of community-environment relationships; the traditional ecological knowledge and wisdom of First Nations Peoples; current issues and trends; the research related to students’ environmental knowledge, attitudes and values; teaching strategies; and assessment techniques. Selected field trips.  
Note: Credit will be granted for only one of EDCI 574, ED-E 574.

EDCI 575  
Units: 1.5  
Global Education  
Explores critical global issues through the strands of environment, development, peace and human rights. Pedagogical concerns vary with student interests and include values education, teaching controversial issues, and dealing with children’s despair about the future.  
Note: Credit will be granted for only one of EDCI 575, ED-E 546.

EDCI 576  
Units: 1.5  
Ecology, Pedagogy, and Practice  
Theoretical examination of discourses that may include: the Deep Ecology Movement, Systems Theory, Eco-justice, and Cognitive Science to identify and discuss key issues in a variety of disciplinary areas as these relate to pedagogy and practice.  
Note: Credit will be granted for only one of EDCI 576, EDCI 591.

EDCI 580  
Units: 1.5  
Qualitative Research Methods  
Provides a survey of a variety of qualitative methods, and opportunities for learners to develop competencies in research practices common to qualitative inquiry.  
Note: Credit will be granted for only one of EDCI 580, ED-B 580.

EDCI 581  
Units: 1.5  
Research Methodologies in Education  
An opportunity for students to become familiar with various approaches to research, especially those relevant to their inquiries with special emphasis on the intellectual, social, and cultural contexts and ethics of research.

EDCI 582  
Units: 1.5  
Writing as Research  
Writing as a mode of inquiry, with particular emphasis on the practice of writing. Includes all forms of interpretive inquiry, especially narrative, phenomenological, hermeneutic and autobiographical inquiry.  
Note: Credit will be granted for only one of EDCI 582, ED-B 582.

EDCI 584  
Units: 1.5  
Analysis of Quantitative and Mixed Methods Research  
An introduction to the understanding, critical analysis, and evaluation of the theoretical and practical issues related to published quantitative or mixed methods research in the field of education.

EDCI 590  
Units: 1.5  
Directed Study - Curriculum and Instruction  
Notes:  
• May be taken more than once for credit in different topics.  
• Pro Forma required.  
Prerequisite(s): Permission of the faculty.

EDCI 591  
Units: 1.5 or 3.0  
Selected Topics in Curriculum and Instruction  
A variable content course. Normally restricted to course offerings and not individual study.  
Note: May be taken more than once for credit in different topics.

EDCI 597  
Units: 1.5  
Comprehensive Examination  
A written and/or oral comprehensive examination, which must be passed as required for individual Master of Education programs.  
Note: Credit will be granted for only one of EDCI 597, ED-A 597, ED-B 597, ED-E 597.  
Grading: INP, COM, N, F.

EDCI 598  
Units: 3.0  
Project - Curriculum and Instruction  
Grading: INP, COM, N, F.

EDCI 598A  
Units: 1.5  
Project Proposal and Literature Review  
Encourages discussion of alternate approaches to project topics as well as examine the components of a project proposal, especially the features of an effective literature review. The proposal and literature review for the MEd project must be accepted by the 598A course instructor and the student’s program supervisor.  
Note: Students who do not complete the course requirements may register a second time for the course. Incomplete course requirements in the second term will result in withdrawal from the program. There are appeal procedures for extenuating circumstances.  
Prerequisite(s): Admission to a Community-based MEd program.  
Grading: COM, INP, N, F.
EDCI 598B - ENGL 507

EDCI 598B Units: 1.5
Project
The project proposal approved in 598A is to be completed and will include the approved literature review, an analytic and professional reflection on the contributions of the project. A project may be presented in any appropriate form - prose, performance, multimedia, or exhibition for example - but must include a written submission of moderate length. The successful completion of the project requires the approval of the course instructor and the student's program supervisor.

Notes:
- Students who have completed equivalent prerequisites may request permission to register in the course.
- Students who do not complete the course requirements may register a second time for the course. Incomplete course requirements in the second term will result in withdrawal from the program. There are appeal procedures for extenuating circumstances.

Prerequisite(s):
- EDCI 598A; or
- admission to a Community-based MEad program.

Grading: INP, INP, N, F.

EDCI 599 Units: 7.5
Thesis - Curriculum and Instruction

Grading: INP, COM, N, F.

EDCI 601 Units: 1.5
Interdisciplinary Doctoral Seminar

The purpose of Doctoral Seminar is to create a community of scholars in which faculty and graduate students share and support each other’s current research projects.

Note: May be taken more than once for credit in different topics to a maximum of 6 units.

Prerequisite(s): Admission to a doctoral program.

EDCI 614 Units: 1.5
Discourses in Educational Studies

Formerly: EDCI 600

An opportunity for engagement in the research community, advancing the development of student's own capacity for research, and a critical examination of contemporary literature on functional educational concepts, research issues and implications for curriculum and instruction.

Note: Credit will be granted for only one of EDCI 614, EDCI 600.

EDCI 632 Units: 1.5
Emerging Trends in Curriculum Studies

An examination and theoretical critique of emerging trends and topics in the field of curriculum studies as they appear in recent publications, presentations, and conference proceedings.

Note: Credit will be granted for only one of EDCI 632, EDCI 633.

EDCI 633 Units: 1.5
Discourses in Curriculum Design and Change
Identification, analysis and critique of current discourses of curriculum development, implementation, and change found in educational practice and in theoretical literature.

Note: Credit will be granted for only one of EDCI 633, EDCI 532.

EDCI 673 Units: 1.5
ICT in Environmental, Mathematics, Science Instruction

Explores the changes information and communication technologies (ICT) have made on learning and instruction in environmental, mathematics and science education. Theoretical, classroom instruction, and research implications will be considered.

EDCI 681 Units: 1.5
Advanced Research Design

Explores research methodologies appropriate to specific research problems, questions, and contexts. An examination of the purposes of research, the role of literature review, educational theories, and design of a research question considering the relationship between question and research method.

Note: Students who have completed a master’s level research methods course may request permission to register in the course.

Prerequisite(s): Permission of the faculty.

EDCI 690 Units: 1.5 or 3.0
Directed Studies - Curriculum and Instruction

Under the direction of program supervisors, topics in the area of research interests of doctoral students will be examined, leading to the development of background material for a PhD dissertation.

Notes:
- May be taken more than once for credit in different topics.
- Pro Forma required.

Prerequisite(s): Set by department depending upon topic.

EDCI 691 Units: 1.5 or 3.0
Selected Topics in Curriculum and Instruction

Issues pertaining to students’ research interests and faculty expertise will be examined.

Notes:
- May be taken more than once for credit in different topics.
- Pro Forma required.

Prerequisite(s): Set by department depending upon topic.

EDCI 693 Units: 3.0
Candidacy Examination - Curriculum and Instruction

Candidacy Examinations which must be passed as required for individual Doctor of Philosophy Programs within the Faculty of Education. Exams will be reviewed and graded by all members of the individual’s Doctoral Committee.

Grading: INP, COM, N, F.

EDCI 699 Units: 30.0
PhD Dissertation - Curriculum and Instruction

Prerequisite(s): EDCI 693.

Grading: INP, COM, N, F.

ENGL English

ENGL 500 Units: 1.5
Textual Studies and Methods of Research

Advanced training in research skills, textual studies, disciplinary issues, and professional life. Covers bibliography (analytical, descriptive, and enumerative), methods of research, appropriate forms of citation and documentation, and the dissemination of research.

Note: Compulsory for all graduate students, except those who can show equivalent previous credit.

ENGL 502 Units: 1.5
Teaching Literature and Composition

A preparation for teaching English literature and composition at universities and colleges. Includes: 1) a seminar and 2) a practicum in which students acquire practical experience in classrooms both at the University of Victoria and Camosun College. Covers a range of theoretical issues relating to teaching and learning as cultural activities such as: class, race and gender in the classroom; the politics, power dynamics and ethics of pedagogy; the influence of theory on pedagogical practice.

Note: Evaluated on a pass/fail basis. Seminar and practicum are given equal weight; however, their proportion may vary from week to week and from term to term.

Grading: INP, COM, N, F.

ENGL 503 Units: 1.5
Special Studies I

ENGL 505 Units: 1.5
Studies in Literary Theory: Area Course

ENGL 506 Units: 1.5
Studies in Literary Theory: Special Topic

ENGL 507 Units: 1.5
Digital Literary Studies: History and Principles

Survey of intellectual traditions and emergent concerns associated with computing in literary studies. Topics may include material relating to literary digital representation, analysis, communication, and creation, and involve theoretical considerations and pragmatic approaches.

Note: Credit will be granted for only one of ENGL 507, ENGL 590 (if taken in the same topic).
An introduction to interdisciplinary study in the literatures of the West Coast. Primary areas of investigation include: Borders and Regions; Historiographies; Pacific Diasporas; Migrations, and Nations; Identity and Place. Compulsory for students in the Literatures of the West Coast Concentration.

**ENGL 582**

Studies in the Literature of the West Coast

**ENGL 583**

Units: 1.5

Studies in the Literature of the West Coast

**ENGL 584**

Units: 1.5

Studies in Canadian Literature: Area Course

**ENGL 585**

Units: 1.5

Studies in Canadian Literature: Special Topic

**ENGL 586**

Units: 1.5

Studies in Canadian Literature: Special Topic

**ENGL 589**

Units: 1.5

Directed Reading

**ENGL 590**

Units: 3.0-4.5

Master's Essay or Project

Students are required to complete a Master's Essay or Project and a final oral examination based on that essay or project. It should not exceed 10,000 words (or the equivalent in digital, editorial, or bibliographical components), plus notes and bibliography. This essay or project will normally be a revised and extended version of a paper or project prepared for one of the student's courses.

**Note:** Students entering the program effective September 2009, and students doing a concentration in Literatures of the West Coast, will complete a Master's Essay or Project (not to exceed 10,000 words) worth 4.5 units. All other students who entered the program prior to September 2009 will complete a Master's Essay (not to exceed 6,500 words) worth 3 units.

**Grading:** INP, COM, N, F.

**ENGL 598**

Units: 1.5

Studies in the Literature of the 17th Century: Area Course

**ENGL 599**

Units: 7.5

MA Traditional or Alternative Thesis

**Grading:** INP, COM, N, F.

**ENGL 600**

Units: 1.5

Studies in the Literature of the 17th Century: Special Topic

**ENGL 610**

Units: 1.5

Studies in American Literature Pre-1914: Area Course

**ENGL 620**

Units: 1.5

Studies in American Literature 1914 to the Present: Area Course

**ENGL 630**

Units: 1.5

Studies in American Literature: Special Topic

**ENGL 640**

Units: 1.5

Studies in Canadian Literature: Area Course

**ENGL 650**

Units: 1.5

Studies in Canadian Literature: Special Topic

**ENGL 659**

Units: 18.0-33.0

PhD Dissertation

**Prerequisite(s):** ENGL 693.

**Grading:** INP, COM, N, F.

**ENTC 510**

Units: 1.5

Entrepreneurship Searching and Screening

Provides students with the tools to identify ideas for new ventures through systematic searching. Screening tools and techniques enable students to distinguish between a good idea and a good opportunity. Topics for the course include opportunity identification, opportunity analysis and proof of concept. Students will utilize criteria to successfully screen opportunities and recognize personal criteria that can be used in evaluating new ventures and innovation strategies.

**Prerequisite(s):**
- Admission to Graduate Certificate program in Entrepreneurship,
- permission of the school.

**ENTC 520**

Units: 1.5

Entrepreneurship Planning and Financing

Develops the student’s ability to tell the “story” of a new venture idea with just enough facts and details to convey to investors that the business is viable. Topics for the course include strategies for commercialization, entrepreneurial finance and securing and protecting resources. Students will study how to raise money strategically and how to work with various potential investors and asset classes.

**Prerequisite(s):** Admission to Graduate Certificate program in Entrepreneurship.

**ENTC 530**

Units: 1.5

Entrepreneurship Set-up and Launch

Focuses on systems and models that enable the entrepreneur to maximize the business operating environment. Operations analysis tools and methodology are presented to assist in designing, planning, and controlling operations. Topics for the course include securing commitment, entrepreneurial marketing and communications, entrepreneurial systems and exit strategies; gain strategic and tactical skills to launch and operate a new company with a limited budget for the first twelve to eighteen months of a company’s life.

**Prerequisite(s):** Admission to Graduate Certificate program in Entrepreneurship.

**ENTC 540**

Units: 1.5

Entrepreneurship Growth and Context Expertise

Enables students to grow their own entrepreneurial companies by emphasizing innovation and value capture in a dynamic environment. Topics for the course include managing growth and change and entrepreneurs as global citizens. Students will choose one of the following four special topics of focus for the final third of the course: (1) Technology-based ventures, (2) service-based ventures, (3) internet-based ventures, or (4) doing business in China.

**Prerequisite(s):** Admission to Graduate Certificate program in Entrepreneurship.
Entrepeneurship Diploma
Peter B. Gustavson School of Business

ENTD 590 Units: 3.0
Entrepreneurship Practicum and Directed Studies Seminar
Provides a practical opportunity to apply all student entrepreneurial knowledge and skills from the four courses that constitute the Graduate Certificate in Entrepreneurship. Students will implement a business plan for a new venture or an existing company. Through journals, reports, discussions and faculty mentoring, students will conduct both personal and situational analysis in the entrepreneurial environment in which they launch and operate their new business or new value creation project.
Prerequisite(s):
• All of ENT C 510, ENT C 520, ENT C 530, ENT C 540; and
• admission to Graduate Diploma program in Entrepreneurship.

Earth and Ocean Sciences
School of Earth and Ocean Sciences
Faculty of Science

EOS 503 Units: 1.5
Global Biogeochemical Cycles
Tracks the fate of organic matter from its formation (primary production) through its transformation and destruction during transport, depositional, and diagenetic remineralization processes. Global carbon, nitrogen, phosphorus, and sulphur cycles are discussed. Emphasis is placed on describing the fluxes of nutrients and other major compounds within soils, and the sedimentary and water columns, and across their interface.

EOS 504 Units: 1.5 or 3.0
Selected Topics in Geochemistry
Topics are selected from the fields of solid earth, organic, marine, atmospheric and planetary geochemistry and biogeochemistry. Examples include geochemical tracers in oceanography and climate, ocean biogeochemical processes, environmental geochemistry, trace element and isotope geochemistry, hydrosphere-lithosphere interactions and high-temperature geochemistry.
Note: May be taken more than once for credit in different topics.

EOS 508 Units: 1.5
Marine Geology
A seminar course covering modern processes of marine geology, including depositional processes and diagenesis of marine sediments. Examines a range of depositional environments: fjord and coastal, shelf, slope, and oceanic; with consideration of the data obtained from DSDP and ODP drilling.

EOS 510 Units: 1.5
Plate Tectonics: the Geological Record
An examination of the processes of plate tectonics as revealed by the geological record, including Precambrian evolution of cratons; rifts and passive margins; convergent margins and orogens; plate motions through time.

EOS 513 Units: 1.5
Advanced Igneous and Metamorphic Petrology
An advanced style course focusing on advanced topics in igneous and metamorphic petrology and how the tools of petrology can be used for geodynamic reconstructions.

EOS 516 Units: 1.5
Formerly: EOS 516A
Ocean Acoustics
An introduction to the ocean as an acoustic medium, sound sources in the ocean, sound propagation in deep and shallow water, reflection and transmission processes at ocean boundaries, and ambient noise. Particular focuses can include acoustic signal processing, numerical propagation modelling, source localization, and ocean acoustic inversion.
Note: Credit will be granted for only one of EOS 516, EOS 516A.

EOS 518 Units: 1.5 or 3.0
Selected Topics in Earth, Ocean and Atmospheric Sciences
Examines selected research topic(s) from the fields of geology, oceanography, and/or atmospheric science.
Note: May be taken more than once for credit in different topics.

EOS 519 Units: 1.5
Selected Topics in Geophysics
Examples of topics include geodynamics or continuum mechanics with geological applications, time series analysis with geophysical applications, seismic data processing, well log analysis, environmental and engineering geophysics, and geophysics of the continental crust.
Note: May be taken more than once for credit in different topics.

EOS 523 Units: 1.5
Seismology
Theoretical and practical aspects of seismic wave propagation, earthquake seismology, and processing and interpretation of reflection and refraction data.

EOS 525 Units: 1.5
Research Frontiers in Earth and Ocean Science
This interdisciplinary Earth and Ocean Sciences course examines, in detail, global topics that are current, significant and which require input and integration across diverse disciplines. The specific topics change annually and the subject is taught by several SEOS/UVic faculty members.

EOS 526 Units: 1.5
Geophysical Inverse Theory
Inverse theory and its applications in Earth and Ocean Sciences. Topics include non-uniqueness, general linear least-squares, singular-value decomposition, regularisation, linearization, global inversion, Bayesian inversion, and Markov-chain Monte Carlo methods. Applications will be drawn from the research literature and include topics such as inversion of seismic, acoustic and geo-electromagnetic data, tomography and matched-field inversion.

EOS 531 Units: 1.5
Physical Oceanography
Physical properties of sea water, equation of state, gravitational stability, large-scale ocean currents, meridional distribution of salinity and temperature, surface heat budgets, water masses, estuary flows.
EPHE
Exercise Science, Physical and Health Education
School of Exercise Science, Physical and Health Education
Faculty of Education

EPHE 500 Units: 0
Research Seminar
An examination of contemporary research, theoretical, and practical issues in Exercise Science Physical and Health Education.
Grading: INP, COM, N, F.

EPHE 561 Units: 1.5
Current Issues in Leisure Services
Addresses the problems, challenges and opportunities facing the recreation-leisure service professional. Focus on concepts, theories and historical framework of leisure; nature and scope of the profession.
Note: Credit will be granted for only one of EPHE 561, PE 561.

EPHE 562 Units: 1.5
Administrative Planning Process
Examination of the planning process as it exists within federal, provincial, regional and municipal government recreation departments as well as not-for-profit and private sector leisure delivery organizations. Role of the recreation manager/administrator as leader, team member and facilitator.
Note: Credit will be granted for only one of EPHE 562, PE 562.

EPHE 563 Units: 1.5
Community Leisure Service Development
Exploration of the nature and function of leisure service development as a community based function. Focus on the development and use of other social service organizational models.
Note: Credit will be granted for only one of EPHE 563, PE 563.

EPHE 570 Units: 1.5
Skill Acquisition in Physical Education and Sport
A review of learning theories and principles as they pertain to the acquisition and retention of motor skills; the neural mechanisms involved in the learning and control of motor patterns; information processing in human performance; detailed study of research on memory, attention, retention systems, and movement control.
Note: Credit will be granted for only one of EPHE 570, PE 570.

EPHE 572 Units: 1.5
Physiology in Physical Education and Sport
The study of physiological basis for sport performance and fitness. The assessment of physiological status and the rationale for the prescription of exercise programs.
Note: Credit will be granted for only one of EPHE 572, PE 572.

EPHE 573 Units: 3.0
Research Methods
An overview of the qualitative and quantitative research approaches specific to the various disciplinary areas in the School of Exercise Science, Physical and Health Education. Underlying assumptions of both qualitative and quantitative research are discussed and the respective research processes are reviewed. Other topics include: the role of the researcher, selecting and developing a research problem; reviewing the literature; developing research hypotheses; issues in measurement; data collection issues, writing research proposals, research ethics, and communicating the results of research.
Note: Credit will be granted for only one of EPHE 573, PE 573.

EPHE 574 Units: 1.5
Administration of Physical Education, Recreation and Sport
After presenting a theoretical base for administrative and organizational theories, a link will be made to specific situations in the fields of physical education, recreation and sport.
Note: Credit will be granted for only one of EPHE 574, PE 574.

EPHE 575 Units: 1.5
Applied Sport Psychology
Provides students with a further understanding of concepts and principles underlying the field of sport psychology. Provides a basis for the use of mental training techniques such as imagery, self-talk, feedback, and focusing to improve sport performance and experiences.
Note: Credit will be granted for only one of EPHE 575, PE 575.

EPHE 576 Units: 1.5
Teaching and Coaching Effectiveness in Physical Education and Sport
A review of current models of effective teaching and coaching; observation and coaching systems; analysis of teaching and coaching behaviours; a review of current research.
Note: Credit will be granted for only one of EPHE 576, PE 576.

EPHE 577 Units: 1.5
Research Methods and Techniques in Coaching Studies
The development of research skills required to interpret the literature related to coaching and sport performance and develop a project proposal as part of the requirements for the degree.
Notes:
- Credit will be granted for only one of EPHE 577, PE 577, PE 577A.
- Taught in summer only.
Prerequisite(s): Admission to MEd program in Coaching Studies.

EPHE 578 Units: 1.5
Biomechanics
Note: Not open to students with credit in PE 578.

EPHE 579 Units: 1.5
Current Issues in Coaching Studies
Identification and selection of issues in coaching and sport for presentation, discussion and resolution. As leaders in sport, students will consider issues from both a content perspective and in the context of beliefs and values.
Note: Credit will be granted for only one of EPHE 579, PE 579B, PE 579.

EPHE 580 Units: 1.5
Physiological Issues in Physical Activity and Health
Selected issues and research examining the physiological responses and adaptations to exercise, especially as they relate to performance and/or health.
Note: Credit will be granted for only one of EPHE 580, PE 581.

EPHE 581 Units: 1.5
Psychological Issues in Physical Activity and Health
Examines selected current psychological issues affecting individual and group involvement in the different forms of physical activity and how these interact with performance and health from childhood to the senior years. Research in the field will be examined to assist the understanding of current beliefs and practices.
Note: Credit will be granted for only one of EPHE 581, PE 581.

EPHE 582 Units: 1.5
Neuroscience in Physical Activity and Health
A seminar on issues and research in neuroscience related to motor control across the lifespan and in typical and atypical populations.
Note: Credit will be granted for only one of EPHE 582, PE 582.

EPHE 583 Units: 1.5
Issues in Health Promotion and Wellness
Issues, research and values in health promotion and wellness related to physical activity. Topics may include community-based research in education, health, recreation and allied social service settings; social determinants of health and physical activity; and theory and practice of programs and policies affecting health, wellness and physical activity.
Note: Credit will be granted for only one of EPHE 583, PE 583.

EPHE 584 Units: 1.5
Pedagogical Issues in Physical Activity and Health
Current pedagogical research that influences national and provincial physical activity policies, school-based physical education programs and community-based physical activity programs.
Note: Credit will be granted for only one of EPHE 584, PE 584.

EPHE 585 Units: 1.5
Applied Sport Psychology
Provides students with a further understanding of concepts and principles underlying the field of sport psychology. Provides a basis for the use of mental training techniques such as imagery, self-talk, feedback, and focusing to improve sport performance and experiences.
Note: Credit will be granted for only one of EPHE 585, PE 585.

EPHE 586 Units: 1.5
Teaching and Coaching Effectiveness in Physical Education and Sport
A review of current models of effective teaching and coaching; observation and coaching systems; analysis of teaching and coaching behaviours; a review of current research.
Note: Credit will be granted for only one of EPHE 586, PE 586.

EPHE 587 Units: 1.5
Research Methods and Techniques in Coaching Studies
The development of research skills required to interpret the literature related to coaching and sport performance and develop a project proposal as part of the requirements for the degree.
Notes:
- Credit will be granted for only one of EPHE 587, PE 587, PE 587A.
- Taught in summer only.
Prerequisite(s): Admission to MEd program in Coaching Studies.
EPHE 585 Units: 1.5
Qualitative Research Genres Applied to Education, Health and Society
Examines issues surrounding the development of research representations that inform issues in education, health and society. A core component of the course will be to develop, gather data and report on a community based inquiry project. Qualitative genres based on different modes of inquiry will be explored and applied in a student developed inquiry project.
Note: Credit will be granted for only one of EPHE 585, PE 585.

EPHE 590 Units: 1.5 or 3.0
Directed Study
Notes:• May be taken more than once for credit in different topics.
• Pro Forma required.
Prerequisite(s): Permission of the school.

EPHE 591 Units: 1.5 or 3.0
Selected Topics in Exercise Science, Physical and Health Education
A variable content course.
Notes:• May be taken more than once for credit in different topics.
• Pro Forma required.

EPHE 597 Units: 1.5
Comprehensive Examination - Exercise Science, Physical and Health Education
Comprehensive examination which must be passed as required for individual Master of Education programs within the Faculty of Education.
Note: Credit will be granted for only one of EPHE 597, PE 597.
Grading: INP, COM, N, F.

EPHE 598 Units: 3.0-4.5
Project - Exercise Science, Physical and Health Education
Note: Not open to students with credit in PE 598.
Grading: INP, COM, N, F.

EPHE 599 Units: to be determined
Thesis - Exercise Science, Physical and Health Education
Note: Not open to students with credit in PE 599.
Grading: INP, COM, N, F.

EPHE 673 Units: 3.0
Doctoral Seminar
Doctoral students will become engaged in the research community, advance the development of their own capacity for research, and gain a deeper understanding and appreciation of multiple approaches to the study of physical activity. Topics include: current research in Exercise Science, Physical & Health Education, critical issues in research, the need for knowledge translation and dissemination, and the critical examination of students' emerging research questions.

EPHE 690 Units: 1.5 or 3.0
Directed Studies
Research topics will be pursued at the doctoral level under the direction of one or more faculty members.
Notes:• May be taken more than once for credit in different topics to a maximum of 6 units.
• Pro Forma required.

EPHE 693 Units: 3.0
Candidacy Exam - Kinesiology
Grading: INP, COM, N, F.

EPHE 699 Units: 18.0
PhD Dissertation - Kinesiology
Prerequisite(s): EPHE 693.
Grading: INP, COM, N, F.

ES Environmental Studies
School of Environmental Studies
Faculty of Social Sciences

ES 500 Units: 1.5
Perspectives on Environmental Theories, Methods and Skills I
An examination of contemporary theories, methods and skills that support environmental studies research. Weekly seminars will be preceded by a 3-day field camp in late August/early September (additional cost for field camp).
Note: Required core course.
Prerequisite(s): Admission to a graduate program in Environmental Studies.
Grading: INP, COM, N, F.

ES 501 Units: 1.5
Perspectives on Environmental Theories, Methods and Skills II
Builds on the foundation laid in ES 500, and continues to explore theories, methods and skills appropriate to each student's research program. A retreat is typically scheduled in mid-March (additional cost for field retreat).
Note: Required core course.
Prerequisite(s): Admission to a graduate program in Environmental Studies.
Grading: INP, COM, N, F.

ES 503 Units: 3.0
MA/MSc Research Colloquium
The Graduate Colloquium meets weekly from September to April. Papers are presented by graduate students, faculty, and visiting scholars. The colloquium exposes students to a wide range of conceptual and substantive issues that reflect the breadth and depth of environmental research. Attendance and participation in the colloquium is strongly encouraged throughout the degree program. Students receive 3 units of pass/fail credit during their first year.
Note: Required core course.
Grading: INP, COM, N, F.

ES 570 Units: 1.5
Field Study
Supervised research or organized projects related to environmental problems, supplemented by directed individual study. A formal report is required.

ES 580 Units: 1.5
Seminar in Political Ecology
Flexible topics course offered in a seminar format.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 581 Units: 1.5
Seminar in Ethnology
Flexible topics course offered in a seminar format.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 582 Units: 1.5
Seminar in Ecological Restoration
Flexible topics course offered in a seminar format.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 590 Units: 1.5
Directed Studies
Individual studies under the direct supervision of a faculty member. The content and evaluation must be approved by the School.

ES 593 Units: 1.5
Thesis Proposal Preparation
Students will work individually with their supervisor (or co-supervisors) and supervisory committee to develop a thesis proposal. An oral defense of the proposal shall take place no later than September 30th of the student's second year of full-time study or third year of part-time study. An annual research showcase will provide an opportunity for students to present their work in a formal setting. Credit shall be granted upon acceptance of the proposal with revisions (as necessary).
Note: Required core course.
Grading: INP, COM, N, F.

ES 599 Units: 7.5
MA, MSc Thesis
Grading: INP, COM, N, F.

ES 600 Units: 1.5
Advanced Perspectives on Environmental Theories, Methods and Skills I
An advanced examination of contemporary theory and research methods at the forefront of environmental studies research. Emphasis will be given to the intersection of scientific, humanistic, and traditional knowledge. A 3-day field camp will precede weekly seminars in late August/early September (additional cost for field camp).
Notes:• Required core course.
• Students with credit in ES 500 may be required to substitute ES 600 with another appropriate graduate course at the discretion of the student’s PhD committee and graduate adviser.
ES 601  Units: 1.5  
Advanced Perspectives on Environmental Theories, Methods and Skills II  
Takes a deep approach to different research methods, including qualitative and quantitative approaches, their strengths and weaknesses, rationales for their application, and how they can be combined in interdisciplinary research at the highest levels. PhD students will develop effective written, oral and graphical communication skills and an understanding of the range of ways for gaining reliable knowledge.

Notes:  
• Required core course.
• Students with credit in ES 501 may be required to substitute ES 601 with another appropriate graduate course at the discretion of the student's PhD committee and graduate adviser.

ES 603  Units: 3.0  
PhD Research Colloquium  
The Graduate Colloquium meets weekly from September to April. Papers are presented by graduate students, faculty, and visiting scholars. The colloquium exposes students to a wide range of conceptual and substantive issues that reflect the breadth and depth of environmental research. Attendance and participation in the colloquium is strongly encouraged throughout the degree program. Students require 3 units of pass/fail credit during their first year. Students will be required to make presentations of their own research.

Note: Required core course.
Grading: INP, COM, N, F.

ES 670  Units: 1.5  
Field Study  
Supervised field research or organized projects related to environmental problems, supplemented by directed individual study. A formal report is required.

ES 680  Units: 1.5  
Seminar in Political Ecology  
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 681  Units: 1.5  
Seminar in Ethnecology  
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 682  Units: 1.5  
Seminar in Ecological Restoration  
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

ES 690  Units: 1.5  
Directed Studies  
Individual studies under the direct supervision of a faculty member. The content and methods of assessment must be approved by the School.

ES 693  Units: 3.0  
PhD Candidacy Examination  
PhD students will prepare a comprehensive reading list, a dissertation proposal, and two major papers (on topics relevant to the PhD research field), and will sit for an oral examination related to the reading list.

Grading: INP, COM, N, F.

ES 699  Units: 21.0-30.0  
PhD Dissertation  
Grading: INP, COM, N, F.

FORB  
Forest Biology  
Department of Biology  
Faculty of Science  

FORB 515  Units: 1.5  
Mycology  

Notes:  
• Credit will be granted for only one of FORB 515, BIOL 415C.
• A combined undergraduate and graduate course.
• Please contact instructor for more information.

FORB 527  Units: 1.5  
Advanced Plant Biochemistry and Biochemical Ecology  
See BIOL 458. An additional research paper or presentation is required.

FORB 538  Units: 1.5  
Nutrient Cycling and Prokaryotes  
An introduction to prokaryotes (bacteria and archaea) and their role in nutrient cycling in forests, lakes and oceans. Diversity and evolution of populations and communities of prokaryotes and their role in the major biogeochemical cycles: carbon, nitrogen, sulfur. Genetic, biochemical, physiological and ecological aspects of processes such as nitrogen fixation and methanogenesis; design of experimental approaches to assess cycling of elements in forests, lakes and oceans by prokaryotes.

Notes:  
• Credit will be granted for only one of FORB 538, BIOL 438, BIOC 538.
• A combined undergraduate and graduate course.
• Please contact instructor for more information.

FORB 549  Units: 1.5  
Individual Study in Forest Biology  

Notes:  
• May be taken more than once for credit in different topics.
• Pro Forma required.

FORB 560  Units: 1.5  
Forest Biology Seminar  
Student and guest seminars on selected topics in forest biology and forest biotechnology and regeneration. Required of all graduate students in forest biology every year of their degree program (except by departmental permission) but will not count as part of their minimum graduate course requirement.

Grading: INP, COM, N, F.

FORB 570  Units: 1.5  
Advanced Topics in Forest Biology  
A series of lectures and seminars examining subjects of current interest that focus on the adaptations of trees and their interaction with the forest environment.

Notes:  
• May be taken more than once for credit in different topics.
• Pro Forma required.

FRAN  
French  
Department of French  
Faculty of Humanities  

FRAN 500A  Units: 1.5  
Introduction to Research Methods  
A review of the use of bibliographical tools, forms of citation and documentation. Presentation on research methods and approaches. Training in advanced library research and structuring a research project.

Note: Credit will be granted for only one of FRAN 500A, FRAN 500, FREN 500.

FRAN 500B  Units: 1.5  
Application of Research Methods  
Development of professional skills, including academic writing, effective presentation, digital literacy, time management and organisation of scholarly events or workshops.

Grading: INP, COM, N, F.

FRAN 502  Units: 1.5  
Applied Linguistics in French  

Notes:  
• Credit will be granted for only one of FRAN 502, FREN 502 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 503  Units: 1.5  
Studies in French Linguistics  

Notes:  
• Credit will be granted for only one of FRAN 503, FREN 503 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.
FRAN 504 Units: 1.5
Formerly: FREN 504
Studies in Culture and Society
Notes:
• Credit will be granted for only one of FRAN 504, FREN 504 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 505 Units: 1.5
Formerly: FREN 505
Studies in Literary Theory and Criticism
Notes:
• Credit will be granted for only one of FRAN 505, FREN 505 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 506 Units: 1.5
Studies in French Literature and Culture
Notes:
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 515 Units: 1.5
Formerly: FREN 515
Studies in Québec or French-Canadian Literatures
Notes:
• Credit will be granted for only one of FRAN 515, FREN 515 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 517 Units: 1.5
Formerly: FREN 517
Studies in Francophone African or Caribbean Literatures
Notes:
• Credit will be granted for only one of FRAN 517, FRAN 518, FREN 517, FREN 518 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 524 Units: 1.5
Formerly: FREN 524
Studies in Transmediation
Notes:
• Credit will be granted for only one of FRAN 524, FREN 524 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 525 Units: 1.5
Formerly: FREN 525
Studies in Translation
Notes:
• Credit will be granted for only one of FRAN 525, FREN 525 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Variable content course.

FRAN 580 Units: 1.5
Formerly: FREN 580
Special Topics
An examination of topics in an emerging field or one not covered in regular offerings.
Notes:
• Credit will be granted for only one of FRAN 580, FREN 580 (if taken in the same topic).
• May be taken more than once for credit in different topics.

FRAN 590 Units: 1.5 or 3.0
Formerly: FREN 590
Directed Studies
A course designed to enable students to pursue individual interests.
Notes:
• Credit will be granted for only one of FRAN 590, FREN 590 (if taken in the same topic).
• May be taken more than once for credit in different topics.
• Pro Forma required.

FRAN 598 Units: 4.5
Formerly: FREN 598
Reading List/Oral
A reading list compiled in consultation with advisers, a short critical paper, and an oral exam.
Note: Credit will be granted for only one of FRAN 598, FREN 598.
Grading: INP, COM, N, F.

FRAN 599 Units: 7.5
Formerly: FREN 599
Thesis/Oral
Thesis (topic to be selected in consultation with Graduate Committee as the development of coursework) and oral examination.
Notes:
• Credit will be granted for only one of FRAN 599, FREN 599.
• Thesis option is by invitation of the Graduate Committee only.
Grading: INP, COM, N, F.

GEOG Geography
Department of Geography
Faculty of Social Sciences
GEOG 500A Units: 1.5
Formerly: part of GEOG 500
Geographical Research Approaches
Examines the diverse approaches to geographical research. Students will participate in weekly seminar discussions and develop a context paper that reviews the geographical literature in their research area. Students are also expected to attend the departmental lecture series as part of their course participation.
Notes:
• Credit will be granted for only one of GEOG 500A, GEOG 500.
• Required core course for all students.

GEOG 500B Units: 1.5
Formerly: part of GEOG 500
Research Design in Geography
Examines key strategies of research design and professional development in Geography. Students will participate in weekly seminar discussions and develop a master’s research proposal or doctoral scoping document that advances their primary research concentration. Students are also expected to attend the departmental lecture series as part of their course participation.
Notes:
• Credit will be granted for only one of GEOG 500B, GEOG 500.
• Required core course for all students.

GEOG 518 Units: 1.5
Advanced Spatial Analysis and Spatial Statistics
An opportunity to gain theoretical and applied experience in spatial statistics and advanced geographical analysis. Topics include: point pattern analysis, areal data analysis and spatial autocorrelation, and geostatistics (i.e., variograms and kriging). Labs and a final project are designed to provide students with hands on experience applying theory to a range of data sets and to a data set selected by the student.
Notes:
• Students who have equivalent GIS experience may request permission to register in the course.
• Master’s Program students are required to take one of GEOG 518, GEOG 523, GEOG 524.
Prerequisite(s):
• GEOG 328 and GEOG 329; or
• permission of the department.

GEOG 520 Units: 1.5
Introductory GIS for Graduate Research
Provides Geographic Information Systems (GIS) training for graduate students using GIS as a research tool. Topics include: GIS data types and representation, map projections, importing and exporting spatial data, data integration, attribute and spatial queries. Students completing this course will acquire the skills needed to conduct their own research using GIS.

GEOG 523 Units: 1.5
Qualitative Methods in Human Geography
This course will explore a range of theoretical and methodological approaches in qualitative analysis as it applies to human geography. Students expect to gain expertise in understanding epistemological orientations of objectivism, constructionism and interpretivism. Identification of a range of traditional and innovative methodologies that students may consider for research projects such as: ethnography, phenomenology, discourse analysis, etc. Common interview strategies and data collection and analysis methods and approaches will be explored.
Note: Masters students are required to take one of GEOG 518, GEOG 523, GEOG 524 or another ‘methods’ based course on recommendation of the supervisory committee as approved by the Graduate Adviser.

GEOG 524 Units: 1.5
Advanced Quantitative Methods
Examines the use and interpretation of selected multivariate statistics.
Note: Master’s Program students are required to take one of GEOG 518, GEOG 523, GEOG 524.
Prerequisite(s): 1.5 units of 200-level STAT course.
GEOG 536  Units: 1.5
Advanced Seminar in Human Geography
An advanced overview of theoretical approaches and major research paradigms in contemporary human geography.

GEOG 537  Units: 1.5
Advanced Seminar in Physical Geography
Selected research topics in biogeography, climatology, hydrology, geomorphology and soil science. Course content will vary annually, depending on graduate and faculty research interests. Seminars, faculty and guest lecturers and individual research projects will be utilized.
Note: Credit will be granted for only one of GEOG 537, GEOG 525.

GEOG 538  Units: 1.5
Advanced Seminar in Geomatics
Identifies and reviews knowledge and influential thought that have shaped and advanced the science of geomatics and associated technology through time. Students are introduced to the contemporary knowledge in geomatics, areas of application, unresolved questions and the present and future research agenda. Includes presentations by guest lecturers, readings and literature reviews.

GEOG 539  Units: 1.5
Advanced Seminar in Resource Management
A seminar dealing with resource management areas currently (or recently) being researched by members of the department. Topics will include: problem formulation, conceptual/literature background, fieldwork/data issues, analytical approaches and results/interpretation.
Note: Credit will be granted for only one of GEOG 539, GEOG 552.

GEOG 546  Units: 1.5
Advanced Topics in Human Geography
A special topics seminar in human and social geography. Topics vary by instructor.
Notes:
- May be taken more than once for credit in different topics.
- Not offered on a regular basis.

GEOG 547  Units: 1.5
Advanced Topics in Physical Geography
An examination of contemporary theoretical and/or applied research subjects in physical geography.
Notes:
- May be taken more than once for credit in different topics.
- Not offered on a regular basis.

GEOG 548  Units: 1.5
Advanced Topics in Geomatics
An examination of contemporary theoretical and/or applied research subjects in geomatics.
Notes:
- May be taken more than once for credit in different topics.
- Not offered on a regular basis.

GEOG 549  Units: 1.5
Advanced Topics in Resource Management
A seminar dealing with conceptual and research design issues involved with a project or problem area in resource management of interest to a faculty member.
Notes:
- May be taken more than once for credit in different topics.
- Not offered on a regular basis.

GEOG 590  Units: 1.5
Directed Studies in Geography
Note: MA, MSc and PhD students may only take one GEOG 590 course as part of their minimum program requirements. If they wish to take additional GEOG 590 courses these can be added to their minimum course load. Individual titles will be assigned to each numbered section of the course arranged by supervisory committees.

GEOG 591  Units: 1.5
Advanced Topics in Geography
Various advanced special topics courses spanning the discipline of Geography.
Note: Master's and Doctoral students may take only one GEOG 591 toward their minimum course requirements, but may take additional courses in different topics beyond their minimum load on the advice of their supervisory committee.

GEOG 599  Units: to be determined
MA, MSc Thesis
Grading: INP, COM, N, F.

GEOG 693  Units: 3.0
Candidacy Examination
By eighteen months of registration as a provisional doctoral student, a student must register for and eventually pass a candidacy examination. The candidacy exam format includes two take home essays (max. 30 pages each) and an oral exam (max. 2 hours). Essay 1 will focus on the development of thought in the candidate’s area of Geography (e.g., Physical, Human, Geomatics, or Resources) with an emphasis on linkages to the broader discipline. Essay 2 will focus on the candidate’s research area. An oral examination will follow within 2 to 3 weeks after the completion of Essay 2.
Grading: INP, COM, N, F.

GEOG 699  PhD Dissertation
Prerequisite(s): GEOG 693.
Grading: INP, COM, N, F.
### GMST 521 - GRS S90

**GMST 521 Units: 1.5**
Studies in Germanic Literatures and Cultures
Examination of literary works and cultural processes in Austria, Germany and/or Switzerland.

**GMST 530 Units: 1.5**
Formerly: GER 530
18th-Century Cultural Studies
Note: Credit will be granted for only one of GMST 530, GER 530.

**GMST 531 Units: 1.5**
Studies in Germanic Cultural History
A cultural studies approach to texts, films, performances, media and material objects and spaces in German-speaking societies.

**GMST 540 Units: 1.5**
Formerly: GER 540
19th-Century Cultural Studies
Note: Credit will be granted for only one of GMST 540, GER 540.

**GMST 550 Units: 1.5**
Formerly: GER 550
20th-Century Cultural Studies I
Note: Credit will be granted for only one of GMST 550, GER 550.

**GMST 551 Units: 1.5**
Formerly: GER 551
20th-Century Cultural Studies II
Note: Credit will be granted for only one of GMST 551, GER 551.

**GMST 561 Units: 1.5**
Transnational Cultural Studies
Examines contemporary texts and visual productions by migrant and immigrant authors, filmmakers and performance artists in Germany, Austria and Switzerland. Topics may include minority literature and film, hybridity, diasporic and borderland writing.

**GMST 565 Units: 1.5**
Adorno, Benjamin and Frankfurt School Critical Theory
Explores Frankfurt School Critical Theory through the cultural context of Weimar modernism through the fascist period to Germany in the 1960s. Juxtaposes the theory with the cultural context of Weimar modernism through the fascist regime.

**GMST 570 Units: 1.5**
Also: SLST 570
Studies in New Media in Second Language Acquisition
Critical examination of the current research on teaching a foreign language. Focus on learning and teaching outside of the language environment, foreign language learning theories, teaching methodologies and practices.

**GMST 580 Units: 1.5**
Also: HSTR 450
The Holocaust
Examines the origins, progression, central characters and legacies of the Nazi genocide. Focuses on Jewish experiences of Nazi terror and investigates how Nazi racial policy targeted other social and ethnic groups. Considers the post-1945 representation of the Holocaust in film, museum exhibits and memorials.

**GMST 583 Units: 1.5**
Teaching About the Holocaust
Introduces teaching approaches, methodologies and scholarly discourses in Holocaust Education. Analyzes a broad range of primary and secondary sources (oral testimonies, literature, film, mixed media art, photography and graphic novels), and discusses how they can be used in various educational settings both in Europe and North America.

**GMST 584 Units: 1.5**
Also: GMST 484
Holocaust Testimony and Archival Practice
Working with actual testimony from the USC Shoah Foundation, explores theoretical and practical aspects of indexing and conceptualizing Holocaust narratives and testimony.

**GMST 585 Units: 1.5**
Holocaust and Memory Studies
Explores issues of memory from the perspective of both gender and genre. Examination of issues of memory and post-memory, aspects of "truth" and positionality in memoirs, letters, diaries and documentaries, as well as the fascination with the Holocaust and WWII as a site of cultural memory.

**GMST 587 Units: 1.5**
Practicum in Holocaust Studies
An individually designed creative project, internship, or archival research paper based on a hands-on approach to Holocaust Studies.

**GMST 589 Units: 1.5**
I-witness Field School
Analysis of the ways in which the Holocaust is memorialized in Central Europe. One week of coursework at Uvic, followed by three weeks in Central Europe. Promotes intercultural learning through a variety of activities including joint workshops with European students and visits to memorial sites, museums and monuments of the Holocaust.

**GMST 590 Units: 1.5**
Formerly: GER 590
Directed Studies I
Notes:
- Credit will be granted for only one of GMST 590, GER 590.
- Pro Forma required.

**GMST 591 Units: 1.5 or 3.0**
Formerly: GER 591
Directed Studies II
Notes:
- Credit will be granted for only one of GMST 591, GER 591.
- Pro Forma required.

**GMST 598 Units: 4.5**
Research Paper or Project
A major research paper under the guidance of a supervisor and committee member. Students can also opt to submit a visual arts project, a performance-based production, or a creative writing project.

**GMST 599 Units: 6.0-9.0**
Formerly: GER 599
Thesis
Note: Credit will be granted for only one of GMST 599, GER 599.

**GRS**

**GRS 500 Units: 1.5**
Pro-seminar in Research Methods and Practices
Advanced research methods and issues including on-line research and other research. Dissemination of research and preparation for publication, including communication skills, presentation of research results either orally or in print, critical analysis, and response to scholarly questions. Best procedures for writing and preparing applications for grants, fellowships and employment. Approaches to professional academic life including practices of the discipline.

**GRS 501 Units: 3.0**
Greek Literature

**GRS 502 Units: 3.0**
Greek History

**GRS 503 Units: 3.0**
Latin Literature

**GRS 504 Units: 3.0**
Roman History

**GRS 505 Units: 3.0**
Ancient Art and Archaeology

**GRS 506 Units: 3.0**
Ancient Philosophy

**GRS 590 Units: 1.5-3.0**
Directed Individual Study
Notes:
- May be taken more than once for credit in different topics to a maximum of 4.5 units.
- Pro Forma required.
Grading:

Candidacy Exam

Notes: Before beginning the thesis the candidate must arrange with the supervisory committee and the Graduate Adviser the number of units to be assigned.

Grading: INP, COM, N, F.

Units:

GRS 601A  Units: 1.5
Readings in Classical Literature (Greek)
Grading: INP, COM, N, F.

GRS 601B  Units: 1.5
Readings in Classical Literature (Latin)
Grading: INP, COM, N, F.

GRS 602A  Units: 1.5
Readings in Ancient History (Greek)
Grading: INP, COM, N, F.

GRS 602B  Units: 1.5
Readings in Ancient History (Latin)
Grading: INP, COM, N, F.

GRS 603  Units: 1.5
Reading in Classical Archaeology
Grading: INP, COM, N, F.

GRS 605  Units: 1.5
Archaeological Methods & Theory
Grading: INP, COM, N, F.

GRS 611  Units: 3.0
Seminar in Classical Literature

GRS 612  Units: 3.0
Seminar in Ancient History

GRS 613  Units: 3.0
Seminar in Classical Archaeology

GRS 621  Units: 3.0
Topical Field in Classical Literature
An intensive study of a particular field (author, genre, time period) in Greek or Roman literature.

GRS 622  Units: 3.0
Topical Field in Ancient History
An intensive study of a particular field (time period, historical event, historical figure, historical topic) in Greek or Roman history.

GRS 623  Units: 3.0
Topical Field in Classical Archaeology
An intensive study of a particular field (time period, archaeological event, archaeological topic) in Greek or Roman archaeology.

GRS 693  Units: 3.0
Candidacy Exam
Students enroll in 693 after completing their topical fields requirements (GRS 621, 622, or 623).
Grading: INP, COM, N, F.

GRS 699  Units: 18.0
PhD Dissertation
Grading: INP, COM, N, F.

GRS 599  Units: 6.0-9.0
MA Thesis
Note: Before beginning the thesis the candidate must arrange with the supervisory committee and the Graduate Adviser the number of units to be assigned.
Grading: INP, COM, N, F.

GRS 605A  Units: 1.5
Archaeological Methods & Theory

GRS 605B  Units: 1.5
Archaeological Methods & Theory

GRS 613A  Units: 3.0
Seminar in Classical Archaeology

GRS 621A  Units: 3.0
Topical Field in Classical Literature
An intensive study of a particular field (author, genre, time period) in Greek or Roman literature.

GRS 622A  Units: 3.0
Topical Field in Ancient History
An intensive study of a particular field (time period, historical event, historical figure, historical topic) in Greek or Roman history.

GRS 699A  Units: 18.0
PhD Dissertation
Grading: INP, COM, N, F.

HINF 501  Units: 1.5
Database Design
addresses the issues facing a database designer in the development of database applications appropriate for health data of various kinds. The content includes the elements of conceptual, implementation and physical database design to support health information systems.
Note: Credit will be granted for only one of HINF 501, HINF 591 (if taken in the same topic).

HINF 503  Units: 3.0
Canadian Visiting Research
For students in research activities under the supervision of University of Victoria faculty as part of a regular graduate degree program at their home university.
Prerequisite(s): Permission of the faculty.
Grading: INP, COM, N, F.

HINF 504  Units: 3.0
International Visiting Research
For students in research activities under the supervision of University of Victoria faculty as part of a regular graduate degree program at their home university.
Prerequisite(s): Permission of the faculty.
Grading: INP, COM, N, F.

HINF 505  Units: 1.5
Multi-Disciplinary Research Internship
Courses may be offered between academic units through the Faculty of Graduate Studies. This multi-disciplinary course provides supervised opportunities for students to work on applied research projects in collaboration with community organizations. Research questions and project topics posed by the community partners allow students to make a difference by addressing issues of concern in our society. Students will meet weekly as a group with the course instructor to discuss topics in civically-engaged research. Students will also meet individually with a supervisor from the community partner to plan and conduct a research project.
Notes:
• May be taken more than once for credit in different topics.
• Students must seek prior approval from their supervisory committee and graduate adviser for inclusion of this course in their graduate program, although they will be permitted to register in it as “extra” to their program.
• Proposals for these courses must include approval by the funding academic unit(s) before being submitted to the Dean of Graduate Studies for final approval. Proposal forms and detailed instructions are available through the Faculty of Graduate Studies.

HINF 500  Units: 1.5 or 3.0
Special Topics
Notes:
• May be taken more than once for credit in different topics.
• At least one of the offering departments must have a regular graduate program.
• Students must seek prior approval from their supervisory committee and graduate adviser for inclusion of this course in their graduate program, although they will be permitted to register in it as “extra” to their program.

HINF 501  Units: 1.5 or 3.0
Interdisciplinary Topics
Courses may be offered between academic departments through the Faculty of Graduate Studies.
Notes:
• May be taken more than once for credit in different topics.
• Students must seek prior approval from their supervisory committee and graduate adviser for inclusion of this course in their graduate program, although they will be permitted to register in it as “extra” to their program.

HINF 502  Units: 1.5-3.0
Approved Exchange
University of Victoria students attending courses under approved exchange agreements are required to register in this course to maintain their UVIC registration status.
Prerequisite(s): Permission of the faculty.
Grading: INP, COM, N, F.

HINF 503  Units: 3.0
Canadian Visiting Research
For students in research activities under the supervision of University of Victoria faculty as part of a regular graduate degree program at their home university.
Prerequisite(s): Permission of the faculty.
Grading: INP, COM, N, F.

Health Information Science
School of Health Information Science
Faculty of Human and Social Development

HINF 501  Units: 1.5
Database Design
Addresses the issues facing a database designer in the development of database applications appropriate for health data of various kinds. The content includes the elements of conceptual, implementation and physical database design to support health information systems.
Note: Credit will be granted for only one of HINF 501, HINF 591 (if taken in the same topic).

HINF 503  Units: 1.5
Research Methods in Health Informatics
Examines a variety of study designs used in health informatics and outcomes research. These include experimental designs, observational and predictive studies, and qualitative inquiries. For each study design, appropriate analytical approaches and reporting guidelines will be covered.
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HINF 573  Units: 1.5
Applied Biostatistics
A computer laboratory course primarily designed to provide practical experience in running SPSS software, interpreting output and presenting findings in Figures and Tables, suitable for publications or dissertations. Topics include: understanding statistics, data management and cleaning, recode and compute statements, scale development (Cronbach's alpha), t-tests, chi-square analyses, correlation and logistic regression. The skills learned are those commonly used in quantitative research for health and social sciences.

HINF 574  Units: 1.5
Modelling and Simulation in Healthcare
Examines a range of systems modeling tools and methodologies for dealing with complex health care systems. Uses systems thinking as a means of tackling health care domain problems where it involves interaction of many professionals across large complex organization structure. Includes qualitative and quantitative model building.
Note: Credit will be granted for only one of HINF 574, HINF 591 (if taken in the same topic).

HINF 575  Units: 1.5
Human Factors in Healthcare
Introduces a framework for considering human factors in health informatics. Includes study of human-computer interaction in the design of a range of health informatics applications, user analysis, workflow modelling, consideration of methods of evaluating system usability and socio-technical aspects of successful healthcare system design. In addition, approaches to the design of systems that are safe and that reduce human error in healthcare will be emphasized.

HINF 580  Units: 1.5
Health Informatics Graduate Seminar
Key themes, issues and trends in Health Informatics. Consists of presentations by faculty and students on different Health Informatics subject areas.

HINF 590  Units: 1.5
Directed Studies in Health Informatics
An opportunity to pursue directed readings or a project under the supervision of a faculty member. Students may take this course up to a maximum of two times throughout the program.
Note: A student's supervisor can instruct only one directed studies course.

HINF 591  Units: 1.5
Topics in Health Informatics
Advanced topics in various areas of health informatics. Topics vary depending on faculty interests and availability. Students may take this course more than once.

HINF 593  Units: 3.0
Candidacy Exam
Students enroll in 693 for the duration of their preparations for their candidacy examinations. This begins at the time a student first enrolls in the PhD program and continues until candidacy requirements have been completed, normally at the end of first year of program.
Grading: INP, COM, N, F.

HINF 693  Units: 3.0
Dissertation
Prerequisite(s): HINF 699
Grading: INP, COM, N, F.

HINF 699  Units: 30.0
Dissertation

HSD 573 - HSTR 501

HSD 580  Units: 1.5 or 3.0
Special Topics in Human and Social Development
A variable content course focusing on the policy, practice and/or research interests of faculty and students in the Faculty of Human and Social Development.
Note: May be taken more than once for credit in different topics.

HSD 590  Units: 1.5-3.0
Directed Studies
Individual studies under the direct supervision of one or more faculty members. The content, credit value and method of evaluation must be approved by the instructor and the Graduate Adviser prior to registering in this course.
Notes:
• May be taken more than once for credit in different topics.
• Pro Forma required.

HSTR 500  Units: 1.5
Formerly: HIST 500
Historiography
Surveys the diverse answers given to the question, "What is history?" Exploration of the nature of historical knowledge through examination of major changes in theory, method and practice within the discipline. Students articulate their understanding of what being an historian entails. Specific topics covered may vary with the instructor.
Note: Credit will be granted for only one of HSTR 500, HIST 500.

HSTR 501  Units: 1.5
American History
New and classic readings in the history of Colonial America and the United States. Themes include indigenous societies, conquest, gender, religion, race, slavery, sexuality, politics and economy.
Note: Credit will be granted for only one of HSTR 501, HSTR 501A, HSTR 501B, HSTR 501A, HSTR 501B.
HSTR 502A - Units: 1.5
Formerly: HIST 502A
Early Modern British History
Social, cultural and political history of early modern England, with an emphasis on the 17th century. Topics include crime and print culture, the British Civil Wars, the execution of Charles I, radical religion and the Interregnum, patriarchy and authority, class conflict and social hierarchy, parents and children, marriage and gender. Provides advanced students a survey of some of the main primary sources, important secondary works and historiographical issues. Note: Credit will be granted for only one of HSTR 502A, HIST 502A.

HSTR 502B - Units: 1.5
Formerly: HIST 502B
Modern British History
Social, cultural and political history of modern England. Topics may include government and the state, war and society, crime and punishment, monarchy, and elite and popular cultures. Provides advanced students a survey of some of the main primary sources, important secondary works and historiographical issues. Note: Credit will be granted for only one of HSTR 502B, HIST 502B.

HSTR 503A - Units: 1.5
Formerly: HIST 503A
Pre-1900 Canadian History
Provides an in-depth look at historical writing about pre-1900 Canada. Explores a variety of historical approaches and covers a number of major topics in the field. Topics may include indigenous histories, First Nations-settler encounters, politics and war, rural and urban experiences, liberalism and the state, and issues of race, religion, gender and class. Focus on historiographical and analytical skills. Note: Credit will be granted for only one of HSTR 503A, HIST 503A.

HSTR 503B - Units: 1.5
Formerly: HIST 503B
Post-1900 Canadian History
Examines historical writing about 20th century Canada, taking a chronological and thematic approach to recent literature. Topics may include: gender and the family, law and moral regulation, work, the environment, First Nations, politics and the state, nationalism and regionalism, and the experience and commemoration of war. Focus on historiographical and analytical skills. Note: Credit will be granted for only one of HSTR 503B, HIST 503B.

HSTR 504A - Units: 1.5
Formerly: HIST 504A
Europe, 1500-1800
Advanced study of the transformation of European society and culture during the early modern period. May take a topical or temporal focus. Note: Credit will be granted for only one of HSTR 504A, HIST 504A.

HSTR 504B - Units: 1.5
Formerly: HIST 504B
Europe since 1800
Advanced study of the transformation of European politics, society and culture in the modern era. May take a topical or temporal focus. Note: Credit will be granted for only one of HSTR 504B, HIST 504B.

HSTR 505 - Units: 1.5
Formerly: HIST 514, HIST 514
World History
Examines recent contributions to the field of world history that allow both for focused study of particular themes as well as the exploration of broader historiographical and theoretical debates. Students are encouraged to pursue their own particular interests in the subject. Note: Credit will be granted for only one of HSTR 505, HIST 514, HIST 514.

HSTR 506 - Units: 1.5
Formerly: HIST 506A, HIST 506B, HIST 506A, HIST 506B
Medieval Europe
The major fields, sources and approaches in medieval history and medievalism. Note: Credit will be granted for only one of HSTR 506, HIST 506A, HIST 506B, HIST 506A, HIST 506B.

HSTR 507 - Units: 1.5
Latin America 1492-1900
Studies the historiographical debates concerning possession and representation in Latin America from contact to the early national period. Topics include resistance and accommodation to colonialism, Creole patriotism, and the creation of rhetorics of pluri-ethnic nationalism. Note: Credit will be granted for only one of HSTR 507, HIST 507.

HSTR 508A - Units: 1.5
Also: HIST 465A
Formerly: HIST 508A
China in Local and Global History
Examines the local history and global networks of Tibet, Taiwan, and Hong Kong as well as the North China Plain (around Beijing), the Yangzi River Delta (around Shanghai), and the Pearl River Delta (around Canton) in China up to the mid-20th century. Emphasis on both local and global approaches to the six regions and to modern China beyond the limits of its nation-state history. Note: Credit will be granted for only one of HSTR 508A, HSTR 465 (if taken as A01 in Jan-Apr 2015), HSTR 465A, HIST 439 (if taken as A01 in Sept-Dec 2011), HIST 508A.

HSTR 508B - Units: 1.5
Also: HIST 481
Formerly: HIST 508B
A Global History of the Chinese Overseas
Examination of the Chinese diaspora in Southeast Asia, North America and other regions. Emphasis on the emigration from China, transformation of Chinatowns and development of global networks and transnational identities of the Chinese overseas. May include exploration of the diasporic experiences of Japanese, Korean, Indian and other Asian migrants in the global arena. Note: Credit will be granted for only one of HSTR 508B, HIST 508B, HIST 481, HIST 451.

HSTR 509A - Units: 1.5
Formerly: HIST 509A
Modern Japanese History
A survey of historiographical issues in Japan’s history from the end of Tokugawa to the present day. Analyzes the debates regarding peasant struggles in late Tokugawa, the impact of imperial arrivals in the 1850s, the nature of the Meiji restoration, migration and the rise of Japanese imperialism, and the national polity in the interwar years. Concludes with World War II and Japan’s occupation and subsequent economic transformations. Note: Credit will be granted for only one of HSTR 509A, HIST 509A.

HSTR 509B - Units: 1.5
Formerly: HIST 509B
Migration, Race and Empire: Canada and the Transpacific
Brings together the histories of the Pacific and British Columbia using a translocal lens to analyze critically the intersections between race, colonialism and indigeneity from 1840 to the 1950s. Specific attention to Asian Canadian experiences on Vancouver Island and the impact of conflicting empires (British, American and Japanese). Utilizes critical anti-racist and feminist theory, and offers possibilities for innovative public history projects and community-based, action research. Note: Credit will be granted for only one of HSTR 509B, HIST 509B.

HSTR 511 - Units: 1.5
Formerly: HIST 511
Military History
Examines the historiographical issues in military history. Themes include: technology and science and war; social and cultural history of war and society; the evolution of military organization and military techniques; intellectual and philosophical writing on war and armed forces; military intelligence; history of air power, and naval and maritime affairs. Note: Credit will be granted for only one of HSTR 511, HIST 511.

HSTR 512 - Units: 1.5
Formerly: HIST 512
Intellectual History
Advanced study of intellectual history. Topics to be explored may include the history of intellectual history, the similarities and differences between intellectual history and other genres of historical analysis, the rise of atheism and unbelief in early modern Europe and Enlightenment in Europe. Note: Credit will be granted for only one of HSTR 512, HIST 512.

HSTR 513 - Units: 1.5
Formerly: HIST 513
History of Gender, Sexuality and the Body
Explores selected topics in gender history, the history of sexuality and the history of the body and addresses current theoretical and methodological debates within these fields. Focus is primarily on American history, although Canadian and British readings may be included. Explores shifting understandings of femininity, masculinity and sexualities, as well as relationships between gender and class, race, ethnicity, religion, sexualities and the body. Note: Credit will be granted for only one of HSTR 513, HIST 513.
HSTR 515A  Units: 1.5  
Formerly: HIST 515A  
Public History  
Provides an overview of the branch of the discipline that involves communicating the past to non-academic audiences and analyzing applications of history outside of the university. Students meet practitioners of public history, making professional contacts and exploring non-academic applications of their training. Connected with these practical activities are analytical questions as they contemplate how history can be carried outside of the academy, students also discuss its purpose, importance and meaning.  
Note: Credit will be granted for only one of HSTR 515A, HIST 515A, HIST 519 (if taken in the same topic).  

HSTR 516  Units: 1.5  
Formerly: HIST 516  
Digital History  
Explores specific computing applications used in the field known as “digital history,” and how digital history is changing the way we think about History and the past. Emphasis on student projects, student presentations and discussions of selected readings on the big questions facing the discipline, including “is this really a revolution?”  
Note: Credit will be granted for only one of HSTR 516, HIST 516.  

HSTR 517  Units: 1.5  
Formerly: HIST 517  
Cultural History and Theory  
Explores the theory and practice of cultural history, focusing on culture as topic and as methodology. Students examine the approaches of cultural historians who either seek out new sources, or read traditional sources against the grain to provide answers to new questions. Themes may include: ritual, symbolism and meaning; objects and representation; colonialism and difference; popular culture, storytelling and language. Time period and geographical focus vary with the research area of the instructor.  
Note: Credit will be granted for only one of HSTR 517, HIST 517.  

HSTR 518  Units: 1.5  
Formerly: HIST 518  
Political History  
Examines the evolution of the state and the negotiation of power in North America. Topics may include federalism, party and bureaucratic developments, mass media and politics, and political leadership.  
Note: Credit will be granted for only one of HSTR 518, HIST 518.  

HSTR 519  Units: 1.5  
Formerly: HIST 519  
Special Topics  
Notes:  
• Credit will be granted for only one of HSTR 519, HIST 519 (if taken in the same topic).  
• May be taken more than once for credit in different topics with permission of the department.  

HSTR 521A  Units: 1.5  
Formerly: HSTR 521, HIST 521  
Medieval Law and Administration  
The origins and development of Western European civil, canon and common law. The history of law and jurisprudence, of the relationships of law and society and of the role of law in the growth of governance and order. Direct work on legal texts and records.  
Note: Credit will be granted for only one of HSTR 521A, HIST 521, HIST 521.  

HSTR 521B  Units: 1.5  
Formerly: HSTR 521, HIST 521  
British Legal History  
Social, cultural and political history of the law in England. Topics include crime, policing, the administration of justice, and punishments. Intended to give advanced students a general introduction to some of the main primary sources, important secondary works and historiographical issues.  
Note: Credit will be granted for only one of HSTR 521B, HIST 521, HIST 521.  

HSTR 522  Units: 1.5  
Formerly: HIST 522  
The Social History of Religion  
Explores selected topics in the social history of religion in the context of Canada, the United States and Britain in the nineteenth and twentieth centuries. Focuses on Christianity, but also touches on other faith traditions. Topics to be explored may include popular religion, religion and mass culture, spirituality, colonialism, secularization, immigration and assimilation, religion and health, religious conflicts and prejudices and issues of class, race, gender, sexuality and family life as they relate to religion.  
Note: Credit will be granted for only one of HSTR 522, HIST 522.  

HSTR 523  Units: 1.5  
Formerly: HIST 523  
History of Science and Technology  
Advanced study of the history of science. Topics to be explored may include the history of the history of science, the Scientific Revolution, the rise of the 'science of man' in early modern Europe, science and Enlightenment, science and religion, and science and society in Britain, 1600-1945. May include topics in the history of technology.  
Note: Credit will be granted for only one of HSTR 523, HIST 523.  

HSTR 526  Units: 1.5  
Formerly: HIST 526  
Ethnohistory  
Examines the major issues facing ethnohistorians generally but with an emphasis on ethnohistory with respect to Indigenous peoples.  
Note: Credit will be granted for only one of HSTR 526, HIST 526.  

HSTR 528  Units: 1.5  
Formerly: HIST 528  
Field School in Ethnohistory  
Experiential and community-based. Students move to the host First Nation’s community to work on research the community has prioritized. Four weeks are spent in the community followed by four weeks to complete the research project.  
Note: Credit will be granted for only one of HSTR 528, HIST 528.  

HSTR 550  Units: 1.5  
Formerly: HIST 550  
Research Methods for Masters Project  
Note: Credit will be granted for only one of HSTR 550, HIST 550.  
Prerequisite(s): Permission of the department.  

HSTR 590  Units: 1.5 or 3.0  
Formerly: HIST 590  
Directed Reading - Geographical Field  
Notes:  
• Credit will be granted for only one of HSTR 590, HIST 591 (if taken in the same topic).  
• May be taken more than once for credit in different topics with permission of the department.  

HSTR 591  Units: 1.5 or 3.0  
Formerly: HIST 591  
Directed Reading - Topical Field  
Notes:  
• Credit will be granted for only one of HSTR 591, HIST 591 (if taken in the same topic).  
• May be taken more than once for credit in different topics with permission of the department.  

HSTR 597  Units: 6.0  
Formerly: HIST 597  
Public History Stream Research Project  
Grading: INP, COM, N, F.  

HSTR 598  Units: 6.0  
Formerly: HIST 598  
MA Major Research Paper  
Note: Credit will be granted for only one of HSTR 598, HIST 598.  
Grading: INP, COM, N, F.  

HSTR 599  Units: 9.0-10.5  
Formerly: HIST 599  
MA Thesis  
Note: Credit will be granted for only one of HSTR 599, HIST 599.  
Grading: INP, COM, N, F.  

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**Directed Study Geographical Field**

**Note:** May be taken more than once for credit in different topics with permission of the department.

**HSTR 691**  Units: 1.5

**Directed Study Topical Field**

**Note:** May be taken more than once for credit in different topics with permission of the department.

**HSTR 693**  Units: 3.0

**Formerly:** HIST 693

**PhD Candidacy Examinations**

Students enrol in 693 for the duration of their preparations for their candidacy examinations. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed.

**Note:** Credit will be granted for only one of HSTR 693, HIST 693.

**Grading:** INP, COM, N, F.

**HSTR 695**  Units: 1.5

**Dissertation Proposal**

**Grading:** INP, COM, N, F.

**HSTR 699**  Units: 25.5-36.0

**Formerly:** HIST 699

**PhD Thesis**

**Note:** Credit will be granted for only one of HSTR 699, HIST 699.

**Prerequisite(s):** HSTR 693.

**Grading:** INP, COM, N, F.

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**IED**

**Indigenous Education**

**Faculty of Education**

**IED 510**  Units: 1.5

**Leadership and Governance for Language Revitalization**

Students will develop their understanding of leadership skills and processes necessary to implement successful language and culture programs. Topics will include: planning, proposal writing, budgeting, administration, project management, as well as the place & effect of language policies at the provincial, national, international levels, as well as tribal/Indigenous governance models.

**IED 520**  Units: 1.5

**Program Design and Curriculum Development in Indigenous Language Revitalization**

Leading practices in program design and curriculum development for Indigenous language revitalization will be examined. Processes through which competence in listening, speaking, reading and writing is developed will be explored. Analysis of program design, curriculum development and their implementation to promote language and culture revitalization will be addressed.

**IED 530**  Units: 1.5

**Indigenous Research Methods**

Indigenous methodologies, research practices and protocols are examined including specific topics such as research ownership, research process and outcomes. Approaches to research that are culturally respectful, ethical, and reciprocal will be explored.

**IED 531**  Units: 1.5

**Also:** LING 531

**Researching Community-Based Initiatives in Language Revitalization**

An examination of language research in Indigenous communities. This course is project-based and introduces students to a range of issues in community-based language revitalization research. The diversity of languages and of community approaches will be highlighted.

**Note:** Credit will be granted for only one of IED 531, LING 531.

**IED 572**  Units: 1.5

**SKÁLS: Indigenous Epistemologies**

An exploration of the natural laws of the world from an Indigenous perspective. Critical elements of examination include: utilizing community stories (with permission) to enhance language learning opportunities and curriculum development; reinforcing the value of the knowledge that students bring to the classroom from their home communities; living in a bi-cultural world; and the cultural effects of language and culture loss - creating places for healing.

**IED 594**  Units: 1.5

**Proposal and Literature Review**

Various approaches to project topics will be discussed as well as examination of the components of a project proposal, including the features of an effective literature review. A proposal and literature review for the project or thesis must be accepted by the course instructor and the student’s program supervisor in order to receive credit in this course.

**Grading:** INP, COM, N, F.

**IED 597**  Units: 1.5

**Comprehensive Examination**

A required element of non-thesis graduate students. Areas of examination and examination format, either written or oral, will be determined by the supervisory committee in consultation with the candidate.

**Grading:** INP, COM, N, F.

**IED 598**  Units: 3.0

**Major Project**

Evidence of independent research work will be presented in the form of an extended paper, project, or report as determined with the supervisory committee. Students will design their project in partnership with an Indigenous community or Indigenous organization. The project will enhance the community or organization’s capacity to support language revitalization while providing an opportunity for students to approach the real world challenges of language revitalization in an Indigenous context.

**Grading:** INP, COM, N, F.

**IED 599**  Units: 4.5

**Thesis**

Research on a topic chosen in consultation with the student’s supervisory committee.

**Grading:** INP, COM, N, F.
IGOV

Indigenous Governance
Faculty of Human and Social Development

IGOV 520  Units: 1.5
Indigenous Governance
A critical reading of important works in the field, an intellectual framework for understanding key questions and contemporary conflicts within Indigenous societies, and a critical perspective of the relationship between Indigenous peoples and the state.
Prerequisite(s): Admission to MA program in Indigenous Governance.

IGOV 530  Units: 1.5
Indigenous Research Methods
A perspective on the methods and approaches used in the study of Indigenous issues, providing the basic tools and methods used for conducting applied research, as well as an exploration of the practical, ethical, and political issues involved in conducting research in Indigenous communities.
Prerequisite(s): Admission to MA program in Indigenous Governance.

IGOV 540  Units: 1.5
Indigenous Resurgence
An introduction to the spiritual and cultural foundations of Indigenous governance systems, and an examination of how traditional values, principles and worldviews shape Indigenous thought and action in resistance to colonialism.
Prerequisite(s): Admission to MA program in Indigenous Governance.

IGOV 550  Units: 1.5
Indigenous Peoples and Self Determination
A focused analysis of current processes to decolonize the relationships between Indigenous peoples and states (as well as other colonial entities), with particular emphasis on questions of land tenure, sovereignty, nationhood, self-determination, and treaty-making in a comparative context.
Prerequisite(s): Admission to MA program in Indigenous Governance.

IGOV 560  Units: 1.5
Indigenous Peoples and Globalization
An examination of how processes of globalization and neo-colonialism impact Indigenous peoples worldwide and strategies Indigenous peoples around the world are using to confront these economic, social, political and cultural pressures in order to regenerate their communities.
Prerequisite(s):
- Admission to MA program in Indigenous Governance;
- permission of the faculty.

IGOV 570  Units: 1.5
Indigenous Women and Resistance
An exploration of the strategies Indigenous women engage in resistance to colonialism with particular attention paid to women who root their resistance in traditional Indigenous philosophies, governance practices and ways of being.
Prerequisite(s):
- Admission to MA program in Indigenous Governance;
- permission of the faculty.

IGOV 575  Units: 3.0
Formerly: IGOV 580
Mentorship
Mentorships provide students with counselling and advice to support personal well-being, professional development and academic performance, and consists of regular writing assignments and small group meetings with their faculty supervisor throughout the academic year.
Note: Credit will be granted for only one of IGOV 575, IGOV 580.
Prerequisite(s): Admission to MA program in Indigenous Governance.
Pre- or Corequisite(s): All of IGOV 520, IGOV 530, IGOV 540, IGOV 550.

IGOV 590  Units: 1.5
Directed Readings
Individually structured reading or research seminars under the direction of a participating faculty member, allowing students to pursue their interests in topics related to Indigenous governance but not specifically covered in the seminars.
Note: May not be taken more than once for credit.

IGOV 595  Units: 1.5
Special Topics in Indigenous Governance
Seminars focusing on issues of particular interest and relevance.
Note: May be taken more than once for credit in different topics.
Prerequisite(s):
- Admission to MA program in Indigenous Governance;
- permission of the faculty.

IGOV 598  Units: 4.5 or 6.0
Community Governance Project
Graduate course in the Indigenous Governance program administered by the Faculty of Graduate Studies. Projects are geared toward providing a practical learning experience and opportunity for students to face the real world challenges of governance in an Indigenous context. They also serve as a crucial function for affiliated communities in providing access to the University’s resources and expertise through the students’ participation in projects to enhance the community’s governance capacity.
Community governance project interns will work on a designated research or policy development project in an Indigenous organization, under the direction of a project management team that includes community leaders and IGOV faculty. Internship placements must be approved by the Director, and will typically involve 100 hours of work in the community and the completion of a comprehensive report based on the internship experience.
Note: Only students who entered the MA program prior to September 2009 need to register in the 6.0 unit section of IGOV 598 (requires permission of the department). Students who start their MA program on or after September 2009 need to register in the 4.5 unit section of IGOV 598.
Prerequisite(s): All of IGOV 520, IGOV 530, IGOV 540, IGOV 550, IGOV 575.
Grading: INP, COM, N, F.

IGOV 599  Units: 6.0
Thesis
Grading: INP, COM, N, F.

IN

Indigenous Nationhood
Faculty of Graduate Studies, Faculty of Human and Social Development, Faculty of Law, and Faculty of Social Sciences

IN 533  Units: 1.5
Special Topics in Indigenous Nationhood
Note: May be taken more than once for credit in different topics.

IN 601  Units: 1.5
Foundations of Indigenous Nationhood
An examination of key issues and debates, methods and frameworks in the study of Indigenous Nationhood. Involves a survey of the major literature in the fields of Indigenous politics, governance and law. This is a required foundational course for all IN Graduate Certificate students.

IN 697  Units: 1.5-6.0
Capstone Experience
An integration and synthesis of concepts, principles and practices discussed throughout the program. Students must be able to demonstrate their knowledge of the field of Indigenous Nationhood through either a comprehensive examination of Indigenous Nationhood or a committee-approved community internship, or other community-based work or service-integrated learning opportunity approved by the Program committee.
Note: Students taking the certificate along with another program should check with their program to determine whether these credits count toward their home unit’s degree.
Grading: INP, COM, N, F.

INHG

Indigenous Health Studies
School of Public Health and Social Policy
Faculty of Human and Social Development

INHG 520  Units: 1.5
Community Engagement and Leadership
The concepts of respect, trust and cultural safety and their historical significance in engaging with Indigenous communities are explored. De-colonizing practices are emphasized through the exploration of relational practice and community capacity building as methods for effective engagement of community. Topics include the implications of recognizing the communal ownership of knowledge within Indigenous culture; the value of Indigenous knowledge and mentorship in the emergence of Indigenous health leaders are explored.
Note: A requirement of this course is a condensed five-day on-campus seminar.
**INGH 521 - LING 505**

**INGH 521**  
Units: 1.5  
Indigenous Public Health and Social Policy  
Issues and practices associated with the governance of Indigenous Peoples’ health through consideration of past, present and future experiences are explored. Students critically analyze health and social policy and the impact of colonization on the health of Indigenous Peoples. Governance for health is explored through an analysis of jurisdictional issues, existing health agreements and organizational structures. Students focus on the development of post-colonial models of policy and governance.

**LING 505**  
Units: 1.5  
Also: SPAN 505  
Medieval Literature  
Topics include the value of being in relationship with community as a foundation for research; knowledge of indigenous life course determinants relevant to the health of Indigenous Peoples; ethical, legal and social issues related to research with Indigenous Peoples.

**LING 590**  
Units: 1.5 or 3.0  
Also: SPAN 590  
Directed Studies  

**LING 598**  
Master’s Essay  
Grading: INP, COM, N, F.

**LING 599**  
Units: 6.0  
MA Thesis/Oral  
Grading: INP, COM, N, F.

**LAW**

**LAW 501**  
Units: 1.5  
Graduate Seminar in Law and Society  
A critical introduction to theoretical perspectives on Law and Society. Designed to expose students to a range of substantive issues in advanced legal research, as a foundation for the development of each student’s thesis research.  
Prerequisite(s): Admission to a graduate program in Law.

**LAW 502**  
Units: 1.5  
Graduate Seminar in Applied Legal Methodology  
A review of methodological approaches to advanced legal research, particularly as applied to the diverse research interests of seminar participants. Intended to support each student’s implementation of their research question through presentation, commentary and refinement.  
Prerequisite(s): Admission to a graduate program in Law.

**LAW 590**  
Units: 1.5-3.0  
Directed Studies in Law  
Individual studies under the direct supervision of one or more faculty members. The content, credit value and method of evaluation must be approved by the instructor and the Graduate Adviser prior to registering in this course.  
Notes:  
- May be taken more than once for credit in different topics.  
- Pro Forma required.

**LAW 693**  
Units: 3.0  
PhD Candidacy Examinations  
The PhD Candidacy Examination consists of an oral examination. This examination should be taken and passed within two years of entering the PhD program.  
Grading: INP, COM, N, F.

**LAW 699**  
Units: 21.0-36.0  
PhD Dissertation  
Prerequisite(s): LAW 693.  
Grading: INP, COM, N, F.

**LING**

**LING 500**  
Units: 1.5  
Linguistic Field Methods  
An introduction to the methods of data analysis, organization, and collection required in the field situation. Language of consultant varies from year to year. The department has a particular interest in North American Native Languages.  
Note: May be taken more than once for credit in different topics with permission of the department.

**LING 501**  
Units: 1.5  
Linguistics for Language Revitalization  
An introduction to Linguistic concepts and terminology, providing a foundation for engaging with Indigenous language documentation and revitalization, linguistic aspects of learning and teaching, and archival research. Topics include: the nature of sound systems and how they relate to writing systems; word structures and dictionaries; sentence structures and understanding texts.

**LING 503**  
Units: 1.5  
Introduction to Syntax  
A graduate level introduction to the major subfields of syntax, reflecting recent developments in syntactic theory.

**LING 504**  
Units: 1.5  
Current Issues in Morphology  
Recent developments in morphological theory.  
Note: May be taken more than once for credit to a maximum of 3 units.

**LING 505**  
Units: 1.5  
Introduction to Phonology  
A graduate level introduction to the major subfields of Phonology, reflecting recent developments in phonological theory.
LING 508 Units: 1.5 or 3.0
Current Issues in Generative Grammar
Selected topics reflecting ongoing work in generative theory.
Note: May be taken more than once for credit.

LING 509 Units: 1.5
Sociolinguistics
Selected topics in recent research related to language variation such as bilingualism, language and gender, language attitudes, social dialects. Each registrant will select a particular topic for individual research.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

LING 510 Units: 1.5-3.0
Current Issues in Phonology
An examination of recent developments in phonological theory.
Note: May be taken more than once for credit.

LING 517 Units: 1.5
Experimental Phonetics Laboratory
Review of recent research in the phonetic and acoustic analysis of speech and in spoken language processing. A focus on experimental procedures designed to allow students to pursue individual topics in speech research.
Note: May be taken more than once for credit to a maximum of 3 units.

LING 520 Units: 1.5-3.0
Pacific Rim Languages
An overview of the structure of selected Indigenous languages spoken around the Pacific Rim.
Note: May be taken more than once for credit to a maximum of 3 units.

LING 527 Units: 1.5
Topics in Historical and Comparative Linguistics
Study of principles of historical and comparative linguistics.
Note: May be taken more than once for credit to a maximum of 3 units.

LING 531 Units: 1.5
Also: IED 531
Researching Community-Based Initiatives in Language Revitalization
An examination of language research in Indigenous communities. This course is project-based and introduces students to a range of issues in community-based language revitalization research. The diversity of languages and of community approaches will be highlighted.
Note: Credit will be granted for only one of LING 531, IED 531.

LING 570 Units: 1.5-3.0
Also: PSYC 570
Psycholinguistics
A seminar offered in collaboration with the department of Psychology. Selected topics of interest in understanding the comprehension and production of natural language are examined. The most recent topics have been word recognition and lexical access, sentence processing, discourse analysis, linguistic inference and the resolution of ambiguity, and the development of cognitive science interests in reasoning and discourse processes as well as the structure of mental representations.

LING 572 Units: 1.5
The Structure of the Lexicon
An introduction to the study of representations of lexical forms, specifically as they relate to psycholinguistic dimensions of the mental lexicon. Issues related to the structure of both the first and second language mental lexicons will be examined.

LING 573 Units: 1.5
Second Language Acquisition Theory and Research
A survey and critical examination of the research on second language acquisition (SLA). Current issues and research findings related to the teaching and learning of second languages inside second language classrooms are also discussed.

LING 574 Units: 1.5
Seminar in Applied Linguistics
A seminar on issues in applied linguistics, including an overview of second language learning and teaching principles, TESL/TEFL methodology, language situation contacts and multilingualism. Each participant selects a topic area of individual interest to report to the seminar.

LING 575 Units: 1.5
Research Methods in Applied Linguistics
Designed to assist graduate students in developing skills necessary to design and implement research in the field of second language (SL) acquisition and applied linguistics. Examines various methods for conducting research, types of research designs, and the steps involved in planning and executing SL research projects. Students also develop skills in reading and evaluating published research in second language acquisition and applied linguistics.

LING 576 Units: 1.5
Form-Focused Instruction and Second Language Development
Through a combination of reading and critical analysis of research studies, examines the current theoretical perspectives and research findings on the various roles that form-focused instruction and corrective feedback play in second language development.

LING 577 Units: 1.5
The Global Context of Language Revitalization
Investigates language shift, maintenance, reclamation and revitalization. Topics may include global, social, cultural, economic, political, and historical factors involved in language use, and Indigenous and non-Indigenous language contexts around the world.

LING 578 Units: 1.5
Sociocultural Theory and Second Language Learning
Designed to introduce graduate students to aspects of second language learning from the perspectives of sociocultural theory and cognitive development. Students will become familiar with key concepts and principles of sociocultural theory, such as mediation, activity theory, the genetic method, internalization, the zone of proximal development, private speech, and scaffolding; examine the growing body of research in language learning and teaching from this theoretical perspective; and consider its implications for language pedagogy.

LING 580 Units: 1.5 or 3.0
Linguistics Seminar
The contents of this course will vary.
Note: May be taken more than once for credit.

LING 586 Units: 1.5
Sound Structures for Applied Linguistics
An investigation of the relationship between sound structures (as understood through phonetic theory, phonological theory, speech analysis) and applied linguistics (especially pronunciation teaching and second language acquisition).
Prerequisite(s):
• One of LING 200, LING 300, LING 312, LING 338, LING 380, LING 412, LING 486, LING 505, LING 510, LING 517; or
• permission of the department.

LING 590 Units: 1.5 or 3.0
Directed Studies
A course designed to enable students to pursue individual interests.
Note: May be taken more than once for credit.

LING 592 Units: 1.5
Formerly LING 591
Labovian Variationist Sociolinguistics
An examination of the foundations of language variation and change in the Labovian paradigm. Emphasis is placed on the study of phonological and grammatical features and their correlations with age, sex, ethnicity and other social variables.
Note: Credit will be granted for only one of LING 591, LING 592.

LING 595 Units: 1.5
Studies in Language and Gender
A study of the relationship between gender socialization and pragmatics of language use. Each participant selects a topic of interest to research and report on as a term paper and to present as a seminar.

LING 596 Units: 1.5
Cross-Cultural Communication
An examination of pragmatic linguistic factors affecting communication between cultural groups. Each participant selects a topic of interest to research and report on as a term paper and to present as a seminar.

LING 598 Units: 3.0
Major Research Paper
A major research paper (40-45 pages) reporting independent research under the direction of a faculty member. Students meet in a seminar weekly with the course instructor to discuss research topics including research designs, data collection and analyses, reporting and presentation research results, and other research related issues.
Grading: INP, COM, N, F.

LING 599 Units: to be determined
MA Thesis
Grading: INP, COM, N, F.
LING 601  Units: 1.5
Current Directions in Syntactic Theory
Selected topics reflecting current research in syntactic theory.
Notes:
• May be taken more than once for credit in different topics.
• Students who have completed equivalent prerequisites may request permission to register in the course.
Prerequisite(s):
• LING 503 or LING 508; or
• permission of the department.

LING 602  Units: 1.5-3.0
Current Directions in Phonological Theory
Selected topics reflecting current research in Phonological Theory.
Notes:
• May be taken more than once for credit in different topics.
• Students who have completed equivalent prerequisites may request permission to register in the course.
Prerequisite(s):
• LING 505 or LING 510; or
• permission of the department.

LING 690  Units: 1.5 or 3.0
Directed Studies
A research topic will be pursued in depth under the direction of the student's supervisor. Students are expected to write a research paper (or papers) and to present a colloquium based on their work.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

LING 693  Units: 3.0
Candidacy Examination
The candidacy requirement must be satisfied within three years of registration in the doctoral program (see Faculty of Graduate Studies regulations). The candidacy examination consists of two substantial, original research papers, one in the area of phonological or syntactic theory, understood broadly, and the other in an area agreed to by the student and the supervisor.
Grading: INP, COM, N, F.

LING 699  Units: to be determined
PhD Dissertation
Note: Normally 18 units.
Prerequisite(s): LING 693.
Grading: INP, COM, N, F.

MATH
Mathematics
Department of Mathematics and Statistics
Faculty of Science

MATH 510  Units: 1.5
Abstract Algebra

MATH 520  Units: 1.5
Number Theory

MATH 522  Units: 1.5
Combinatorics
Prerequisite(s): Permission of the department.

MATH 523  Units: 1.5
Graph Theory
Prerequisite(s): Permission of the department.

MATH 529  Units: 1.5
Topics in Discrete Mathematics
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 530  Units: 1.5
Real Analysis
Abstract measure and integration; product measures; measures on locally compact spaces and the Riesz representation theorem; the Stone-Weierstrass theorem.

MATH 531  Units: 1.5
Functional Analysis

MATH 532  Units: 1.5
Introduction to Operator Theory

MATH 533  Units: 1.5
Topics in Operator Theory and Operator Algebras
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 535  Units: 1.5
Topics in Analysis
Topics may include some of the following: ergodic theory, dynamical systems, potential theory, harmonic analysis.
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 538  Units: 1.5
Complex Analysis
Topics chosen from: conformal mappings, the Riemann mapping theorem, the maximum principle, infinite products, Picard’s theorem, normal families, Hp-spaces, approximation by rational functions, the Riemann zeta function, analytic continuation and Riemann surfaces.
Note: Students who have completed a course equivalent to MATH 438 may request permission to register in the course.
Prerequisite(s):
• One of MATH 330B, MATH 338, MATH 438; or
• permission of the department.

MATH 540  Units: 1.5
Toplogy

MATH 549  Units: 1.5
Also: MATH 449
Scientific Computing
Note: Credit will be granted for only one of MATH 549, MATH 449 (if taken in the same topic).
Prerequisite(s): Permission of the department.

MATH 550  Units: 1.5
Topics in Applied Mathematics
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 551  Units: 1.5
Differential and Integral Equations

MATH 555  Units: 1.5
Topics in Probability
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 563  Units: 1.5
Algebraic Number Theory

MATH 575  Units: 1.5
Topics in Mathematical Biology
Possible topics include population modelling, infectious disease dynamics, models of neuronal networks and models of gene regulatory networks.
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 580  Units: 1.5
Topics in Pure Mathematics
Note: May be taken more than once for credit in different topics with permission of the department.

MATH 581  Units: 1.5
Directed Studies
Directed studies may be available in the areas of faculty interest.
Notes:
• May be taken more than once for credit in different topics with permission of the department.
• Pro Forma required.

MATH 585  Units: 0 or 1.5
Seminar
Notes:
• May be taken only once for credit in any degree program.
• The seminar leader will inform students of the requirements for credit before the seminar commences. An INP grade may be assigned.

MATH 586  Units: 0 or 1.5
Operator Theory Seminar
Notes:
• May be taken only once for credit in any degree program.
• The seminar leader will inform students of the requirements for credit before the seminar commences.
Grading: INP, standard grade.
MATH 587  Units: 0 or 1.5
Applied Math Seminar
Notes:
• May be taken only once for credit in any degree program.
• The seminar leader will inform students of the requirements for credit before the seminar commences.
Grading: INP, standard grade.

MATH 588  Units: 1.5
Discrete Mathematics Seminar
Note: May be taken more than once for credit with permission of the department.

MATH 591E  Units: 1.5
Topics in Mathematics for Secondary Teachers
Intended for students enrolled in a master's program specializing in Mathematics Education but open to students enrolled in other master's programs in Education. One of the four topics: Geometry, Mathematical Modelling, Data Analysis, History and Philosophy of Mathematics will be taught in a given term. Topics will be rotated each term the course is offered.
Note: May be taken more than once for credit in different topics.
Prerequisite(s): 3 units of MATH courses numbered 300 or higher.

MATH 599  Units: 6.0
Master's Thesis
Grading: INP, COM, N, F.

MATH 693  Units: 3.0
Candidacy Examination
Grading: INP, COM, N, F.

MATH 699  Units: 21.0-30.0
Dissertation
Corequisite(s): MATH 693.
Grading: INP, COM, N, F.

MBA
Master of Business Administration
Peter B. Gustavson School of Business
PhD program in International Management and Organization is found under the BUS course code.

MBA 500  Units: 1.5-3.0
Essentials of Business and Leadership
An intensive course that constitutes the beginning of the MBA program. Provides students with a foundation on which to begin the study of business at an advanced level.
Key areas of skill development include business writing, presenting, teambuilding, case analysis, cross-cultural communication and career development. Provides ethical frameworks for decision making and an exploration of issues relating to international business, sustainability and social responsibility.
Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 501  Units: 0
Applied Projects
Client-based business projects that integrate program subject material, usually in the context of examining a particular industry or organization. Requires reports and/or presentations. Will focus, when possible, on the Gustavson School of Business value pillars: International, Integrative, Innovative, Sustainable/Socially Responsible. One of these projects takes place in an international setting.
Notes:
• Not open to students registered in or with credit in MBA 501A or MBA 501B.
• Attendance and participation are mandatory. Students are required to register in this course for the duration of the MBA Program.
• Students in a double-degree program or on international exchange will normally be waived from the international project.
Grading: INP, COM, N, F.

MBA 501A  Units: 0
Integrative Management Exercise (IME)
One or more client-based business practice exercises which integrate program subject material, usually in the context of examining a particular industry or organization. Requires reports and/or presentations. Takes place on and off campus and will focus, when possible, on one or both of the International or Socially Responsible and Sustainable value pillars of the Gustavson School of Business.
Note: Registration is restricted to the Daytime MBA Cohort entering in summer session 2016.
Attendance and participation are mandatory. Registration in MBA 501A is for the domestic, "on campus," IME.
Grading: INP, COM, N, F.

MBA 501B  Units: 0
International Integrative Management Exercise (IIME)
A client-based business practice exercise which integrates program subject material, usually in the context of examining a particular industry or organization. Requires reports and/or presentations. Takes place in an international setting.
Note: Registration is restricted to the Daytime MBA Cohort entering in summer session 2016.
Attendance and participation are mandatory. Registration in MBA 501B is for the international, "off campus," IME.
Grading: INP, COM, N, F.

MBA 502  Units: 0
Personal and Professional Development
A course of sessions/activities delivered throughout the MBA program providing practical knowledge and practice in areas vital for professional success in the business world.
Content includes: career development, team-building, leadership development, and cross-cultural boundary spanning.
Note: Students are required to register in this course for the duration of the MBA Program.
Grading: INP, COM, N, F.

MBA 509  Units: 0.5-2.0
Managing in the Service Economy
Examines service issues from organization and human resources management, operations management and marketing perspectives to provide students an integrated view of designing and delivering a valuable, memorable customer experience. Topics include: building a service culture and strategy, managing the talent, service blueprinting, developing customer-oriented service standards, service design, creating the "servicecape", understanding consumer emotions and psychology, service failure and recovery, customer co-creation of value and service delivery networks.
Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 510  Units: 0.5-1.5
Marketing Management
Controllable and uncontrolled marketing variables that managers face in today’s business environment. Topics include factors affecting consumer demand (including issues of sustainability, environmental impact and ethical management) and methods of satisfying it, market structure, product selection, distribution, promotion, pricing and market research. Course structure, exercises, projects and case problems are designed to develop the students' ability to generate effective marketing strategies in the face of uncertainty.
Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 511  Units: 0.5-1.5
Customer Experience Management
Intended for those students who are interested in working in service industries and addresses the distinct needs and problems of service organizations in the area of marketing.
Topics include: the difference between marketing services versus manufacturing organizations; the marketing mix for service organizations; market research in services; managing demand in services; integrated services marketing; communication; services pricing; and the overlap of marketing/operations/human resource systems in service organizations.
Note: Not open for students with credit in the Service Management Specialization courses previously offered under MBA 595. The unit value of a course section will be specified according to the program in which it is delivered.
Prerequisite(s): MBA 510
Corequisite(s): MBA 512 and MBA 513.
MBA 512  Units: 0.5-1.5
Quality Management and Service Operations
Focuses on managing and improving service firms across industries, including financial services, health care, hospitality, retail and professional service firms. Addresses the distinct needs and problems of service organizations in the areas of operations and quality management. A core theme is a quality management approach to providing service excellence. Topics include: service strategy, service design, service quality, process improvement, service capacity management, service innovation and technology, and sustainable and socially responsible practices in services.

Notes:
• Not open to students with credit in the Service Management Specialization courses previously offered under MBA 595.
• The unit value of a course section will be specified according to the program in which it is delivered.
Prerequisite(s): MBA 510
Corequisite(s): MBA 511 and MBA 513

MBA 513  Units: 0.5-1.5
Issues in Service Technology and HR Management
Addresses the distinct needs and problems of service organizations in the areas of human resource management and IT management. Topics include: e-service and the role of technology; customer relationship management (CRM); managing the organizational culture; impact of cultural differences on customer service; management and motivation of knowledge workers; self-service technology; the service profit chain; and sustainable and socially responsible practices in human resource management.

Notes:
• Not open to students with credit in the Service Management Specialization courses previously offered under MBA 595.
• The unit value of a course section will be specified according to the program in which it is delivered.
Corequisite(s): MBA 511 and MBA 512

MBA 514  Units: 0.5-1.5
Business and Sustainability
An introduction to the business challenges and opportunities arising from the world’s growing social and ecological issues, including climate change, poverty and corporate corruption. Students are exposed to how companies across multiple sectors have chosen to respond - or not respond - to the call for sustainable social, ecological and economic value creation. Relevant tools and frameworks are introduced, including stakeholder management/engagement, triple-bottom line, Natural Step, base-of-the-pyramid strategies and social entrepreneurship.

Notes:
• Credit will be granted for only one of MBA 514, MBA 580, MBA 595 (if taken in the same topic).
• The unit value of a course section will be specified according to the program in which it is delivered.
Prerequisite(s): MBA 510
Corequisite(s): MBA 511, MBA 512

MBA 515  Units: 0.5-1.5
Applied Managerial Economics
Applies economic principles to the analysis of corporate problems. Topics include product, risk and business opportunity analysis, production costs and profit maximization, the determination of prices and output under different market structures, investment decisions, and economic forecasting.

Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 520  Units: 0.5-1.5
Financial and Managerial Accounting
Focuses on two broad areas to improve understanding of the use of accounting information in management decision making: 1) Financial Reporting including examination of corporate financial reports, International Financial Accounting Standards, triple-bottom line reporting, and governance and 2) Managerial Accounting including the nature, analysis of costs, product costs, and control systems.

Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 521  Units: 1.5
Leadership Strategies
An examination of leadership in a variety of environments: corporate, the military, and the public sector. Identifies the characteristics of a leader and instills an interest in and awareness of this vital organizational skill. Includes a review of leadership research from a historical perspective as well as current theory on transformational leadership. Experiential exercises, case studies and role playing techniques are employed to demonstrate leadership skills.

Note: Credit will be granted for only one of MBA 521, COM 410.
Prerequisite(s): Permission of the program.

MBA 522  Units: 1.5
Business and the Internet
Business is going global, and traditional markets are rapidly giving way to the electronic marketplace. Combines hands-on project for an existing organization with seminar style classes and invited speakers. Covers competitive advantages of electronic communications technologies; fundamentals of data communications; effective use of the Internet for business; and security, privacy, and intellectual property issues related to online business.

Note: Credit will be granted for only one of MBA 522, COM 415.
Prerequisite(s): Permission of the program.

MBA 523  Units: 1.5
Corporate Finance
Serves as a continuation of the introductory finance course to more advanced applications of the techniques, concepts, and tools of corporate finance. Main topics include short- and long-term financial management, cost of capital, capital structure, financial leverage, dividends policy, working capital management, leasing, mergers and acquisitions, and the use of derivatives for risk management.

Note: Credit will be granted for only one of MBA 524, COM 445.
Prerequisite(s): Permission of the program.

MBA 524  Units: 1.5
Applied Managerial Economics
Also: COM 446
Investments
Covers the fundamental principles that are crucial to understanding the securities traded in international financial markets. The main topics include market structure, information efficiency, asset pricing models, valuation and trading of stocks, bonds, options and futures.

Note: Credit will be granted for only one of MBA 525, COM 446, COM 450 (if taken in the same topic), ECON 435.
Prerequisite(s): Permission of the program.

MBA 529  Units: 0.5-1.5
International Logistics and Supply Chain Management
Examines the issues involved in managing global supply chains and logistic flows. Topics are developed around the risks and opportunities of global sourcing. Topics include some of the following: designing and implementing global supply chains, foreign manufacturing, inventory management, coping with security concerns, outsourcing, service standards, transportation options and performance evaluation.

Notes:
• Credit will be granted for only one of MBA 529, MGB 519.
• The unit value of a course section will be specified according to the program in which it is delivered.

MBA 530  Units: 0.5-1.5
Managerial Finance
Provides a framework, concepts, and tools for analyzing financial decisions. Topics include discounted cash flow techniques, valuation of financial assets, financial statement analysis, capital budgeting decisions, risk and return tradeoffs, diversification and portfolio theory, capital market efficiency, and the cost of capital to the firm. Focuses on management-shareholder agency problems, ethical issues in financial decision-making, and issues related to sustainability and corporate social responsibility (CSR) in project valuation and portfolio investments.

Note: The unit value of a course section will be specified according to the program in which it is delivered.

MBA 531  Units: 1.5
Also: COM 425
Taxation for Managers
Reviews the fundamentals of the income tax system for all taxpayers. It then examines tax planning techniques that maximize cash flow and return on investment. While the course emphasizes business decisions, it also includes personal financial planning issues.

Note: Credit will be granted for only one of MBA 531, COM 425.
Prerequisite(s): Permission of the program.

MBA 535  Units: 0.5-1.5
Operations Management
An introduction to the concepts for managing the systems organizations use for producing goods and services. Topics include some of the following: operations strategy, capacity and technology planning, purchasing and materials management, workflow planning, scheduling, and quality management and control.

Note: The unit value of a course section will be specified according to the program in which it is delivered.
MBA 540 Units: 0.5-1.5
**Applied Data Analysis and Decision Analysis**
A decision-oriented course that focuses on the frameworks, concepts, theories, and principles needed to organize and use information to make informed business decisions. Cases, exercises, discussion questions, and other pedagogical tools are used to help participants build data gathering and analysis skills. Topics include collecting, summarizing, and extracting data, probability theory, and risk in decision making; and one-way analysis of variance and regression analysis.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 544  Units: 0.5-1.5
**Information Technology in the Organization**
An introduction to the capabilities and utilization of information technology (IT), information systems (IS) and networks. Different approaches using IT and IS will be covered to provide an understanding of how they can be used effectively in today's interconnected enterprise. Cases, and other assignments will be used to illustrate the evolving role of IS and networks in today's interconnected organization both within and external to it.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 546  Units: 0.5-2.0
**Innovation and Design Studio**
Explores innovation via a studio approach in which students learn through practice and reflection. Topics include framing the ‘problem space’ through deep understanding of users and context, and techniques for eliciting creative ideas, such as structured brainstorming and rapid prototyping, to explore the ‘solution space’. Students become integrative, creative problem solvers who combine rigorous research with narrative, visual data, and other knowledge forms to generate original, practical strategies.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 550  Units: 0.5-1.5
**Strategic Analysis and Action**
Introduces the integrative nature of management. Explores the overall general management of the organization, and the formulation and implementation of the strategic direction of the firm. Covers major strategic management concepts including analyses of external and internal environments, innovation, corporate social responsibility (CSR), managerial ethics, value co-creation, and leadership, as they relate to business strategy. Intended to develop an appreciation of the role of a general manager from conceptual as well as pragmatic standpoints.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 552  Units: 0.5-2.0
**Collaboration in Organizations**
Explores ways to lead and cultivate collaboration in both intra- and inter-organizational contexts. Topics may include identifying what effective collaboration looks like, when collaboration does (and doesn’t) make sense, organizational barriers to collaboration, the skills required to encourage others to collaborate effectively, and the characteristics of collaborative leadership.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 553  Units: 0.5-1.5
**Managing People and Organizations I**
Examines the behaviour of individuals, groups and organizations from an organizational design perspective. Topics include: the analysis of goals, environment structure and growth; teams, organizational culture, power, politics and conflict management; decision making, motivation, trust and leadership.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 555  Units: 0.5-1.5
**Managing People and Organizations II**
Examines the issues in managing employees in organizations. Topics include recruitment and hiring, retention practices, performance review, compensation design, layoffs, and selected employment and human rights legislation.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 560  Units: 0.5-1.5
**Managing Legal Risks**
Examines various legal risks (whether arising from the common law or through legislation) that must be identified and effectively managed within contemporary organizations (including for-profit businesses, not-for-profit firms and governmental organizations). Examines the legal risks associated with the manufacture, delivery, and marketing of goods and services, the creation and protection of confidential information and other intellectual property, and risks arising from employment and contractor relationships. Also reviews risk management strategies available under the law of tort and contract.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 561  Units: 0.5-1.5
**Entrepreneurial Planning and Finance**
Part of the integrated MBA Entrepreneurship module, focuses on differences between ideas and opportunities, identifying necessary information to screen and analyze the risks attached to shaping opportunities into viable businesses; understanding financial data and use of quantifiable factors in the entrepreneurial decision process. Students understand essential elements of a business plan, the catalyst for skill development of entrepreneurial new venture ideas.

**Notes:**
• Not open to students with credit in the Service Management Specialization courses previously offered under MBA 595.
• The unit value of a course section will be specified according to the program in which it is delivered.

**Corequisite(s):** MBA 562 and MBA 563.

MBA 562  Units: 0.5-1.5
**New Venture Marketing**
Part of the integrated MBA Entrepreneurship program, develops the thinking skills required to: develop valuable products, understand customers and markets, and gain market acceptance with limited resources.

**Notes:**
• Not open to students with credit in the Service Management Specialization courses previously offered under MBA 595.
• The unit value of a course section will be specified according to the program in which it is delivered.

**Corequisite(s):** MBA 561 and MBA 563.

MBA 563  Units: 0.5-1.5
**Entrepreneurial Strategy**
Part of the integrated MBA Entrepreneurship program, develops skills necessary to plan a venture's strategy, business model and competitive position, to assess strategy's viability, and to develop implementation plans to realize that strategy. Models for international and social entrepreneurship and venture growth will also be discussed.

**Notes:**
• Not open to students with credit in the Service Management Specialization courses previously offered under MBA 595.
• The unit value of a course section will be specified according to the program in which it is delivered.

**Corequisite(s):** MBA 561 and MBA 562.

MBA 564  Units: 0.5-2.0
**Entrepreneurship**
Entrepreneurship is about new value creation in new for-profit ventures, social enterprises, existing corporations, government, and other contexts. Takes prospective entrepreneurs through the opportunity (value) identification and realization process with a focus on developing entrepreneurial expertise and an entrepreneurial mindset. Learners will apply key theory, frameworks, concepts, and tools towards their own entrepreneurial pursuits with the aim of getting to the proof-of-concept stage of development with a lean business plan.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 570  Units: 0.5-2.0
**International Business Environment I**
Overview of international business and management, emphasizing globalization and its implications for individuals, organizations and nations. Explores topics in global and regional economic integration, sources of national competitive advantage, international trade and investment, corporate social responsibility (CSR) in international contexts, strategy and organization in multinational enterprises, emerging markets, and current issues related to the international business environment. Students will develop a world-view of today's dynamic global marketplace and analytical skills for addressing complex global issues.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.

MBA 576  Units: 0.5-2.0
**International Business Environment II**
This course is a continuation of topics covered in IB Environment I.

**Note:** The unit value of a course section will be specified according to the program in which it is delivered.
MBSE

Master of Business Administration + Master of Science

MBA Program and Faculty of Engineering

Sardul S. Gill Graduate School of Business

Specifically for the MBA+MSc in Computer Science Double Degree Program which is jointly offered by the Sardul S. Gill Graduate School of Business and the Department of Computer Science.

Note: Credit will be granted for only one of MECH 510, MECH 580 (if taken in the same topic).

MECH

Mechanical Engineering

Department of Mechanical Engineering

Faculty of Engineering

MECH 501

Units: 1.5

Introduction to Continuum Mechanics


MECH 504

Units: 1.5

Mechanical Vibration

Multi Degree of Freedom systems: equation of motion in matrix form, modal analysis, transfer function, damped and undamped response to arbitrary excitations. Linear continuous systems: transverse vibrations of strings, lateral beam vibrations, axial and torsional vibration of rods. Random vibration; stationary random processes, correlation functions; Fourier analysis, power spectral density, random response of SDOF systems. Vibration measurement and Experimental Modal Analysis. Introduction to non-linear vibrations; approximate analytical solutions, graphical methods, stability of equilibrium states.

MECH 510

Units: 1.5

Living Cells and their Molecules: Mechanics & Thermodynamics


Note: Credit will be granted for only one of MECH 510, MECH 580 (if taken in the same topic).

MECH 515

Units: 1.5

Biomaterials and Tissue Engineering

Introduction to the types of biomaterials and their associated properties. Experimental characterization techniques including microscopy, detection of chemical compositions, protein adsorption and immunoreactivity. Methods for combining biomaterials with cells to engineer tissues.

Note: Credit will be granted for only one of MECH 515, MECH 580 (if taken in the same topic).

MECH 520

Units: 1.5

Computer-Aided Design and Engineering

Fundamentals of computer graphics; basic elements of geometric modeling of solids and curved surfaces; advanced topics in engineering drawings; use of integrated CAD/CAM/CAM system for modelling, simulation, engineering analysis, automated production, and parameter optimization of mechanical designs; input and output techniques, data management, and customization of CAD/CAM/CAM systems.

Note: There is a 3-hour laboratory requirement on alternate weeks.
**MECH 536**  
**Microfluidics**  
Units: 1.5

**MECH 537**  
**Non-equilibrium Thermodynamics and Kinetic Theory of Gases**  
Conservation and balance laws, properties and property relations, 2nd law and interpretation of entropy, entropy generation and work loss, classical irreversible thermodynamics, cross effects and Onsager conditions. Kinetic theory of gases: Distribution function, Boltzmann equation, conservation laws, H-Theorem, continuum limit; the laws of Navier-Stokes and Fourier, higher order methods and moment equations, Knudsen layers, rarefaction effects.  
Units: 1.5

**MECH 538**  
**Advanced Aircraft Design**  
Units: 1.5

**MECH 540**  
**Transport Phenomena**  
Fundamentals of thermomechanics; kinematics, motion, stress, thermodynamics, fundamental principles of thermomechanics. Constitutive equations; basic principles and axioms, linearization of constitutive equations, constitutive equations of special materials such as Newtonian fluids and binary mixtures. Field equations for binary fluid mixtures. Mass transport; diffusivity and mechanisms of mass transport, examples of concentration distributions in binary solids and fluids (laminar flow), examples from ternary systems.  
Units: 1.5

**MECH 541**  
**Advanced Thermodynamics**  
Units: 1.5

**MECH 542**  
**Energy Systems and Energy Analysis**  
Macroscopic examination of energy systems, system architecture and evolution. Dynamics of energy systems. Characteristics and impacts of energy storage. Exergy balance and second law efficiency.  
Units: 1.5

**MECH 543**  
**Cryogenic Engineering**  
Units: 1.5

**MECH 549**  
**Fuel Cell Technology**  
Units: 1.5

**MECH 550**  
**Advanced Control Theory**  
Units: 1.5

**MECH 554**  
**Mechatronics**  
Introduction to mechatronic systems; modeling of mixed mechatronic systems; microcontroller programming and interfacing; theory, selection and implementation of sensors and actuators commonly used in mechatronic systems; control architectures and case studies in mechatronics systems.  
Units: 1.5
MECH 555  Units: 1.5
Micro-ElectroMechanical Systems

MECH 558  Units: 1.5
Fundamentals of Hybrid Vehicles
Background of hybrid electric vehicle (HEV) powertrain technologies; vehicle power plants, electric propulsion systems, transmissions, and energy storage system; vehicle performance modeling and simulation using advanced powertrain modeling tools; design and optimization of HEV powertrain system; other key issues in HEV design and developments; HEV related design project and case study. 
Note: Credit will be granted for one of MECH 558, MECH 580 (if taken in the same topic).

MECH 563  Units: 1.5
Finite Element Analysis
Introduction to the basic principles of finite element analysis. Development of discrete equations for problems of 1, 2, and 3D elasticity. Applications to problems of stress analysis, vibrations, heat transfer and fluid flow. Includes a number of projects encouraging students to use large-size finite element analysis programs. Should be of interest to mechanical and electrical engineers, as well as students from the departments of Computer Science and Mathematics.

MECH 573  Units: 1.5
Ferrous and Non-Ferrous Metals
The iron-carbon and iron-cementite phase diagrams; nucleation and growth of microstructural constituents; the martensite phase transformation; time-temperature-transformation (TTT) curves; properties affected by quenching, tempering and annealing; alloy additions; structural, high strength and specialty steels; welding; tool and stainless steels; cast irons; super alloys; metal matrix composites.

MECH 576  Units: 1.5
Introduction to Electron Microscopy
Note: Credit will be granted for only one of MECH 576, MECH 580 (if taken in the same topic).

MECH 580  Units: 1.5
Selected Topics in Mechanical Engineering
Note: May be taken more than once for credit in different topics.

MECH 590  Units: 1.5
Directed Studies
A wide range of topics will be available. 
Note: Pro Forma required.

MECH 594  Units: 1.0
Seminar
Participation in a program of seminars by internal and external speakers on current research topics. MEng students are not required to present. 
Prerequisite(s): Admission to MEng program in Mechanical Engineering. 
Grading: INP, COM, N, F.

MECH 595  Units: 1.5
Seminar
Participation in a program of seminars by internal and external speakers on current research topics. All MASc students will be required to give a seminar on their thesis research during the second year of the program. 
Prerequisite(s): Admission to MASc program in Mechanical Engineering. 
Grading: INP, COM, N, F.

MECH 598  Units: 3.0
MEng Project Report
Grading: INP, COM, N, F.

MECH 599  Units: 9.0
MASc Thesis
Grading: INP, COM, N, F.

MECH 601  Units: 1.5
Engineering Analysis
Introduction to mathematical methods used in engineering analyses with focus on the application to engineering problems rather than the rigorous proofs of mathematical concepts. Topics can include: integral transformations including Laplace and Fourier transforms; complex analysis including analytic functions; theory of residues and conformal mapping; calculus of variations as applied to optimal control, finite element methods and wave equations; linear algebra including least squares problems, eigenproblems and matrix decompositions. 
Note: Credit will be granted for only one of MECH 601, MECH 580 (if taken in the same topic).

MECH 693  Units: 3.0
Candidacy Examination
PhD students enrol in 693 for the duration of their preparation for the candidacy examination. This begins at the time the PhD student first enrols in the PhD program and continues until the candidacy examination has been completed. 
Pre- or Corequisite(s): MECH 501 or MECH 601. 
Grading: INP, COM, N, F.

MECH 695  Units: 1.5
Seminar
Participation in a program of seminars by internal and external speakers on current research topics. Normally, all PhD students are required to give two seminars on their thesis research within 16 months and 34 months of registration. 
Prerequisite(s): Admission to a doctoral program in Mechanical Engineering. 
Grading: INP, COM, N, F.

MECH 699  Units: 27.0
PhD Dissertation
Prerequisite(s): MECH 693. 
Grading: INP, COM, N, F.

MGB
Master of Global Business
Peter B. Gustavson School of Business
Courses offered by the Peter B. Gustavson School of Business are also found under the following course codes: COM (Commerce), ENT (Entrepreneurship), SMGT (Service Management), I8 (International Business), MBA (Master’s of Business Administration).

MGB 180  Units: 1.0
Formerly: MGB 580
Language Skills I
Provides language instruction for students to significantly advance their skill and knowledge in another language. The essential points of structure and vocabulary will be taught, giving capability to function in everyday settings. Students will learn to share information about themselves in the target language and ask basic questions of those around them. 
Notes: 
• Credit will be granted for only one of MGB 180, MGB 580. 
• May not be used for credit in any other undergraduate or graduate program. 
Prerequisite(s): Admission to MGB program. 
Grading: FNC.

MGB 181  Units: 1.0
Formerly: MGB 581
Language Skills II
Further development of the language skills learned in 180. 
Notes: 
• Credit will be granted for only one of MGB 181, MGB 581. 
• May not be used for credit in any other undergraduate or graduate program. 
Pre- or Corequisite(s): MGB 180. 
Grading: FNC.

MGB 182  Units: 1.0
Formerly: MGB 582
Language Skills III
Further development of the language skills learned in 181. 
Notes: 
• Credit will be granted for only one of MGB 182, MGB 582. 
• May not be used for credit in any other undergraduate or graduate program. 
Pre- or Corequisite(s): MGB 181. 
Grading: FNC.

MGB 502  Units: 0
Introduction to Professional Practice
Preparation and training to undertake MGB Internship work terms. Includes preparation of cover letters and resumes, skills assessment and analysis, networking and interview skill development and career planning. 
Note: Students are required to register in this course during the first and second terms of their MGB program. 
Grading: INP, COM, N, F.

MGB 510  Units: 1.0
The North American Business Context
Examines the socio-economic, political and legal factors that affect business operations in Canada and the United States. Topics include the Canada/US business regulatory environment, economies, governmental and legal systems, labour markets, protection of intellectual property and international trade relationships including the North American Free Trade Agreement.
MGB 512  
International Financial Management  
An examination of international financial markets and the financial decision making of multinational firms. Topics include international monetary systems, exchange rate determination, foreign currency derivatives, risk management techniques, and investments, financing and operations in global markets.  
Note: Credit will be granted for only one of MGB 512, MBA 571.

MGB 516  
International Marketing and Global Strategy  
An examination of the strategic challenges facing businesses in an international context, with a focus on marketing issues. Topics include the problems associated with controlling and coordinating activities in multiple markets, managing diverse markets, responding to consumer and competitor differences, understanding the impact of different institutional structures, and coping with market consolidation.  
Note: Credit will be granted for only one of MGB 516, MBA 572.

MGB 519  
International Logistics and Supply Chain Management  
Examines the issues involved in managing global supply chains and logistic flows. Topics are developed around the risks and opportunities of global sourcing. They include designing and implementing global supply chains, foreign manufacturing, inventory management, coping with security concerns, outsourcing, service standards, transportation options and performance evaluation.  
Note: Credit will be granted for only one of MGB 519, MBA 529.

MGB 520  
The Asian Business Context  
An overview of business operations in the Asian context in various industry sectors. Also examines socio-economic, cultural and legal factors that impact doing business in Asia and that impact Asian firms doing business in regional and global settings.

MGB 525  
Developing Business in International Entrepreneurial Environments  
Examines the analyses and knowledge needed for successful new global business ventures as well as within an international environment. Emphasis will be given to the various stages in the development of a business plan, from idea development to presentation of the plan.

MGB 530  
The European Business Context  
An overview of corporate governance structures, legal and economic systems and environmental sustainability issues in the European Union and beyond. Prepares students to apply their knowledge and global perspective to solving business issues and challenges.

MGB 535  
Consulting Methods and Practice  
Provides an overview of the process of management consulting, introduces students to consulting methods to help them gain knowledge of consulting and to highlight specific consulting and research skills. To practice the application of these methodologies, student teams will examine an issue or problem being faced by their assigned overseas organizations, and provide them with consulting advice. In addition, this course will ultimately prepare students for the MGB 536 International Research and Consulting Project.

MGB 536  
International Research and Consulting Project  
An individual or group consulting report. Participating students, working individually or in small teams and under faculty supervision, research issues and maintain a consulting/client relationship with a corporate sponsor. The students examine a problem of current interest to the sponsor and prepare detailed written recommendations, make in-person presentations to clients and submit a final report.

MGB 537  
Global Internship  
Students must complete at least 300 hours of work with an organization that normally (1) has an international component linking two or more regions, or (2) is located in any region of the world, provided that it is not the student’s “home” region or country. Requires students to apply their learning through a reflective component that describes how the coursework and the Internship experience in particular have prepared them for global business related careers.  
Note: Students who fail to complete an internship by the end of four academic terms may be required to withdraw.  
Prerequisite(s):  
• MGB 502; or  
• permission of the school.  
Grading: INP, COM, N, F.

MGB 540  
The South American Business Context  
An overview of business operations in the South American context in various industry sectors. Also examines socio-economic, cultural and legal factors that impact doing business in South America and that impact South American firms doing business in regional and global settings.

MGB 550  
The Middle East and North Africa (MENA) Business Context  
An overview of business operations in the MENA context in various industry sectors. Also examines socio-economic, cultural and legal factors that impact doing business in the MENA region and that impact MENA region firms doing business in regional and global settings.

MGB 560  
The Sub-Saharan African Business Context  
An overview of business operations in the sub-Saharan context in various industry sectors. Also examines socio-economic, cultural and legal factors that impact doing business in the region and that impact sub-Saharan African firms doing business in regional and global settings.

MGB 570  
Global Leadership and Cultural Intelligence  
An examination of the various dimensions of culture and cross-cultural leadership and management. Topics include how cultural intelligence and global mindset impact teamwork, conflict management, negotiations, motivation and overall leadership in international settings. Compares how people from the three regions of the MGB program modules (e.g., North America, Asia and Europe) are similar and how they differ along these dimensions, including the challenges resulting from these differences and how to resolve them.

MGB 583  
Language, Communication, and Global Business  
Provides a framework - in conjunction with students’ language courses - to explore relationships among language, communication, and culture, a subject highly relevant to global companies. Considers the process of language interaction in global organizations and shows how foreign language learning adds value to businesses and careers. Also examines example global companies that have shaped their language policies (often towards using English as the lingua franca), impacting individual and organizational performance.  
Pre- or Corequisite(s): MBA 180.

MICR 570  
Directed Studies in Microbiology  
Topics are restricted to an analysis of recent advances. The student’s graduate supervisor will not normally participate in directed studies taken for more than one unit of credit.  
Notes:  
• May be taken more than once for credit in different topics.  
• Pro Forma required.

MICR 599  
MSc Thesis: Microbiology  
Grading: INP, COM, N, F.

MICR 699  
PhD Dissertation: Microbiology  
Corequisite(s): BCMB 693.  
Grading: INP, COM, N, F.
MRNE 500 - MUS 562B

MRNE

Marine Science
Department of Biology
Faculty of Science

MRNE 500
Units: 1.0-6.0
Directed Studies

MRNE 501
Units: 3.0
Special Topics

MRNE 502
Units: 1.5
Special Topics

MUS

Music
School of Music
Faculty of Fine Arts

MUS 500
Units: 1.5
Selected Problems in Theory and Analysis
Note: May be taken more than once for credit with permission of the school.

MUS 501
Units: 1.5
Seminar in Musical Notations

MUS 502
Units: 1.5
Musical Aesthetics and the Theory of Criticism

MUS 503
Units: 1.5
Introduction to Graduate Study and Music Bibliography
Note: All students in musicology must register for this course in their first term of graduate study.

MUS 504
Units: 1.5
Seminar in Performance Practices
Note: May be taken more than once for credit with permission of the school.

MUS 506A
Units: 1.5
Advanced Recording Techniques
Advanced study to the theory and practice of recording audio technology, studio techniques and procedures. Study to include: advanced stereo microphone techniques, introduction to surround sound, high resolution formats including SACD, DVD-A, DSD, electroacoustic measurements and multi-track recording and theory. Practical work includes recording sessions, mixing and producing.

MUS 506B
Units: 1.5
Sound Recording Seminar
Advanced study of sound recording and music production techniques using the production of a full length CD or DVD as a model. Topics will include techniques in audio post-production and editing with advanced equipment; music production, location recording, and readings of current research and technical papers. Requires the completion of a full length CD or DVD project.
Prerequisite(s):
- MUS 506A or
- permission of the school.

MUS 507
Units: 3.0
Computer Music Seminar

MUS 508
Units: 1.5
Musical Acoustics
The physics of musical sound and the acoustics of musical instruments. Timbre, scales, tuning and temperament. An introduction to psychoacoustical issues.
Note: Credit will be granted for only one of MUS 508, MUS 506.

MUS 510
Units: 1.5
Computational Music and Audio Analysis
An in-depth examination of the approaches to the analysis of audio signals, computational modeling, and synthesis of musical signals, with a focus on creative applications.

MUS 511
Units: 1.5
Music Perception and Cognition
The examination of music as a human cognitive domain: the physiological, sensory and organizational processes involved in the perception and cognition of musical sound.

MUS 512
Units: 1.5
Music Technology Colloquium
Provides a forum for guest scholars and professionals, faculty members and students to present and discuss their research. Candidates for the MMus in Music Technology select their comprehensive examination field topics and develop their project proposals.

MUS 515
Units: 1.5
Topics in Musicology Before 1750
Note: May be taken more than once for credit in different topics.

MUS 516
Units: 1.5
Topics in Musicology After 1750
Note: May be taken more than once for credit in different topics.

MUS 522
Units: 1.5
Comparative Topics in Musicology
Note: May be taken more than once for credit in different topics.

MUS 533
Units: 1.5
Graduate Forum in Musicology
Develops skills in professional activities in the field of musicology, including delivering an in-house conference paper, serving as a respondent to a peer paper, and editing or publishing an article in Musicological Explorations. Provides a forum for Major program requirements leading up to the first year review.

MUS 534
Units: 1.5
Advanced Research Forum in Musicology
Core seminar in advanced research skills for second-year degree candidates in Musicology that provides an interactive forum for completion of major program requirements. Students conduct research in diverse areas of inquiry in musicology and gain professional experience through the preparation of a conference presentation. Candidates for the MA complete their Comprehensive Examinations and a formal Thesis Proposal, while PhD candidates complete their formal proposal for the Comprehensive Examinations in the context of the Forum.
Prerequisite(s): MUS 533.
Grading: INC, COM, N, F.

MUS 540
Units: 0.5 or 1.0
Individual Tuition
Lessons in instrument or voice.
Note: May be taken more than once for credit with permission of the school.
Prerequisite(s): Permission of the school.

MUS 545
Units: 4.0
Major Instrument Study
Individual tuition, integrated performance seminar and master class.
Note: May be taken more than once for credit with permission of the school.
Prerequisite(s): Admission to MMus in Performance.

MUS 545Q
Units: 4.0
Major Instrument Study
For students in Master of Music (MMus) in Performance-Emphasis in String Quartet program.
Notes:
- May be taken more than once for credit with permission of the school.
- MUS 545Q must be taken in each year of the program.

MUS 555
Units: 3.0
Individual Tuition in Composition
Note: May be taken more than once for credit with permission of the school.

MUS 561
Units: 1.5
Seminar in Composition
Seminar in Composition, taken each year.
Notes:
- May be taken more than once for credit.
- A combined undergraduate and graduate course (MUS 462A Undergraduate Seminar in Performance of New Music).

MUS 562A
Units: 1.5
Seminar in Performance of New Music
This seminar/workshop provides intensive professional training for performers who work together with composers in the creation, performance, and production of new music. Graduate performers will prepare new works composed specifically for them by the composers registered simultaneously in 562B. Training in contemporary notation and performance practices, extended techniques, instrumentation, analysis, conducting techniques, communication skills, and concert production. The final project will be a festival.
Note: A combined undergraduate and graduate course (MUS 462B Undergraduate Seminar in Contemporary Composition and Performance).

MUS 562B
Units: 1.5
Seminar in Contemporary Composition and Performance
This seminar/workshop provides intensive professional training for composers who work together with performers in the creation and production of new music. Composers will create new works designed for small mixed ensembles of performers registered simultaneously in 562A, and work with them to prepare the works for performance. Training in contemporary notation and performance practices, analysis, instrumentation, communication skills, and concert production. The final project will be a festival.
MUS 580A  Units: 2.0  
Formerly: part of MUS 580  
University Orchestra  
Rehearses and performs orchestral repertoire from the Baroque to the present.  
Notes:  
• Credit will be granted for only one of MUS 580A, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.

MUS 580B  Units: 2.0  
Formerly: part of MUS 580  
University Wind Symphony  
Rehearses and performs advanced repertoire for winds, brass and percussion.  
Notes:  
• Credit will be granted for only one of MUS 580B, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.

MUS 580C  Units: 2.0  
Formerly: part of MUS 580  
Don Wright Symphonic Winds  
Rehearses and performs intermediate level repertoire for winds, brass and percussion.  
Notes:  
• Credit will be granted for only one of MUS 580C, MUS 580.  
• May be taken more than once for credit.  
• Open to all students.

MUS 580D  Units: 2.0  
Formerly: part of MUS 580  
Jazz Ensemble  
Rehearses and performs a wide range of works, both old and new, for jazz ensemble.  
Notes:  
• Credit will be granted for only one of MUS 580D, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.

MUS 580E  Units: 2.0  
Formerly: part of MUS 580  
University Chorus  
A large SATB choral ensemble that rehearses and performs a varied repertoire for mixed choir, and choral and orchestral works.  
Notes:  
• Credit will be granted for only one of MUS 580E, MUS 580.  
• May be taken more than once for credit.  
• Open to all students.

MUS 580F  Units: 2.0  
Formerly: part of MUS 580  
Chamber Singers  
A select SATB choral ensemble performing both standard and lesser-known choral repertoire from a wide spectrum of composers and styles.  
Notes:  
• Credit will be granted for only one of MUS 580F, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.  
• Previous choral experience and strong music skills are required.

MUS 580G  Units: 2.0  
Formerly: part of MUS 580  
University Women's Choir  
A choral ensemble that rehearses and performs varied repertoire for women's voices.  
Notes:  
• Credit will be granted for only one of MUS 580G, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.

MUS 580H  Units: 2.0  
Pacific Opera Victoria Chorus  
Rehearses and performs operatic repertoire as part of the Pacific Opera Victoria professional season.  
Notes:  
• Credit will be granted for only one of MUS 580H, MUS 580.  
• May be taken more than once for credit.  
• Open to all students by audition.

MUS 581  Units: 1.0  
Chamber Music  
MMus candidates in Performance will normally register for both this course and 580 in each year of study. MA candidates in Musicology (with Performance) will normally select one of 580 or 581 each year, as determined in consultation with the supervisor.

MUS 588  Units: 1.0  
MMus Practicum  
Recital for performance candidates normally taken in first year.  
Grading: INP, COM, N, F.

MUS 590  Units: 1.5 or 3.0  
Directed Studies  
Note: May be taken more than once for credit with permission of the school.

MUS 596  Units: 1.5  
Lecture-Recital  
A lecture-recital of substantial duration, its topic likely related to the student's thesis. For students in the MA program in Musicology with Performance.  
Grading: INP, COM, N, F.

MUS 599  Units: 3.0  
MA Thesis  
Grading: INP, COM, N, F.

MUS 689  Units: 1.5  
Dissertation Proposal  
For candidates for the PhD in Musicology.  
Grading: INP, COM, N, F.

MUS 690  Units: 1.5 or 3.0  
Directed Studies  
Note: May be taken more than once for credit with permission of the school.

MUS 693  Units: 3.0  
PhD Candidacy Examinations  
Students enrol in MUS 693 for the duration of their preparation for their candidacy examinations. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed.  
Grading: INP, COM, N, F.

MUS 699  Units: 30  
PhD Dissertation  
Prerequisite(s): MUS 693  
Grading: INP, COM, N, F.

NRSC 500A  Units: 1.5  
Formerly: part of NRSC 500  
Fundamentals of Cellular Neuroscience  
Provides a foundational basis in neuroscience. Comprehensive instruction in cellular molecular and systems neuroscience.  
Note: Credit will be granted for only one of NRSC 500A, NRSC 500.  
Prerequisite(s):  
• Admission to the Neuroscience program; or  
• permission of the Division.

NRSC 500B  Units: 1.5  
Formerly: part of NRSC 500  
Fundamentals of Cognitive Neuroscience  
Provides a foundational basis in neuroscience. Comprehensive instruction in behavioral and cognitive neuroscience.  
Note: Credit will be granted for only one of NRSC 500B, NRSC 500.  
Prerequisite(s):  
• Admission to the Neuroscience program; or  
• permission of the Division.

NRSC 501A  Units: 1.5  
Advanced Topics in Cellular Neuroscience I  
Seminar on current topics in Cellular Neuroscience.  
Notes:  
• For admitted Neuroscience students, this course is required in the first year of their program.  
• The course runs from September to April.  
• A grade of INP (in progress) will be given until the second enrolled term is completed.
### NRSC 501B - NUED 570

#### NRSC 501B
- **Units:** 1.5
- **Hours:** 3.0-0-0
**Advanced Topics in Cognitive Neuroscience I**
Seminar on current topics in Cognitive Neuroscience.

**Notes:**
- For admitted Neuroscience students, this course is required in the first year of their program.
- The course runs from September to April.
- A grade of INP (in progress) will be given until the second enrolled term is completed.

**Prerequisite(s):** NRSC 501A or NRSC 501B.

#### NRSC 502A
- **Units:** 1.5
- **Hours:** 3.0-0-0
**Advanced Topics in Cellular Neuroscience II**
Seminar on current topics in Cellular Neuroscience.

**Notes:**
- Registration in NRSC 502A is mandatory after completion of NRSC 501B every year the student is enrolled in the graduate program.
- The course runs from September to April.
**Prerequisite(s):** NRSC 501A or NRSC 501B.

#### NRSC 502B
- **Units:** 1.5
- **Hours:** 3.0-0-0
**Advanced Topics in Cognitive Neuroscience II**
Seminar on current topics in Cognitive Neuroscience.

**Notes:**
- Registration in NRSC 502B is mandatory after completion of NRSC 501B every year the student is enrolled in the graduate program.
- The course runs from September to April.
**Prerequisite(s):** NRSC 501A or NRSC 501B.

#### NRSC 587
- **Units:** 1.5-3.0
**Advanced Topics in Neuroscience**
Topics of current interest in Neuroscience.

**Notes:**
- May be taken more than once for credit in different topics with permission of the program.
- Pro Forma required.
**Prerequisite(s):** Permission of the program.

#### NRSC 590
- **Units:** 1.5-3.0
**Directed Studies in Neuroscience**
Research projects or directed readings.

**Notes:**
- May be taken more than once for credit in different topics with permission of the program.
- Pro Forma required.
**Prerequisite(s):** Permission of the program.

#### NRSC 599
- **Units:** 9.0-12.0
**MSc Thesis**
A thesis comprising an original scientific study and/or scientific analysis of a problem germane to contemporary neuroscience.

**Note:** Students who have completed equivalent prerequisites may request permission to register in the course.
**Prerequisite(s):** NRSC 595; or permission of the program.

**Grading:** INP, COM, N, F.

#### NRSC 600A
- **Units:** 1.5
**Fundamentals of Cellular Neuroscience**
Provides a foundational basis in neuroscience and comprehensive instruction in cellular, molecular, and systems neuroscience.

**Note:** Credit will be granted for only one of NRSC 600A, NRSC 600B.

#### NRSC 600B
- **Units:** 1.5
**Fundamentals of Cognitive Neuroscience**
Provides a foundational basis in neuroscience and comprehensive instruction in behavioral and cognitive neuroscience.

**Note:** Credit will be granted for only one of NRSC 600B, NRSC 600.

#### NRSC 601A
- **Units:** 1.5
**Advanced Topics in Cellular Neuroscience I**
Seminar on current topics in Cellular Neuroscience.

**Notes:**
- For admitted Neuroscience students, this course is required in the first year of their program.
- The course runs from September to April.
- A grade of INP (in progress) will be given until the second enrolled term is completed.

#### NRSC 601B
- **Units:** 1.5
**Advanced Topics in Cognitive Neuroscience I**
Seminar on current topics in Cognitive Neuroscience.

**Notes:**
- For admitted Neuroscience students, this course is required in the first year of their program.
- The course runs from September to April.
- A grade of INP (in progress) will be given until the second enrolled term is completed.

#### NRSC 602A
- **Units:** 1.5
**Advanced Topics in Cellular Neuroscience II**
Seminar on current topics in Cellular Neuroscience.

**Notes:**
- Registration in NRSC 602A is mandatory after completion of NRSC 601A every year the student is enrolled in the graduate program.
- The course runs from September to April.
**Prerequisite(s):** NRSC 601A or NRSC 601B.

**Grading:** INP, COM, N, F.

#### NRSC 602B
- **Units:** 1.5
**Advanced Topics in Cognitive Neuroscience II**
Seminar on current topics in Cognitive Neuroscience.

**Notes:**
- Registration in NRSC 602B is mandatory after completion of NRSC 601B every year the student is enrolled in the graduate program.
- The course runs from September to April.
**Prerequisite(s):** NRSC 601A or NRSC 601B.

**Grading:** INP, COM, N, F.

#### NRSC 693
- **Units:** 3.0
**Candacy Examination**
The Candidacy exam will consist of a defence of a written proposal on the student's proposed dissertation research project and an oral exam based on the background material and research components of the proposal. The exam committee will be composed of a chair and at least three examiners.

**Note:** Students enrol in NRSC 693 upon admission to the PhD program and remain enrolled until all candidacy requirements are complete.

**Grading:** INP, COM, N, F.

#### NRSC 699
- **Units:** 21-39
**PhD Dissertation**
A dissertation containing an original scientific study which adds new knowledge to the field of neuroscience.

**Notes:**
- Students who have completed equivalent prerequisites may request permission to register in the course.
- Students possessing a MSc will require 21 units to fulfill the program requirements.
- Students possessing a BSc will require 30 units to fulfill the program requirements.

**Prerequisite(s):**
- NRSC 693; or permission of the program.

**Grading:** INP, COM, N, F.

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### NUED

#### Nursing, Advanced Practice: Nurse Educator Option

**School of Nursing**

**Faculty of Human and Social Development**

All nursing courses are open to Nursing students only unless otherwise noted in the course description. When a course is oversubscribed, preference will be given to Nursing students who are closest to graduation. Contact the School of Nursing or refer to current timetable for course offerings.

Courses offered by the School of Nursing are also found under the following course codes: NUHI, NUNP, NURA, NURP, and NURS.

#### NUED 570
- **Units:** 1.5
**Engaging with Pedagogy: Teaching and Learning in Nursing Education**

Prepares students to explore and critically examine the philosophical, theoretical and ethical perspectives informing pedagogy in nursing education.

**Note:** Credit will be granted for only one of NUED 570, NURA 530.
NUED 571 - Units: 1.5
Critical Pedagogy in Nursing Education and Evaluation
Students identify and critique ideologies and discourses relevant to teaching, learning and evaluation.

Note: Credit will be granted for only one of NUED 571, NURA 531.
Prerequisite(s): NUED 570.

NUED 572 - Units: 1.5
Intersectoral Course and Curriculum Design in Nursing Education
Students apply theoretical and critical knowledge in the development of nursing curriculum, courses and learning activities for intersectoral nursing education practice.

Note: Credit will be granted for only one of NUED 572, NURA 532.
Prerequisite(s): NUED 570.

NUED 573 - Units: 1.5
Nurse Educator Practice I
Students will have opportunities to further integrate their evolving knowledge of Advanced Practice Nursing. Nurse Educator option through work with expert teachers in clinical, academic, and/or community settings.

Pre- or Corequisite(s): NUED 570.
Grading: INC, COM, N, F.

NUED 574 - Units: 1.5
Nurse Educator Practice II
Students integrate their evolving knowledge of Advanced Practice Nursing: Nurse Educator option through teaching practice with expert teachers in clinical, academic, policy and/or community settings.

Prerequisite(s):
• NUED 570 and NUED 573 or;
• permission of the department.
Grading: INC, COM, N, F.

NUEDI

Nursing and Health Information Science
School of Nursing
Faculty of Human and Social Development
Specifically for Double-Degree MN option in Nursing and Health Information Science.

All Nursing courses are open to Nursing students only unless otherwise noted in the course description. When a course is oversubscribed, preference will be given to Nursing students who are closest to graduation. Contact the School of Nursing or refer to current timetable for course offerings.

Courses offered by the School of Nursing are also found under the following course codes: NUED, NUNP, NURA, NURP, and NURS.

NUHI 598 - Units: 3.0
Research Project
Students are required to conduct a major research project encompassing both the health informatics and nursing disciplines under the co-supervision of a faculty member from each School. The project is intended to facilitate synthesis of students’ graduate experience and contribute to their development as leaders in health informatics and nursing.

NUHI 599 - Units: 6.0
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP

Nursing, Advanced Practice: Nurse Practitioner Option
School of Nursing
Faculty of Human and Social Development

All Nursing courses are open to Nursing students only unless otherwise noted in the course description. When a course is oversubscribed, preference will be given to Nursing students who are closest to graduation. Contact the School of Nursing or refer to current timetable for course offerings.

Courses offered by the School of Nursing are also found under the following course codes: NUHI, NUED, NURA, NURP and NURS.

NUNP 531 - Units: 1.5
Applied Pathophysiology
Provides students with the advanced knowledge of pathophysiology required to understand, diagnose and treat health and illness in primary health care contexts. Includes an overview of individual and family growth and development as well as the epidemiology of health and disease across the lifespan. Students will learn about the etiology, signs and symptoms, assessment and treatment of common acute/episodic health conditions, diseases or disorders and chronic illnesses prevalent across the lifespan.

NUNP 532 - Units: 1.5
Pharmacological Interventions in Health and Illness
Students gain advanced knowledge of pharmacology, including pharmacokinetics and pharmacodynamics, as well as evidence informed practice in the selection, prescription and monitoring of drugs to treat diseases, conditions and injuries. Students learn to select drug therapy based on knowledge of pharmacology, drug interactions, client health history and disease, disorder or condition. Students prepare to write prescriptions that meet provincial and federal standards and legislative requirements, including responsibilities relevant to prescription and management of controlled substances.

NUNP 533 - Units: 1.5
Advanced Assessment and Diagnostic Reasoning
Theory
The theoretical knowledge, judgment, skills, and abilities required by advanced practice nurses, to assess individuals across the lifespan, families and communities. Includes comprehensive and holistic health assessments that integrate the psychosocial, emotional, ethical, cultural, and spiritual dimensions of health, health promotion and disease prevention, and diagnostic reasoning. Integration of an advanced practice nursing perspective will help students critique various approaches to assessment of health and illness.

Notes:
• Credit will be granted for only one of NUNP 540, NUNP 533.
• A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite course they may be required to complete both corequisites again the next time they are offered.
• Students will be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544, NUNP 545, NUNP 546, NUNP 547, and NUNP 548 upon enrolment in NUNP 537 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 537.
Prerequisite(s): All of NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544, NUNP 545, NUNP 546, NUNP 547, and NUNP 548.
Grading: INC, COM, N, F.

NUNP 540 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 541 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 542 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 543 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 544 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 545 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 546 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 547 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 548 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 549 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.

NUNP 550 - Units: 1.5
Thesis
Students working independently, with faculty guidance from both Nursing and Health Information Science, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.

Grading: INC, COM, N, F.
### NUNP 541 - Units: 1.5
**Advanced Assessment and Diagnostic Reasoning Practice**

An opportunity for 150 hours of practice experience through the application of theoretical knowledge required by advanced practice nurses, to assess individuals across the lifespan, families and communities. The focus is on the development of students’ knowledge, skills and abilities related to the application of core nurse practitioner (NP) competencies of client care, quality improvement and research, leadership, and education. There will be two required onsite components in this course.

**Notes:**
- Credit will be granted for only one of NUNP 541, NUNP 533.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite course they may be required to complete both corequisites again the next time they are offered.
- Students will be required to demonstrate knowledge and skills obtained in NUNP 531 and NUNP 532 upon enrolment in NUNP 540 and NUNP 541 if 12 months or more has lapsed between their completing these courses and enrolling in NUNP 540 and NUNP 541.

**Prerequisite(s):** NUNP 531 and NUNP 532.
**Corequisite(s):** NUNP 540.
**Grading:** INC, COM, N, F.

### NUNP 543 - Units: 1.5
**Integrated Primary Health Care and Advanced Practice Nursing: I (Theory) (Adult I)**

Advanced practice nursing with persons who experience episodic illness conditions, chronic diseases, and complex health challenges. Particular attention is paid to theoretical perspectives and skill development related to nurse practitioner core competencies with culturally diverse young to middle-aged adults and families. Selected concepts, theories, and research associated with health promotion and maintenance, and illness prevention are explored within the community context. Students will receive a letter grade upon completion.

**Notes:**
- Credit will be granted for only one of NUNP 543, NUNP 534, NUNP 550.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
- Students may be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540 and NUNP 541 upon enrolment in NUNP 543/544 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 543/544.

**Prerequisite(s):** All of NUNP 531, NUNP 532, NUNP 540, NUNP 541.
**Corequisite(s):** NUNP 543.
**Grading:** INC, COM, N, F.

### NUNP 544 - Units: 1.5
**Integrated Primary Health Care and Advanced Practice Nursing: I (Practice) (Adult I)**

An opportunity for 150 hours of practice experience through which students engage in advanced practice nursing under the guidance of a course instructor and clinical preceptor. Integration of philosophical, theoretical, and methodological perspectives gleaned from 543 and NUNP 544 upon enrolment in NUNP 545 and NUNP 546 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 545 and NUNP 546.

**Notes:**
- Credit will be granted for only one of NUNP 544, NUNP 534, NUNP 551.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
- Students will be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540 and NUNP 541 upon enrolment in NUNP 543/544 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 543/544.

**Prerequisite(s):** All of NUNP 531, NUNP 532, NUNP 540, NUNP 541.
**Corequisite(s):** NUNP 543.

### NUNP 545 - Units: 1.5
**Integrated Primary Health Care and Adv Practice Nursing Theory II**

Advanced practice nursing with persons who experience episodic illness conditions, chronic diseases, and complex health challenges. Particular attention is paid to theoretical perspectives and skill development related to nurse practitioner core competencies with culturally diverse childbearing families, infants, children, adolescents, and pregnant women. Health promotion and illness prevention are explored within the community context. After completion of the theory component, students will receive a letter grade.

**Notes:**
- Credit will be granted for only one of NUNP 545, NUNP 535, NUNP 560.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
- Students may be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543 and NUNP 544 upon enrolment in NUNP 545 and NUNP 546 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 545 and NUNP 546.

**Prerequisite(s):** All of NUNP 531, NUNP 532, NUNP 540, NUNP 541.
**Corequisite(s):** NUNP 543.
**Grading:** INC, COM, N, F.

### NUNP 546 - Units: 1.5
**Integrated Primary Health Care and Adv Practice Nurs Practica II**

An opportunity for 150 hours of practice experience through which students engage in advanced practice nursing under the guidance of a course instructor and clinical preceptor. Integration of philosophical, theoretical, and methodological perspectives gleaned from 545 as well as from core courses within the program is sought. There will be a required onsite component to this course. Upon completion of the practice component, students will receive a pass/fail grade.

**Notes:**
- Credit will be granted for only one of NUNP 544, NUNP 535, NUNP 561.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
- Students may be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543 and NUNP 544 upon enrolment in NUNP 545 and NUNP 546 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 545 and NUNP 546.

**Prerequisite(s):** All of NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544.
**Corequisite(s):** NUNP 545.
**Grading:** INC, COM, N, F.

### NUNP 547 - Units: 1.5
**Integrated Primary Health Care and Adv Practice Nurs Theory III**

Advanced practice nursing with persons experiencing episodic illness conditions, chronic diseases, and complex health challenges. Particular attention is paid to theoretical perspectives and skill development related to nurse practitioner core competencies with culturally diverse older adults and families. Selected concepts, theories, and research associated with health promotion and maintenance, illness prevention, chronic disease management, and end of life care are explored within the community context. Upon completion students receive a letter grade.

**Notes:**
- Credit will be granted for only one of NUNP 547, NUNP 534, NUNP 550.
- A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
- Students will be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544, NUNP 545 and NUNP 546 upon enrolment in NUNP 547 and NUNP 548 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 547 and NUNP 548.

**Prerequisite(s):** All of NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544, NUNP 545, NUNP 546.
**Corequisite(s):** NUNP 548.
NUNP 548 Units: 1.5
Integrated Primary Health Care and Adv Pract Nurs Practica III
An opportunity for 150 hours of practice experience through which students engage in advanced practice nursing under the guidance of a course instructor and clinical preceptor. Integration of philosophical, theoretical and methodological perspectives gleaned from S47 as well as from core courses within the program is sought. There will be a required onsite component to this course. At the completion of the practice component, students will receive a pass/fail grade.
Notes:
• Credit will be granted for only one of NUNP 548, NUNP 534, NUNP 551.
• A student must pass both theory and practice corequisites to advance to the next set of corequisite theory and practice courses. If a student fails one corequisite they may be required to complete both corequisites again the next time they are offered.
• Students may be required to demonstrate knowledge and skills obtained in NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, and NUNP 544, NUNP 545, and NUNP 546 upon enrollment in NUNP 547 and NUNP 548 if 12 months or more have lapsed between completing prerequisite courses and enrolling in NUNP 547 and NUNP 548.
Prerequisite(s): All of NUNP 531, NUNP 532, NUNP 540, NUNP 541, NUNP 543, NUNP 544, NUNP 545, NUNP 546.
Corequisite(s): NUNP 547.
Grading: INC, COM, N, F.

NUNP 593 Units: 1.5
Capstone Synthesis
The culminating educational experience for NP students, and the singular opportunity for faculty members to assess students’ evolution toward the terminal goals of the MN-NP program. Serves as an evaluation instrument in which students demonstrate their synthesis of coursework, knowledge, skills and experiential learning, to reveal a broad mastery of their learning across the curriculum in preparation for successful registration, initial employability and further career advancement.
Grading: INP, COM, N, F.

NURA Nursing, Advanced Practice: Nurse Leadership Option
School of Nursing
Faculty of Human and Social Development
All Nursing courses are open to Nursing students only unless otherwise noted in the course description. When a course is oversubscribed, preference will be given to Nursing students who are closest to graduation. Contact the School of Nursing or refer to current timetable for course offerings.
Courses offered by the School of Nursing are also found under the following course codes: NUED, NUHI, NUNP, NURA, and NURS.

NURA 516 Units: 1.5
Advancing Nursing Practice
Exploration of advanced practice nursing leadership roles and competencies with a focus on the patient/client and the nurses/nursing spheres of influence. Collaboration and consultation competencies as they relate to client-centred care and interprofessional/intersectoral teams and working with organizations will also be explored.
Pre- or Corequisite(s):
• NURA 520; or
• permission of the department.

NURA 517 Units: 1.5
Leading in Practice Settings
Integration of students’ evolving knowledge of Advanced Practice Nursing through practice with a particular population. In collaboration with faculty and a field guide, students develop a personalized learning plan that focuses on clinical leadership, consultation, collaboration and research competencies. Students also participate in an online community with their peers for a total of 104 practice hours.
Pre- or Corequisite(s):
• NURA 516; or
• permission of the department.
Grading: INC, COM, N, F.

NURA 518 Units: 1.5
APL Praxis II
Continuing integration of Advanced Practice Nursing with a particular population. Students develop a personalized learning plan that focuses on systems leadership, health policy and research/evaluation competencies. Students engage in a minimum of 104 practice hours, completing a practice project that contributes to the scholarship of nursing practice.
Pre- or Corequisite(s):
• NURA 516; or
• permission of the department.
Grading: INC, COM, N, F.

NURA 519 Units: 1.5
Leadership for Health Systems
Exploration of the influences and effects of contemporary leadership practices related to health systems and organizations. The impact of current organizational structures and discourses on the delivery of health care, development of health policy and enactment of advanced practice nursing will be explored.
Pre- or Corequisite(s):
• NURA 516; or
• permission of the department.

NURS Nursing School of Nursing
Faculty of Human and Social Development
All Nursing courses are open to Nursing students only unless otherwise noted in the course description. When a course is oversubscribed, preference will be given to Nursing students who are closest to graduation. Contact the School of Nursing or refer to current timetable for course offerings.
Courses offered by the School of Nursing are also found under the following course codes: NUED, NUHI, NUNP, NURA, and NURS.

NURS 500 Units: 1.5
Scholarly Writing for Advanced Practice Nursing
Review of academic writing fundamentals and processes. Students select topics relevant to their program foci and write a summary/critique of scholarly literature, a limited literature review, and an argument paper. Students learn to participate in peer review and revision to improve their writing.

NURS 503 Units: 1.5
Qualitative Approaches to Research in Nursing
Nursing phenomena are considered through a range of qualitative research approaches. Central to this process is an exploration of interrelationships between and among philosophical tenets and the construction of research questions, selection of methods, and theoretical influences on data interpretation and analysis for a range of qualitative approaches to research.
Prerequisite(s):
• NURS 508; or
• permission of the school.

NURS 509 Units: 1.5
Evaluation of Health Care
Exploration of concepts, theories and strategies for evaluating nursing care and health programs/services as applied to a range of health care settings.
Prerequisite(s):
• NURS 508 and NURA 516; or
• permission of the school.

NURS 510 Units: 1.5
Applied Statistics in Nursing
Students will develop familiarity with advanced statistical methods as they are applied to nursing and health care. These will include multiple linear regression, factor analysis, and multivariate analysis of variance. A brief introduction to structural equation modelling and psychometric methods may be offered.
Prerequisite(s):
• NURS 425; or
• permission of the school.

NURS 520 Units: 1.5
Formerly: NURS 506
Philosophy for Advanced Practice Nursing
Explores philosophical discourses in the study of nursing, and introduces a philosophical framework that includes ontological, epistemological, and ethical knowledge for critique and expansion, including Indigenous perspectives. Emphasis is placed on paradigms of belief that inform and critique and expansion, including Indigenous perspectives.
NURS 521 - Units: 1.5
Formerly: NURS 507
Advanced Practice Nursing and Professional Identity
Explores nursing as an academic field of study with emphasis on theories, including Indigenous perspectives that inform and shape the discipline of nursing, professional identity, and advanced practice nursing. Critique, expansion, and limits of theory are examined within a philosophical framework of ontological, epistemological, and ethical congruence.
Note: Credit will be granted for only one of NURS 521, NURS 507, NURA 512, NURA 513.
Prerequisite(s): NURS 520.

NURS 522 - Units: 1.5
Formerly: NURS 514
Nursing Ethics for Health System Transformation
Explores various theories, including decolonizing practices and Indigenous perspectives that inform ethics for advanced practice nursing, collaboration, decision-making, and change in light of health care system trends, issues and roles for nurses. Critique, expansion, and limits of ethics are examined within a philosophical framework of ontological, epistemological, and ethical congruence.
Note: Credit will be granted for only one of NURS 522, NURS 514, NURA 514.
Prerequisite(s): NURS 520.

NURS 524 - Units: 1.5
Formerly: NURS 502B
Evidence for Advanced Practice Nursing
Critique, expansion and limits of research are examined within a researcher pathway and philosophical framework. Understand and develop competencies of knowledge synthesis and statistical literacy as a basis for using evidence in advanced practice nursing and health policy. Distinguish among quality improvement, program evaluation and research. 

Notes:
• Credit will be granted for only one of NURS 524, NURS 502B, NURS 508, NURA 515.
• Students who have equivalent undergraduate level statistics and research course successfully completed within the past five years may request permission of the school to register in the course.

NURS 525 - Units: 1.5
Formerly: NURS 502A
Disciplinary Research for Advanced Practice Nursing
Develop an understanding of research processes and Indigenous perspectives, including decolonizing practices and Indigenous perspectives that inform ethics for advanced practice nursing, collaboration, decision-making, and change in light of health care system trends, issues and roles for nurses. Critique, expansion, and limits of ethics are examined within a philosophical framework of ontological, epistemological, and ethical congruence.

Notes:
• Credit will be granted for only one of NURS 525, NURS 502A, NURS 507, NURS 508, NURA 512, NURA 513.
• Students who have equivalent undergraduate level statistics and research course successfully completed within the past five years may request permission of the school to register in the course.

NURS 549 - Units: 1.5
Health Services Research
This course introduces nurses to health services research and examines the contributions that nurses make to this field of inquiry and to the health care system. Issues of significance for nurses and the knowledge nurses need to understand and engage in nursing health services research are explored. Key concepts such as population health, health care delivery, health policy, quality of care and related research methods will be examined.
Prerequisite(s): permission of the department.

NURS 568 - Units: 1.5
Trends and Issues in Advanced Practice Nursing
Students have the opportunity to explore the notion of advanced practice nursing (APN) and to consider the mandate, competencies, and divergent perspectives and knowledge bases related to APN as they challenge and extend the boundaries of nursing practice and advance the profession. Students will consider issues related to the definitions, competencies, legal, and ethical issues related to APN locally, nationally and internationally.
Note: Not open for credit to students with credit in all of NURS 565, NURS 566, NURS 567.
Grading: INC, COM, N, F.

NURS 590 - Units: To be determined
Directed Studies
An opportunity for students to develop individual studies at the graduate level (e.g., directed readings, research project etc.) with the supervision of one or more faculty members. A plan of study including focus, credit value and evaluation method is developed in consultation with a faculty member and must be approved by the graduate adviser prior to registering in this course.

Notes:
• May be taken more than once for credit in different topics with permission of the school.
• Pro Forma required.

NURS 593 - Units: 1.5
Thesis/Project Seminar
Prepares students to select either a project or thesis option in their program and to finalize membership on the supervisory committee. Students will explore options for research and begin work on the project or thesis proposal.
Grading: INC, COM, N, F.

NURS 599 - Units: 6.0
Thesis
Students working independently, with faculty guidance, complete a thesis to meet specific professional and academic goals. The thesis will entail research in a topic area chosen in consultation with the student’s supervisory committee. The thesis option is an alternative to the Practice Project (NURS 598). Evaluation of this course will be carried out as per Faculty of Graduate Studies regulations.
Grading: INC, COM, N, F.

NURS 601 - Units: 1.5
Philosophy in Nursing
Explores the range of philosophical schools of thought and traditions that have influenced the development of nursing knowledge in the Western world. Students examine contemporary philosophical perspectives to prepare students to participate in and contribute to knowledge development that will shape the evolution of the discipline.

NURS 602 - Units: 1.5
Epistemological Discourses in the Study of Nursing
Explores the current state of theorizing that underpins nursing’s disciplinary and knowledge claims.
Pre- or Corequisite(s):
• NURS 601; or
• permission of the department.

NURS 604A - Units: 1.5
Formerly: NURS 604
Research Methodology for Nursing and Health Care: Qualitative
Explores assumptions and claims underlying qualitative methodologies that inform research in professional nursing practice and health care.
Notes:
• Credit will be granted for only one of NURS 604, NURS 604A.
• NURS 604A is not a pre- or co-requisite of NURS 604B.
Prerequisite(s): NURS 601.
**NURS 604B**  Units: 1.5  
Formerly: NURS 604  
**Research Methodology for Nursing and Health Care: Quantitative**  
This portion of the course will explore assumptions and biases underlying various quantitative methodologies that inform research in professional nursing practice and health care. We will examine quantitative research designs with particular emphasis on their appropriateness for addressing nursing and health problems. Issues specific to the design of nursing health care studies are explored.  
**Notes:**  
• Credit will be granted for only one of NURS 604, NURS 604B.  
• NURS 604A is not a pre- or co-requisite of NURS 604B.  
**Prerequisite(s):** NURS 601.  

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**NURS 620**  Units: 1.5 or 3.0  
**Research Internship**  
Research Internships are arranged with a specific faculty member and may be taken over one or several terms. During the Research Internship, a learner will have hands-on experiences with several aspects of research, for example, the conceptualization of a study, study design, applying for funding, obtaining ethical approval, accessing the field, collecting and analyzing data, writing, and knowledge translation.  
**Prerequisite(s):** Permission of the school.  
**Grading:** INP, COM, N, F.  

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**NURS 621**  Units: 1.5  
**Doctoral Seminar**  
Provides students with opportunities to engage in dialogue about the contribution of doctoral education to the academic discipline and the professional practice of nursing. Students examine issues relevant to the nursing discipline and profession and meet with established doctorally prepared scholars as they consider possibilities for research and scholarship within their own doctoral studies.  
**Note:** This seminar course takes place over two terms.  
**Grading:** INP, COM, N, F.  

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**NURS 622**  Units: 1.5  
**Dissertation Seminar**  
Opportunities to engage in dialogue about topics that will support their preparation for doctoral candidacy exams and dissertation research. Students actively participate in the planning and process of the course, taking leadership roles and presenting their own scholarly work.  
**Grading:** INP, COM, N, F.  

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**NURS 630**  Units: 1.5 or 3.0  
**Teaching Internship**  
Teaching Internships may be arranged with a specific faculty member and may be taken over one or several terms. During the Teaching Internship, a student will engage with several aspects of nursing education, for example, classroom or online teaching, educational research initiatives and/or, writing a paper for publication.  
**Note:** Pro Forma required.  
**Prerequisite(s):** Permission of the school.  
**Grading:** INP, COM, N, F.  

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**NURS 679**  Units: 1.5-4.5  
**Research and Scholarship Seminar**  
Based on an understanding of scholarship as a social and communal activity, the course provides students with opportunities to have conversations about research, scholarly activity, and topics relevant to becoming stewards of the discipline. Students and faculty decide on topics, and share responsibility for organizing sessions and speakers.  
**Note:** May be taken more than once for credit with permission of the program to a maximum of 4.5 units.  
**Grading:** INP, COM, N, F.  

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**NURS 680**  Units: 1.5-4.5  
**Special Topics in Research Methods**  
Based on student demand, courses on the following focused topics will be organized for individuals or groups of students: issues of measurement, evaluation research, grounded theory, ethnography, hermeneutics and phenomenology, discourse analysis, historical analysis, instrument development and testing and participatory action research. This research-focused course is available to small groups of interested students and/or individuals by faculty members and/or visiting faculty.  
**Notes:**  
• May be taken more than once for credit with different topics with permission of the school to a maximum of 4.5 units.  
• Pro Forma required.  
**Students will be required to take 1.5 units of NURS 680 coursework and can, with permission of their program supervisor, enroll in as many as 4.5 units of NURS 680 coursework.**  

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**NURS 690**  Units: 1.5 or 3.0  
**Directed Studies**  
Provides opportunities for students to develop individual studies at the doctoral level (e.g., directed readings, research project etc.) with the supervision of one or more faculty members. A plan of study including focus, credit value and evaluation method is developed in consultation with a faculty member and must be approved by the graduate advisor prior to registering in this course. We encourage students interested in a research topic to register for a NURS 680 course rather than a NURS 690.  
**Note:** Pro Forma required.  
**Prerequisite(s):** Permission of the school.  

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**NURS 693**  Units: 3.0  
**Candidacy Examination**  
Students enroll in NURS 693 to prepare for their candidacy examination, that includes: 1) completing candidacy exam papers or open-book exam and 2) successfully developing and defending a research proposal. Both milestones require an oral examination. The content of the papers or exam is related to course work, the substance and methodology of students’ research interests, and provides a basis for proposal development. Must be completed prior to registration in NURS 699.  
**Grading:** INP, COM, N, F.  

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**NURS 699**  Units: 30.0  
**Dissertation**  
All doctoral students are required to prepare a dissertation upon which a public examination and defense is conducted. The dissertation must qualify as a significant and original contribution to disciplinary knowledge.  
**Prerequisite(s):** NURS 693.  
**Grading:** INP, COM, N, F.  

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**PAAS 500**  Units: 1.5  
**Theories of Pacific Region Societies**  
Offers a critical review of contemporary social theory pertinent to the study of Pacific and Asian societies. Drawing on various scholarly approaches from the fields of sociology, anthropology, political science and history, readings will address the institutions, mechanisms and values involved in social, cultural and political transformations. Focuses on current theory about the nature and scope of globalization, commodification, or modernization, with particular emphasis on the effect of these on local social and cultural practice.  

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**PAAS 501**  Units: 1.5  
**Cultural, Linguistic and Literary Theories in Asia-Pacific Studies**  
Offers a critical review of contemporary cultural and literary theory pertinent to the study of Pacific and Asian societies. Drawing from various scholarly approaches of Marxism, post-structuralism, semiotics, feminist psychoanalysis, and critical art history, readings will address the often implicit meanings and conceptual boundaries encoded in cultural and artistic products. Explores the consequences of modernization and global vs. local realms, with a focus on the disturbances and complexities they generate in the subjective realm, where they often form the basis of creative expressions.  

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**PAAS 520**  Units: 1.5  
**Special Topics in Pacific Studies**  
Focuses on an area of faculty specialization. The topic will vary but may include one of the following: migration studies; state and civil society; the politics of culture; global and local relations; and gender and ethnic identity.  

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**PAAS 521**  Units: 1.5  
**Special Topics in Asia-Pacific Literature, Linguistics and Culture**  
Focuses on an area of faculty specialization. The topic will vary but may include one of the following: theatre studies; postcolonial literature; linguistics; popular culture; cinema studies; and critical assessments of the works of individual authors and artists.  

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**PAAS 550**  Units: 1.5  
**Research Methodologies**  
Required of all graduate students. We will work through the mechanics of designing a thesis, from initial conceptualization through to methodologies and analysis. Students will design a full thesis proposal and participate in a mock defense.  

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**PAAS 580**  Units: 1.5  
**Advanced Readings in Japanese, Chinese or Indonesian**  
Critical reading and analysis of advanced works in the original language.
PAAS 590 - PHIL 590

PAAS 590  Units: 1.5
Directed Studies
A directed readings course, to be taken with the thesis supervisor, which will allow students to develop in-depth understanding of their topic/area of specialization.
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

PAAS 599  Units: 6.0-9.0
MA Thesis
Grading: INP, COM, N, F.

PADR
Public Administration Dispute Resolution
School of Public Administration
Faculty of Human and Social Development

PADR 501  Units: 1.5
Collaboration and Engagement
The 21st century workplace requires conflict resolution competences and collaborative skills to work effectively in public and non-profit sectors. Prepares students to anticipate, identify, assess, prevent, mitigate, and manage or resolve conflict. A critical approach to theory and practice is adopted and three distinctive areas of learning are woven together: integral theory and conflict analysis; negotiation; and facilitation.
Prerequisite(s): Admission to MA program in Dispute Resolution or admission to MPA program (on campus).

PADR 502  Units: 1.5
Formerly: PADR 502A
Analysis for the Public and Non-Profit Sectors
Provides an intensive introduction to quantitative and qualitative approaches and methods for research, policy analysis, evaluation and other analytical projects in the public and non-profit sectors. Offers students opportunities to learn and apply methodologies for evidence-informed decisions in organizational and inter-organizational settings.
Note: Credit will be granted for only one of 502, 502A, ADMN 502A, DR 515, CD 505.
Prerequisite(s): Admission to MA program in Dispute Resolution or admission to MPA (on campus).

PADR 503  Units: 1.5
Professional Integrity in the Public and Non-Profit Sectors
Builds professional competencies and reflective practice skills for those working in the public and non-profit sectors. Using a case-based approach, topics include: ethical dilemmas and management of disputes, the issues of personal responsibility and accountability; loyalty to employer, political and professional neutrality and obligations to the public interest; conflict of interest; confidentiality and transparency; and privacy protection. Students study standards of conduct established in both sectors and the philosophical theories which underpin them.
Note: Credit will be granted for only one of PADR 503, ADMN 422, ADMN 554, DR 512.
Prerequisite(s): Admission to MA program in Dispute Resolution or admission to MPA program (on Campus).

PADR 504  Units: 1.5
Leadership, Management, Ethics
Introduces theories of leadership, management development and practice, and ethics. Examines the role of leaders, managers and conflict specialists as agents of positive influence in complex socio-technical systems. Leadership, management and dispute resolution competencies are introduced and developed in individual, team, organizational, and inter-organizational contexts. Studies ethical matters: confidentiality, loyalty, political and professional neutrality, conflict of interest, privacy protection, transparency. Students apply concepts to self, others (as team members), leaders and managers.
Note: Credit will be granted for only one of PADR 503, PADR 504, ADMN 507, DR 511.
Prerequisite(s): Admission to MA Thesis Option (on Campus) program.

PADR 505  Units: 1.5
Policy-making and Policy Communities
Students learn about the public policy-making process and develop skills in the art and craft of policy analysis. Introduces key concepts and theories and then builds skills and knowledge with information-gathering exercises, case studies, and preparation and presentation of decision briefs. Students review policy-making in a broad context, pulling together evidence and different analytical lenses for a variety of organizations and identify and recommend strategies and develop workable implementation and communication plans.
Note: Credit will be granted for only one of PADR 505, ADMN 556.
Prerequisite(s): Admission to MA program in Dispute Resolution or admission to MPA program (on Campus).

PADR 589  Units: 0  Hours: 1.5-0-0
Formerly: ADMN 589, DR 589
Co-op Seminar: Introduction to Professional Practice
Discusses the nature of co-operative education experiential expectations, how to bring learning into the co-op experience, and the services provided by the School of Public Administration Co-op Office. Guidance on how to succeed in co-op placements is provided: preparing résumés and covering letters, interviewing, networking, job development, managing diversity. Attendance at this non-credit course is required for all MADR and MPA On Campus students.
Notes:
• Credit will be granted for only one of PADR 589, ADMN 589, DR 589.
• Offered in the Fall academic term only.
Grading: INC, COM, N, F.

PHIL
Philosophy
Department of Philosophy
Faculty of Humanities

PHIL 500  Units: 1.5 or 3.0
Topics in Philosophy
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 514  Units: 1.5 or 3.0
Topics in Philosophy of Mind
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 521  Units: 1.5 or 3.0
Topics in Philosophy of Science
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 530  Units: 1.5 or 3.0
Topics in Logic
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 533  Units: 1.5 or 3.0
Topics in Applied Philosophy
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 534  Units: 1.5 or 3.0
Topics in Ethics
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 535  Units: 1.5 or 3.0
Topics in Social and Political Philosophy
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 541  Units: 1.5 or 3.0
Topics in Aesthetics
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 551  Units: 1.5 or 3.0
Topics in Epistemology
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 552  Units: 1.5 or 3.0
Formerly: part of PHIL 551
Topics in Metaphysics
Notes:
• Credit will be granted for only one of PHIL 552, PHIL 551 (if taken in the same topic).
• May be taken more than once for credit in different topics with permission of the department.

PHIL 561  Units: 1.5 or 3.0
Topics in Philosophy of Language
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 570  Units: 1.5 or 3.0
Formerly: part of PHIL 551
Topics in Logic
Note: May be taken more than once for credit in different topics with permission of the department.

PHIL 590  Units: 1.5 or 3.0
Directed Studies
Note: May be taken more than once for credit in different topics with permission of the department.
PHIL 591 Units: 1.5
Research Methods Seminar
Exclusively for graduate students in philosophy. Aims to help students broaden their reading base and deepen their communication and critical skills by engaging with philosophical works and core issues in a variety of fields.

PHIL 592 Units: 1.5
Professional Development Practicum
Students must attend and demonstrate participation in philosophy colloquia, including regular presemesters, throughout the year. Attendance and evidence of participation will be tracked by the Graduate Adviser and Graduate Coordinator.
Grading: INP, COM, N, F.

PHIL 598 Units: 4.5
Major Research Project
Students must complete a Major Research Project under the guidance of a supervisor and committee member. This project will normally take the form of a journal article-type submission. Normally the Major Research Project will be completed during the Summer Session following the first Winter Session. The Major Research Project is subject to Oral Examination by a committee.
Grading: INP, COM, N, F.

PHIL 693 Units: 3.0
Candidacy Examination
Grading: INP, COM, N, F.

PHIL 699 Units: 18.0
PhD Dissertation
Prerequisite(s): PHIL 693.
Grading: INP, COM, N, F.

PHSP
Public Health and Social Policy
School of Public Health and Social Policy
Faculty of Human and Social Development

PHSP 501 Units: 1.5
Public Health Epidemiology
An applied approach grounded in population-based data. Focuses on the distributions and determinants of health, disease, disability and mortality. Topics include: characteristics and dynamics of health and disease in human populations, including epidemiological strategies in examining the natural history of disease and the impact of disease on the population; population health assessment; surveillance and emerging social epidemiological models that attend to complex models of causation.

PHSP 502 Units: 1.5
Public Health Biostatistics
Uses an approach grounded in population-based data. Builds upon PHSP 501, and focuses on understanding health inequities across diverse settings and populations using biostatistics and epidemiological data to understand the life course determinants of health. Includes an overview of design and analysis of health-related data collection methods including survey methods. The basic concepts and methods of epidemiological biostatistical analysis are covered.
Prerequisite(s): PHSP 501.

PHSP 503 Units: 1.5
Public Health Practice I: Population Health and Health Promotion
Contributes to students’ theoretical and practical understanding of population health and its determinants as well as diverse constructions of health as a foundation for health promotion. Considers health promotion principles, models and approaches as well as inequalities in health in the context of social justice and cultural safety. Fosters understanding of health and its determinants, health inequalities in Canada and globally, and a more in-depth understanding in at least one area of health promotion.

PHSP 504 Units: 1.5
Supportive Environments and Healthy Public Policy
Social environmental factors that impact the health of the community. Using a social-ecological model, attends to understanding the integral role of policy in the development of supportive environments. With an emphasis on critical analysis of health policy, students explore the development of healthy public policy in the management of public health concerns.

PHSP 505 Units: 1.5
Public Health Practice II: Public Health Interventions
Focuses on the range of evidence-informed public health interventions employed in public health practice. Based on the BC Core Public Health Functions Framework, examines strategies used to improve the health of a population including provision of public health prevention and improvement programs, disease and injury prevention, environmental health and health emergency management; strategies for health protection, health promotion, disease surveillance; public health capacity and infrastructure; the impact of public health services on health inequity.

PHSP 506 Units: 1.5
Public Health Research and Evaluation
Emphasis on evidence-informed practice, and examining community-based research strategies to explicate applied knowledge within the field of public health. Topics include literature synthesis approaches; program evaluation; qualitative research methods; and mixed methods.

PHSP 507 Units: 1.5
Practicum
All graduate diploma students are required to complete a 225 hour practicum. This planned, supervised and evaluated practicum will usually be completed at the end of the student’s program of study. Graduate diploma students who complete the diploma and wish to then complete the Master of Public Health will be required to take PHSP 589.
Prerequisite(s): All of PHSP 501, PHSP 503, PHSP 505.
Corequisite(s): PHSP 508A.
Grading: INP, COM, INC, N, F.

PHSP 508A Units: 1.5
Formerly: PHSP 508

PHSP 508B Units: 3.0
Culminating Report
As a culmination of the practicum experience all Graduate Diploma students are required to complete a report that demonstrates a synthesis and integration of coursework and other learning experiences in preparation for professional public health practice.
Grading: INP, COM, INC, N, F.

PHSP 540 Units: 1.5
Knowledge Development in Public Health Nursing
Examines the history of public health nursing focusing on exemplary leaders engaged in creating change in their community. The emergence of nursing knowledge and understanding public health nursing as a synthesis of public health and nursing science is emphasized. Includes a critical examination of the roles of nurses in public health as well as exploring exemplary nurse led community based programs, services and policies related to disease prevention, health promotion and primary health care.

PHSP 541 Units: 1.5
Social Justice and Public Health Nursing
Emphasis on social justice as a philosophical base for public health nursing. From a critical perspective, students explore and compare theories of social justice. Drawing on personal and professional experience and using case examples, students explore the embodiment of social justice as ethical nursing practice.
Note: A requirement of this course is a condensed five-day on-campus seminar.

PHSP 542 Units: 1.5
Advanced Public Health Nursing Practice
Focuses on leadership and the conceptualization and application of advanced practice in public health nursing. Students engage in a critical analysis of advanced practice nursing as it relates to public health in Canadian and comparative contexts. Professional issues and advanced practice strategies are explored.
**PHYS 535**  Units: 1.5  
Radiation Physics II  
A continuation of 534. Covers the physics and applied dosimetry of current external and internal irradiation treatment techniques.

**PHYS 539**  Units: 1.5  
Radiation Dosimetry  
The fundamentals of radiation dosimetry, ionization cavity theories and radiation dosimetry protocols. A variety of absolute and relative dosimetry techniques are also covered, with hands-on experience provided through a series of lab exercises on medical linear accelerators. Monte Carlo simulation of radiation transport for dosimetry applications is introduced.

**PHYS 540**  Units: 1.5  
Medical Imaging  
Fundamental theory and application of medical imaging, including radiology, computed tomography, magnetic resonance imaging, ultrasound, and nuclear medicine imaging. Basic principles, image formation and reconstruction, imaging instrumentation and hardware, and current trends of each imaging modality will be given.

**PHYS 544**  Units: 1.5  
Topics in Radiation Biophysics  
Topics in radiation biophysics, including DNA strand breaks, cell survival curves, fractionation and dose rate effects, oxygen effect, relative biological effectiveness, tumour radiobiology, radiation pathobiology, radiobiological modelling, stochastic and deterministic effects, and molecular techniques in radiobiology.

**PHYS 545**  Units: 0.5  
Anatomy and Physiology for the Medical Physicist  
WebCT based course covering basics of anatomy and physiology. Aimed at students in medical physics who are interested in clinical and/or academic careers that will require interaction with radiation oncologists and other health care professionals.
Grading: INP, COM, N, F.

**PHYS 546**  Units: 0.5  
Clinical Shadowing  
Shadowing course designed to give the student some insight into the clinical aspects of the medical physics profession. Under the guidance of a clinical physicist, students progress through a series of clinical areas. Modules illustrate the collaborative nature of the profession and the interaction with other medical professionals.
Grading: INP, COM, N, F.

**PHYS 550**  Units: 1.5  
Topics in Condensed Matter Physics  
A selection of advanced topics in modern condensed matter physics.
Note: May be taken more than once for credit in different topics.

**PHYS 560**  Units: 0  
Colloquium  
Weekly physics and astronomy colloquium.
Grading: INP, COM, N, F.

**PHYS 561**  Units: 0.0  
Research Skills and Professional Development  
Introduction to professional methods and best practices in research.
Grading: INP, COM, C, F.

**PHYS 580**  Units: 1.0-3.0  
Directed Studies  
Notes:
• May be taken more than once for credit.
• Pro Forma required.

**PHYS 599**  Units: 7.5  
MSc Thesis  
Grading: INP, COM, N, F.

**PHYS 662**  Units: 0.0  
Research Seminar  
Presentation of the research that comprises the major portion of the student's thesis work in physics and astronomy in a departmental seminar, plus attendance at seminars given by other students. The presentation is not to be given prior to completion of the MSc Candidacy examination (PHYS 693).
Grading: INP, COM, N, F.

**PHYS 693**  Units: 3.0  
PhD Candidacy Examination  
Students enrol in PHYS 693 during their preparation for the candidacy examination. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed. The candidacy examination is to be completed no later than two years after the student first registers in (or transfers to) the PhD program.
Grading: INP, COM, N, F.

**PHYS 699**  Units: 33.0  
PhD Dissertation  
Corequisite(s): PHYS 693.
Grading: INP, COM, N, F.

**POLI 508**  Units: 1.5  
Comparative Politics  
An examination of key issues and debates in the study of comparative politics. Includes a survey of the major literature in this field of political science.

**POLI 509**  Units: 1.5  
Political Theory  
An examination of key issues and debates in the study of political theory. Includes a survey of the major literature in this field of political science.

**POLI 514**  Units: 1.5  
Politics of the European Union  
An examination of key issues and debates in the study of the politics of the European Union. It will involve a survey of the major literature in the field of European politics.
Note: Credit will be granted for only one of POLI 514, POLI 533 (if taken in the same topic).

**POLI 516**  Units: 1.5  
Canadian Politics  
An examination of key issues and debates in the study of Canadian politics. Includes a survey of the major literature in this field of political science.

**POLI 533**  Units: 1.5  
Themes in Contemporary Politics  
A seminar dealing with an important theme or themes in contemporary politics. The content will vary from year to year.
Note: May be taken more than once for credit with permission of the department.

**POLI 540**  Units: 1.5  
International Relations  
An examination of key issues and debates in the study of international relations. Includes a survey of the major literature in this field of political science.

**POLI 580**  Units: 3.0  
Legislative Internship Report  
Grading: INP, COM, N, F.

**POLI 590**  Units: 1.5  
Directed Readings  
Note: May be taken more than once for credit in different topics to a maximum of 3 units.

**POLI 599**  Units: 9.0  
Thesis  
Grading: INP, COM, N, F.

**POLI 600**  Units: 1.5  
Professional Development Seminar  
A compulsory seminar for PhD students in Political Science that runs from September until April. Students are introduced to the professional aspects of the discipline including: how to write grant applications, how to teach effectively, how to design a syllabus and a CV, how to contribute to the administrative and intellectual community in their department and in political science more broadly.
Grading: COM, N, F.

**POLI 605**  Units: 1.5  
Problems of Political Analysis  
A further examination of theoretical viewpoints in the study of politics. Intended for doctoral candidates preparing for comprehensive examinations.
### POLI 607 - Themes in Contemporary Politics
**Units:** 1.5

**Also:** ADMN 605

**Comparative Policy and Governance**
The study of diverging governance practices and policy outcomes in different jurisdictions. Focus is on: policy determinants such as history, culture, institutions, and the economy; policy dynamics and processes such as agenda-setting and decision-making, networks and communities, and policy change; and policy styles and transfer, referring to the state’s ability to design, coordinate, implement, and learn from policy interventions. Students will review seminal studies and undertake a comparative policy project. Intended for doctoral candidates preparing for a comprehensive examination in the field.

**Note:** Credit will be granted for only one of POLI 607, POLI 507, ADMN 605.

### POLI 608 - Comparative Politics
**Units:** 1.5

**An examination of key issues and debates in the study of comparative politics.** Involves a survey of the major literature in this field of political science. Intended for doctoral candidates preparing for a comprehensive examination in the field.

### POLI 609 - Political Theory
**Units:** 1.5

**An examination of key issues and debates in the study of political theory.** Involves a survey of the major literature in this field of political science. Intended for doctoral candidates preparing for a comprehensive examination in the field.

### POLI 610 - Theories of Public Management
**Units:** 1.5

**Also:** ADMN 604

**Explores different theories and approaches to understanding public administration and reform.** Considers variations in three areas: political and constitutional authority, accountability and responsibility, and the roles of elected and non-elected officials; government structures, responsibilities for policy and service delivery, and distributed governance; and patterns and trends in central decision-making, budgeting, control, transparency, and citizen engagement. Students will review seminal comparative studies on administrative practice and reform and undertake a comprehensive study on a selected topic.

**Note:** Credit will be granted for only one of POLI 610, ADMN 604.

### POLI 614 - Politics of the European Union
**Units:** 1.5

**An examination of key issues and debates in the study of the politics of the European Union.** It will involve a survey of the major literature in the field of European politics.

**Note:** Credit will be granted for only one of POLI 614, POLI 633 (if taken in the same topic).

### POLI 616 - Canadian Politics
**Units:** 1.5

**An examination of key issues and debates in the study of Canadian politics.** Involves a survey of the major literature in this field of political science. Intended for doctoral candidates preparing for a comprehensive examination in the field.

### POLI 633 - Themes in Contemporary Politics
**Units:** 1.5

**A seminar dealing with an important theme or themes in contemporary politics.** The content will vary from year to year.

**Note:** May be taken more than once for credit in different topics with permission of the department.

### POLI 640 - International Relations
**Units:** 1.5

**An examination of key issues and debates in the study of international relations.** Involves a survey of the major literature in this field of political science. It is intended for doctoral candidates preparing for a comprehensive examination in the field.

### PSYC 500 - Professional Development
**Units:** 1.5

**Covers issues important to the academic and career success of graduate students in psychology.** Topics include prerequisites to finding a job, preparing a curriculum vitae, the publication and review process, making presentations, obtaining grants, university policies (e.g., criteria and processes for tenure decisions), balancing family and career, and ethical issues in psychology.

**Grading:** INP, COM, N, F.

### PSYC 505 - Clinical Intervention Practicum
**Units:** 4.0

**Practicum in Clinical Psychology**
Practicum in a clinical setting. 1 unit of credit is equivalent to approximately 100 hours.

**Prerequisite(s):**
- Admission to a graduate program in Clinical Psychology, and
- permission of the department.

**Grading:** INP, COM, N, F.

### PSYC 506A - Psychology Clinic Practice
**Units:** 1.5

**Supervised psychological practice in the Psychology Clinic, Department of Psychology.**

**Note:** May be taken more than once for credit in different topics.

**Prerequisite(s):**
- Admission to a graduate program in Clinical Psychology, and
- permission of the department.

**Grading:** INP, COM, N, F.

### PSYC 506B - Psychology Clinic Practice Test Mastery
**Units:** 1.5

**Supervised test mastery in the Psychology Clinic, Department of Psychology.**

**Note:** Credit will be granted for only one of PSYC 506A, PSYC 506.

**Prerequisite(s):**
- Admission to a graduate program in Clinical Psychology, and
- permission of the department.

**Pre- or Corequisite(s):** PSYC 545.

**Grading:** INP, COM, N, F.
**PSYC 507**  
**Personality**  
**Units:** 1.5  
**Notes:**  
• May be taken more than once for credit in different topics with permission of the department to a maximum of 6 units.  
• The specific content area will be designated prior to registration.

**PSYC 512**  
**Research Practicum**  
**Units:** 1.5-4.5  
Practicum in a research setting with emphasis on planning, conducting, analyzing, and/or writing up research results under the supervision of faculty.  
**Notes:**  
• May be taken more than once for credit in different topics.  
• The student must consult with the proposed research supervisor about the content and nature of the research activity prior to registration and complete a Pro Forma. The content must differ from but may be related to 599 or 699.  
**Prerequisite(s):** Permission of the department.  
**Grading:** INP, COM, N, F.

**PSYC 513**  
**Quantitative Analysis**  
**Units:** 1.5-6.0  
Topical seminars on specialized issues related to quantitative analysis.  
**Notes:**  
• May be taken more than once for credit in different topics with permission of the department to a maximum of 6 units.  
• The specific content area will be designated prior to registration.

**PSYC 517**  
**Research Methods in Psychology**  
**Units:** 1.5  
**Notes:**  
• May be taken more than once for credit in different topics with permission of the department to a maximum of 6 units.  
• The specific content area will be designated prior to registration.

**PSYC 518**  
**Psychometric Methods**  
**Units:** 1.5  
Topics typically include: historical background, sample descriptive statistics, norm referencing, (e.g., percentiles, Z-scores, T-scores), criterion referencing, sensitivity/specificity, classical true score test theory, item response theory (IRT), reliability, validity, standard errors, test development, standards for clinical tests, and assessment of reliable change.

**PSYC 520**  
**Survey of Social Psychology**  
**Units:** 1.5  
In-depth examination of state-of-the-science theories and research in social psychology. Social thinking and social behaviour are explored through the study of individual processes (e.g., social cognition, motivation), interpersonal processes (e.g., social influence, helping, intimacy), and societal processes (e.g., group dynamics, intergroup relations, cultural and environmental influences). Emphasis is placed on the more recent advancements in social psychology and on the research interests and expertise of the instructor.

**PSYC 521**  
**Human Motivation**  
**Units:** 1.5  
Seminar review of theory and research examining human motivation. Special topics include goals, intrinsic and extrinsic motivation, social and achievement motivation, self-efficacy, self-regulation, unconscious motivation, and growth motivation. Emphasis is placed on the social and cognitive perspective on motivation.

**PSYC 526**  
**Special Topics in Personality and Social Psychology**  
**Units:** 1.5  
Topical seminars on specialized issues related to personality and social psychology.  
**Note:** May be taken more than once for credit in different topics to a maximum of 6 units.

**PSYC 527**  
**Research Methods in Social Psychology**  
**Units:** 1.5  
In-depth examination of state-of-the-science research methods in social psychology. The topics may include experimental and quasi-experimental research designs, survey research, cross-cultural and longitudinal methods, event-sampling methods, psychophysiological methods, implicit measure and priming techniques, content and narrative analysis, computer simulation, data analytical strategies, ethics. Emphasis is placed on the more recent advancements in research methods in social psychology and on the research interests and expertise of the instructor.

**PSYC 530**  
**The Social Self**  
**Units:** 1.5  
Seminar review of theory and research examining current social psychological research and theory on the self. Special topics include self-concept, self-esteem, motivation and the self, and the self in close relationships. Emphasis is placed on the more recent advancement in social and personality psychology of the self.

**PSYC 532**  
**General Linear Model - Univariate**  
**Units:** 1.5  
Presents a model-comparison approach to the analysis of a single dependent variable. Topics include simple and multiple regression involving continuous independent variables, categorical independent variables (ANOVA designs), and mixtures of the two (covariance analysis). Also covered will be logistic regression, data screening and outlier detection, testing of model assumptions, data transformation, and repeated measures models.

**PSYC 533**  
**General Linear Model - Multivariate**  
**Units:** 1.5  
Topics generally include multivariate multiple regression, principle component and factor analysis, canonical correlation analysis, multivariate analysis of variance, discriminant function analysis and logistic regression.  
**Prerequisite(s):** PSYC 532.

**PSYC 534**  
**Univariate Design and Analysis**  
**Units:** 1.5  
An examination of various factorial designs for univariate data from an advanced perspective. For a number of frequently used designs (e.g., completely randomized, randomized block, and repeated measures), planned comparisons, tests of the models’ assumptions, expected mean squares, and interpreting interactions (e.g., simple main effects) will be covered. Students will be required to learn and use statistical software packages, such as SPSS and SAS. Time and interest permitting, a brief introduction to other modelling procedures for response time and accuracy data will be offered.

**PSYC 537**  
**Multilevel Modeling**  
**Units:** 1.5  
Provides an introduction to concepts and practical application of multilevel models for nested data structures, including experimental and longitudinal data.  
**Prerequisite(s):** PSYC 532.

**PSYC 540**  
**History and Theory in Neuropsychology**  
**Units:** 1.5  
Survey of major topics and issues in clinical and experimental neuropsychology, including a historical introduction and recent material. Topics may include aphasia, agnosia, apraxia, agraphia, other clinical syndromes, and hemispheric specialization.  
**Note:** Students who have completed an equivalent undergraduate human neuropsychology course may request permission to register in the course.  
**Prerequisite(s):**  
• PSYC 315; or  
• permission of the program.

**PSYC 541**  
**Research Design and Methods in Neuropsychology**  
**Units:** 1.5  
Seminar on research methods and designs in studying brain/behaviour relationships, the strengths and limitations of various methods, and the populations and research questions for which they are used.

**PSYC 543**  
**Behavioural Neuroanatomy**  
**Units:** 1.5  
Introduction to human neuroanatomy, neurophysiology and neurochemistry, with an emphasis on relationships between structure, function and behaviour.  
**Prerequisite(s):** Permission of the department.

**PSYC 545**  
**Neuropsychological Assessment**  
**Units:** 1.5  
In depth examination of general approaches and models for neuropsychological assessment. This includes evaluation of multiple areas of cognitive functioning, including attention, memory, executive functions, language, perceptual skills and motor abilities. Test interpretation, case analysis, and report writing skills will also be emphasized.  
**Prerequisite(s):**  
• PSYC 384; and  
• admission to a graduate program in Clinical Psychology.
PSYC 546A  Units: 1.5  
**Advanced Neuropsychology: Children and Adolescents**
In depth examination of typical neurodevelopment and associated acquired and neurodevelopmental disorders of children and adolescents, including a discussion of cognitive and behavioural profiles and techniques of neuropsychological assessment.

**Prerequisite(s):**
- All of PSYC 506B, PSYC 540, PSYC 545, PSYC 584; and
- admission to a doctoral program in Clinical Psychology; and
- permission of the department.

**Grading:** INC, COM, N, F.

PSYC 546B  Units: 1.5  
**Advanced Neuropsychology: Adults**
In depth examination of typical neurodevelopment and associated acquired and neurodegenerative disorders of adults, including a discussion of cognitive and behavioural profiles and the techniques of neuropsychological assessment.

**Prerequisite(s):**
- All of PSYC 506B, PSYC 540, PSYC 545, PSYC 584; and
- admission to a doctoral program in Clinical Psychology; and
- permission of the department.

**Grading:** INC, COM, N, F.

PSYC 547  Units: 1.5  
**Neuropsychological Intervention in Adults**
Introduction to theory and techniques associated with management of neurological disorders. Topics include the relationship between impairment, disability, and handicap, current techniques in cognitive rehabilitation, and interventions with individuals and families.

**Prerequisite(s):** Permission of the department.

**Grading:** INC, COM, N, F.

PSYC 548  Units: 1.5  
**Special Topics in Neuropsychology**
Note: May be taken more than once for credit in different topics to a maximum of 6 units.

PSYC 549  Units: 1.5  
**Neuropsychological Intervention in Children and Adolescents**
Introduction to theory, methods and techniques associated with management of neurological, neuropsychological and learning disorders in children and adolescents. Topics include the relationship among impairment, disability, and handicap, current empirically-based approaches for remediation and/or compensation of cognitive and academic skill defects. Interventions will focus on individual children and families within both educational and social contexts.

**Note:** Enrolment may be limited.

**Prerequisite(s):**
- Admission to a doctoral program; and
- permission of the department.

**Grading:** INC, COM, N, F.

PSYC 550A  Units: 1.5  
**Environment and Human Behavior: Advanced Topics in Clinical Psychology**
Seminar review of theory and research in the environmental psychology and the built environment. The topics may include social design of buildings, human behaviour as it is related to built environments, environmental perception and cognition, and person-environment transactions in residences, neighbourhoods, schools, workplaces, retail stores, and public spaces.

**Note:** Credit will be granted for only one of PSYC 531, PSYC 555A.

PSYC 555A  Units: 1.5  
Formerly: part of PSYC 531
**Environmental Psychology of the Built Environment**
Seminar review of theory and research in the environmental psychology of the built environment. The topics may include social design of buildings, human behaviour as it is related to built environments, environmental perception and cognition, and person-environment transactions in residences, neighbourhoods, schools, workplaces, retail stores, and public spaces.

**Grading:** INC, COM, N, F.

PSYC 555B  Units: 1.5  
Formerly: part of PSYC 531
**The Psychology of Nature, Sustainability, and Climate Change**
Seminar review of theory and research in the environmental psychology of natural world. The topics may include sustainability-related behaviour, psychological restoration from nature, resource management, sustainability, and the psychological aspects of climate change.

**Note:** Credit will be granted for only one of PSYC 531, PSYC 555B.

PSYC 560  Units: 1.5  
Formerly: part of PSYC 561
**Research Methods in Lifespan Psychology**
A critical examination of research designs and analytical approaches for understanding developmental and aging-related change and variation. Includes cross-sectional, longitudinal, sequential, experimental, and qualitative approaches.

PSYC 561  Units: 1.5  
**History and Theories in Lifespan Psychology**
Seminar review of major classical and contemporary theoretical perspectives and their implications for the study of psychological development across the lifespan. Emphasis on differences among theoretical perspectives with respect to central developmental issues such as concepts of change, sources of development, and the universality of developmental laws and findings.

PSYC 562  Units: 1.5  
**Infancy and Childhood**
Seminar review of theory and research examining psychological development from infancy through childhood. Special topics include personality/temperament, attachment, parent-child relations, and socialization process. Emphasis is placed on the role of the context in individual development.

PSYC 563  Units: 1.5  
**Adult Development and Aging**
Seminar review of theory and research examining psychological processes during adulthood and aging. Specific topics include memory, intelligence, problem solving, personality, social processes, and mental health. Attention is also given to the biological and sociocultural contexts of these developments.

PSYC 564  Units: 1.5  
**Advanced Analysis of Change and Variation**
The emphasis is the general linear mixed model for repeated measurements and other nested data structures. Both multilevel and structural equation models will be examined and applied to longitudinal data. Special topics include time invariant and time varying covariates, evaluation of alternative time structures, change in factor-level outcomes and analysis of intensive repeated measures designs.

**Note:** May be taken more than once for credit in different topics with permission of the department to a maximum of 3 units.

**Prerequisite(s):**
- PSYC 532 and PSYC 533, or
- permission of the department.

PSYC 565  Units: 1.5  
**Cognitive Development in Adulthood and Aging**
Seminar review of theory and research examining gains and losses in various cognitive skills from young adulthood to old age. Traditional experimental, psychometric, and cognitive science approaches are considered. Specific topics include age-related change in memory, intelligence, problem solving, reading skills, as well as practical and social cognition.

PSYC 566  Units: 1.5  
**Dysfunctional Development in Adulthood and Aging**
Seminar review of theory and research examining dysfunctional and pathological processes in later life. Specific topics include dementia, depression, personality disorders, alcoholism and other addictions and suicide. Attention will be given to issues of etiology, diagnosis, treatment, and impact on caregivers.

PSYC 567  Units: 1.5  
**Adolescence**
Seminar review of theory and research examining psychological processes during adolescence. Specific topics include pubertal maturation, parent-adolescent relations, gender roles, sexuality, and problem behaviour. Attention will be given to the role of the context (e.g., family, school) in adolescent development.

PSYC 568  Units: 1.5  
**Special Topics in Lifespan Development**
Topical seminars on specialized issues related to lifespan development and aging.

**Note:** May be taken more than once for credit in different topics to a maximum of 6 units.

PSYC 570  Units: 1.5 or 3.0  
Also: LING 570
**Psycholinguistics**
A seminar offered in collaboration with the department of Linguistics. Selected topics of interest in understanding the comprehension and production of natural language are examined. The most recent topics have been sentence processing, discourse analysis, linguistic inference and the resolution of ambiguity, and the development of cognitive science interests in reasoning and discourse processes as well as the structure of mental representations.
COURSE LISTINGS PSYC

PSYC 574A Units: 1.5
Cognitive Methods: Electroencephalography and Event-related Brain Potentials
An intensive, hands-on introduction to the basics of collecting and analyzing event-related brain potential (ERP) data.
Notes:
• Credit will be granted for only one of PSYC 574A, PSYC 574F (if taken in the same topic), PSYC 576C (if taken in the same topic).
• Enrolment is limited to 5 students.
Prerequisite(s): Permission of the department.

PSYC 574B Units: 1.5
Cognitive Methods: Functional Magnetic Resonance Imaging
Introduction to theory and methods of functional magnetic resonance imaging (fMRI) for the study of mind and brain using lectures, discussions and hands-on lab exercises. Includes underlying physics and physiology, experimental design, data collection and preprocessing, statistical analysis, and various advanced methods.
Note: Credit will be granted for only one of PSYC 574B, PSYC 579 (if taken in the same topic).

PSYC 574C Units: 1.5
Cognitive Methods: Computational Modelling
Exploration of methods of computational modelling of cognitive processes. Methods covered may include mathematical models, symbolic models, and neural network models. Theoretical foundations, procedures for fitting models, and applications to cognitive psychology and cognitive neuroscience will be considered.
Note: Credit will be granted for only one of PSYC 574C, PSYC 576B (if taken in the same topic).

PSYC 576A Units: 1.5
Cognitive Processes: Human Memory
Exploration of current theories and research on selected aspects of human memory. One or more major topics within the domain of human memory will be studied in depth.
Note: May be taken more than once for credit in different topics to a maximum of 6 units.

PSYC 576D Units: 1.5
Cognitive Processes: Cognitive Control
Exploration of selected theories and research in cognitive psychology and/or the cognitive neuroscience of cognitive control. One or more major topics within the domain of cognitive control (e.g. working memory, attention, error detection, conflict monitoring, response inhibition, and/or decision making) will be studied in depth.
Note: May be taken more than once for credit in different topics with permission of department to a maximum of 6 units.

PSYC 576E Units: 1.5
Cognitive Processes: Visual Perception
Exploration of current theories and research on selected aspects of visual perception. One or more major topics (e.g., object recognition, Gestalt perception, neuropsychology of visual perception) will be studied in depth.
Notes:
• Credit will be granted for only one of PSYC 576E, PSYC 511 (if taken in the same topic).
• May be taken more than once for credit in different topics with permission of department to a maximum of 6 units.

PSYC 577 Units: 1.5
Cognitive Seminar
Weekly seminar throughout the Winter session, involving faculty and graduate students in the Cognitive Psychology Program. Seminar participants take turns hosting the meeting, typically by presenting a paper on recent or ongoing cognitive psychological research.
Note: May be taken more than once for credit to a maximum of 9 units.
Prerequisite(s):
• Admission to a graduate program in Cognitive Psychology, or
• permission of the department.
Grading: INC, COM, N, F.

PSYC 578 Units: 1.5
Research Methods in Clinical Psychology
Psychological research design issues with clinical populations. Topics include randomized controlled trials, efficacy versus effectiveness research, statistical versus clinical significance, cross-sectional and longitudinal research designs with clinical populations, qualitative methods and content analysis, single case experiments and case study methods, cognitive and physiological measures, observational methods, meta-analysis, program evaluation, and clinical research ethics. Issues of gender, age, and cultural diversity in clinical research are discussed throughout the course.

PSYC 581 Units: 1.5
Psychopathology: Childhood and Adolescence
Discussion of conceptual models used to understand psychopathology; presentation of various mental disorders from multiple theoretical perspectives; discussion of diagnostic issues emphasizing the impact of gender and culture in the expression of “abnormal” behavior. Emphasis is on disorders that emerge during childhood and adolescence. Topics are considered from a scientist-practitioner perspective. Includes discussion of relevant professional issues in clinical psychology.
Prerequisite(s): Admission to a graduate program in Clinical Psychology.

PSYC 582 Units: 1.5
Psychopathology: Adulthood
Draws on models for understanding psychopathology developed in PSYC 581. Discussion of conceptual models used to understand psychopathology; presentation of various mental disorders from multiple theoretical perspectives; discussion of diagnostic issues emphasizing the impact of gender and culture in the expression of “abnormal” behavior. Emphasis is on disorders that emerge during adulthood. Topics are considered from a scientist-practitioner perspective. Includes discussion of relevant professional issues in clinical psychology.
Prerequisite(s):
• PSYC 581, and
• admission to a graduate program in Clinical Psychology.

PSYC 583 Units: 1.5
Professional and Ethical Issues in Clinical Psychology
Discussion of ethical standards for providers of psychological services and of registration requirements as required by BCPA, CPA and APA. Presentations by practising psychologists related to professional and interprofessional problems encountered in practice.
Note: Enrolment may be limited.
Prerequisite(s):
• Admission to a graduate program in Clinical Psychology, and
• permission of the department.

PSYC 584 Units: 1.5
Clinical Assessment: Cognitive Functioning
Introduction to theory and practice in the assessment of cognitive functioning and academic achievement, including test administration, scoring, interpretation, and report writing. Test administration proficiency and individual case study interpretation are required during formal laboratory experiences.
Prerequisite(s): Admission to a graduate program in Clinical Psychology.
Grading: INC, COM, N, F.

PSYC 585 Units: 1.5
Clinical Assessment: Psychosocial Functioning
Introduction to theory and practice in the psychological assessment of social, emotional and personality functioning.
Prerequisite(s): Admission to a graduate program in Clinical Psychology.
Grading: INC, COM, N, F.

PSYC 586A Units: 1.5
Advanced Clinical Assessment
Advanced theory and professional issues in the psychological assessment of social, emotional and personality functioning.
Note: Enrolment may be limited.
Prerequisite(s):
• PSYC 585, and
• permission of the department.
Grading: INC, COM, N, F.

PSYC 586B Units: 1.5
Practice in Advanced Clinical Assessment
Supervised practice in the psychological assessment of social, emotional and personality functioning.
Note: Enrolment may be limited.
Prerequisite(s):
• PSYC 585, and
• permission of the department.
Pre- or Corequisite(s): PSYC 586A.
Grading: INC, COM, N, F.
PSYC 588  Units: 1.5
Child and Adolescent Therapy
Introduction to different theoretical approaches to child psychotherapy and a discussion of techniques; supervised experience will be offered in subsequent sections.

Notes:
- May be taken more than once for credit in different topics to a maximum of 4.5 units.
- Enrolment may be limited.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology; and
- permission of the department.

Grading: INP, COM, N, F.

PSYC 589  Units: 1.5
Introduction to Evidence-Based Adult Psychotherapies
Overview of theory, research, and practice in adult psychotherapy. Introduction to the major schools of psychotherapy and to the common factors present across forms of psychotherapy. Beginning therapy skills will be developed through role plays and experiential exercises. Supervised experience is offered in 590.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology.

PSYC 590  Units: 1.5
Practical Issues and Challenges in Adult Psychotherapy
An advanced psychotherapy course that builds upon the introductory therapy skills developed in 589. Includes didactic seminar and group case consultation.

Note: Enrolment may be limited.

Prerequisite(s):
- PSYC 589; and
- admission to a doctoral program in Clinical Psychology; and
- permission of the department.

Grading: INP, COM, N, F.

PSYC 591  Units: 1.5
Special Topics in Clinical Psychology
Note: May be taken more than once for credit in different topics to a maximum of 6 units.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology.

PSYC 592  Units: 1.5
Family Interventions
Introduction to various theoretical approaches to family interventions. Specific techniques are explored through readings, discussions, assignments, and role plays.

Note: Enrolment may be limited.

Prerequisite(s):
- PSYC 589; and
- admission to a doctoral program in Clinical Psychology; and
- permission of the department.

Grading: INP, COM, N, F.

PSYC 594  Units: 1.5
Special Topics in Clinical Intervention
Introduction to any one or more specialized therapeutic techniques for working with individuals in clinical settings.

Note: May be taken more than once for credit in different topics to a maximum of 6 units.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology.

Grading: INP, COM, N, F.

PSYC 595  Units: 1.5
Cognitive Behavioural Therapy
An advanced psychotherapy course that provides students with an understanding of the theory and clinical skills associated with Cognitive-Behavioural Therapy. Theory and specific techniques are explored through readings, class discussion, class assignments and role-plays.

Note: Credit will be granted for only one of PSYC 595, PSYC 594 (if taken in the same topic).

Prerequisite(s):
- PSYC 589; and
- admission to a doctoral program in Clinical Psychology.

Grading: INP, COM, N, F.

PSYC 596  Units: 1.5
Interpersonal Therapies
An advanced psychotherapy course that provides students with an understanding of the theoretical underpinnings of the major interpersonal therapies and the role of interpersonal process in therapy in general. Specific theories and techniques are explored through readings, class discussion and class assignments.

Note: Credit will be granted for only one of PSYC 596, PSYC 594 (if taken in the same topic).

Prerequisite(s):
- PSYC 589; and
- admission to a doctoral program in Clinical Psychology.

Grading: INP, COM, N, F.

PSYC 597  Units: 1.5
Clinical Psychology Colloquium
Weekly colloquium through the Winter session, involving faculty and graduate students in the Clinical Psychology Program. Colloquium participants take turns hosting the meeting, typically presenting on current clinical practice issues, cases, or research.

Note: May be taken more than once for credit to a maximum of 7.5 units.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology.

Grading: INP, COM, N, F.

PSYC 599  Units: 6.0
Thesis

Grading: INP, COM, N, F.

PSYC 602  Units: 1.0-6.0
Independent Research

Notes:
- May be taken more than once for credit in different topics.
- Pro Forma required.
- The student must consult with the instructor about the area of study prior to registration.
- A maximum of 6 units of 602 may be taken in any one Winter Session at the discretion of the student’s Supervisory Committee.

Prerequisite(s):
- Permission of the department.

PSYC 603  Units: 4.0
Advanced Clinical Practicum
Practicum in an approved clinical setting. 1 unit of credit is equivalent to approximately 100 hours.

Prerequisite(s):
- Admission to a graduate program in Clinical Psychology; and
- permission of the department.

Grading: INP, COM, N, F.

PSYC 604  Units: 1.5-6.0
Individual Study

Notes:
- May be taken more than once for credit in different topics.
- Pro Forma required.
- The student must consult with the instructor about the area of study prior to registration.
- A maximum of 6 units of 604 may be taken in any one Winter Session at the discretion of the student’s Supervisory Committee.

Prerequisite(s):
- Permission of the department.

PSYC 605  Units: 1.5 or 3.0
Practicum in the Teaching of Psychology
Teaching practicum with individual instructors of the department in areas of potential teaching interest for the student.

Note: Pro Forma required.

Grading: INP, COM, N, F.

PSYC 606  Units: 15.0
Clinical Internship
Full-year internship with 1600 to 2000 hours of supervised practical experience in settings approved by the committee on clinical training.

Note: Students who have completed a clinical course sequence may request permission to register in the course.

Prerequisite(s):
- Permission of the department.

Grading: INP, COM, N, F.
**PSYC 612**  
*Units: 1.5-4.5*  
**Advanced Research Practicum**  
Advanced practicum in research with an emphasis on coordination of a program of research in association with a faculty supervisor. Typically involves organization and training of research assistants, developing research protocols, management of research databases, statistical analysis, and preparation and submission of materials for publication as specified in a Pro Forma.  
**Notes:**  
- May be taken more than once for credit in different topics.  
- The content must differ from but may be related to 699.  
**Prerequisite(s):** Permission of the department.  
**Grading:** INP, COM, N, F.

**SDH 500A**  
*Units: 1.5*  
**Interdisciplinary Perspectives on Health Research**  
Provides an overview of various health research paradigms. Covers fundamental theories, models, frameworks and topics that form the basis of interdisciplinary health research including: epidemiology, ethics, policy, health and wellness, chronic disease and the relationship between culture and health including Indigenous peoples. Coursework may include group discussion, academic writing, presentations and a critical review of the literature. Topics are central to interdisciplinary health research and provide core competencies for developing independent research.  
**Notes:**  
- May be taken more than once for credit in different topics.  
- The content must differ from but may be related to 699.  
**Prerequisite(s):**  
- SDH 600A; or  
- permission of the program.  
**Grading:** INP, COM, N, F.

**SDH 600B**  
*Units: 1.5*  
**Interdisciplinary Methods Applied to Health Research**  
Provides an overview of qualitative, quantitative and mixed methods employed in interdisciplinary research studies. Introduces students to research methods such as epidemiology, grounded theory, ethnography, case studies, surveys, experimental studies, secondary analyses of existing datasets and Indigenous methodologies. Course work may include proposal writing, presentations, and developing community partnerships. Methods are core to conducting health research and preparing independent research.  
**Prerequisite(s):**  
- SDH 600A; or  
- permission of the program.  
**Grading:** INP, COM, N, F.
SLST
Slavic Studies
Department of Germanic and Slavic Studies
Faculty of Humanities

SLST 501   Units: 1.5
Also: GMST 501
Introduction to the Disciplines of Germanic and Slavic Studies
An introduction to the research specialties that make up Germanic and Slavic Studies: literary and cultural studies, film studies, cultural history and second language acquisition. May include sessions on how to write a research grant proposal, do sophisticated library research, prepare a bibliography and write a thesis proposal.
Note: Credit will be granted for only one of SLST 501, GER 501, GMST 501.

SLST 502   Units: 1.5
Also: GMST 502
Theory and Practice
Introduces students to the theories and methodologies that animate the disciplines of Germanic and Slavic studies and may include topics such as professional skills, pedagogy and thesis writing.
Note: Credit will be granted for only one of SLST 502, GMST 502.

SLST 503   Units: 1.5
Also: GMST 503
Teaching in the Disciplines of Germanic and Slavic Studies
A practice-based introduction to course design, teaching strategies, methodologies and assessment tools in the teaching areas of Germanic and Slavic Studies.
Note: Credit will be granted for only one of SLST 503, GMST 503.

SLST 505   Units: 1.5
Advanced Russian Language Study
Research topics may include Russian morphology, phonetics, lexicology, and language acquisition.

SLST 509   Units: 1.5
Also: GMST 509
Special Topics Field School
Exploration of cultural studies topics in European, German-speaking or Slavic countries. Promotes intercultural and experiential learning through joint workshops with European students and field research working at relevant cultural sites and with relevant artefacts. Topics vary.
Note: May be taken more than once for credit in a different topic.

SLST 511   Units: 1.5
Studies in Film
A critical analysis and study of films of the 20th and 21st century by Slavic and East European filmmakers.

SLST 521   Units: 1.5
Studies in Russian Literature and Culture
Examination of literary works and cultural processes in Russian and/or Soviet society.

SLST 522   Units: 1.5
Studies in Ukrainian Literature and Culture
Examination of literary works and cultural processes in Ukraine.

SLST 531   Units: 1.5
Studies in Slavic Cultural History
A cultural studies approach to texts, films, performances, media and material objects and spaces in Slavic and East European nations.

SLST 560   Units: 1.5
Slavic-Canadian Studies
Examination of the culture of Slavic and East European diasporas in Canada, as well as their impact on the creative processes in their home countries.

SLST 565   Units: 1.5
Seminar on Bakhtin
An interdisciplinary approach focusing on the major works and central concepts of the Russian philosopher and literary theorist Mikhail Bakhtin, as well as the application of these theories in diverse disciplines of study.

SLST 570   Units: 1.5
Also: GMST 570
Studies in New Media in Second Language Acquisition
Critical examination of the current research on teaching a foreign language. Focus on learning and teaching outside of the language environment, foreign language learning theories, teaching methodologies and practices.
Note: Credit will be granted for only one of SLST 570, GMST 570.

SLST 581   Units: 1.5
Twentieth-Century Genocides in Eastern Europe
Examines the common and unique features of genocides, ethnic cleansings, and forced population transfers in twentieth-century Eastern Europe including the Ukrainian Famine, the Holocaust, and the Bosnian War.

SLST 590   Units: 1.5
Directed Studies in Slavic Studies I
Notes:
• May be taken more than once for credit to a maximum of 4.5 units.
• Pro Forma required.

SLST 591   Units: 1.5
Hours: 3-0-0
Directed Studies in Slavic Studies II
Notes:
• May be taken more than once for credit in different topics to a maximum of 4.5 units.
• Pro Forma required.

SLST 599   Units: 6.0-9.0
Thesis
Grading: INP, COM, N, F.

SOCI
Sociology
Department of Sociology
Faculty of Social Sciences

SOCI 503   Units: 1.5
Foundations of Sociological Explanations
In-depth examination of selected key themes in sociological theory. Traces the development of sociological theorizing from the work of classical 19th-century thinkers up until recent decades. Provides expert understanding of the historical and theoretical concerns that have shaped sociology through conceptual engagement with the literature.

SOCI 504   Units: 1.5
Current Issues in Social Theory
Examines major perspectives, themes, and debates in contemporary social theory. Emphasis on developing students’ abilities to use theoretical concepts in relation to their own research interests.
Note: Credit will be granted for only one of SOCI 504, SOCI 500.

SOCI 507   Units: 1.5
Intermediate Social Statistics
Statistical methods appropriate for quantitative sociological research, with an emphasis on regression models and their extensions and computer applications for these models.
Notes:
• Credit will be granted for only one of SOCI 507, SOCI 471, SOCI 371B (if taken prior to May 2011).
• A combined undergraduate and graduate course (SOCI 471).
Prerequisite(s):
• SOCI 271; or
• permission of the department.

SOCI 515   Units: 1.5
Qualitative Research
Key issues and methods in the systematic study of the social world through qualitative sociological research. Examination of the relationship between analytical perspective and methodological decisions, methods of gathering data and analysis. Includes issues of language, representation, politics, social organization and participation.
Prerequisite(s):
• SOCI 374; or
• permission of the department.

SOCI 520   Units: 1.5
Formerly: SOCI 610
Issues in Contemporary Sociology
A seminar exploring a topic of contemporary interest in sociology. Content is informed by faculty members’ current research and varies from year to year.
Note: Credit will be granted for only one of SOCI 520, SOCI 610 (if taken in the same topic).

SOCI 525   Units: 1.5
Current Issues in the Sociology of Genders and Sexualities
A seminar exploring a range of contemporary issues pertaining to genders, sexualities, and bodies. Content is informed by faculty members’ current research and varies from year to year.
SOCI 535  Units: 1.5
Current Issues in Political Sociology
A seminar exploring a range of contemporary issues pertaining to politics, movements, the state, and social and political change. Content is informed by faculty members’ current research and varies from year to year.

SOCI 545  Units: 1.5
Current Issues in the Sociology of Health and Aging
A seminar exploring a range of contemporary issues pertaining to the social determinants of health, illness, and aging. Content is informed by faculty members’ current research and varies from year to year.

SOCI 590  Units: 1.5
Directed Studies
Note: May be taken more than once for credit to a maximum of 3 units.
Prerequisite(s): Permission of the department.

SOCI 598  Units: 4.5
Major Research Paper
A piece of independent research work involving substantial analytical engagement with a defined area of sociology guided by one or more research questions.
Note: Normally, students are expected to complete two terms of coursework prior to registration.
Grading: INP, COM, N, F.

SOCI 599  Units: 7.5
Thesis
Note: Students who wish to register for the thesis must request permission to do so no later than 12 months after entering the MA program.
Prerequisite(s): Permission of the department.
Grading: INP, COM, N, F.

SOCI 608  Units: 1.5
Formerly: SOCI 508
Advanced Statistical Analysis
Advanced statistical models with applications to sociological research, which may include such topics as logistic models, count models, multilevel models, structural equation models, and models for longitudinal data. Also includes the use of computer statistical software for the analysis of data.
Notes: 
• Credit will be granted for only one of SOCI 608, SOCI 508, SOCI 472, SOCI 501.
• Normally offered in alternate years.
Prerequisite(s): 
• SOCI 507; or
• permission of the department.

SOCI 616  Units: 1.5
Advanced Strategies in Qualitative Research
Explores applied techniques for coding and systematically analyzing qualitative data with the assistance of computer-aided qualitative data analysis software (CAQDAS). Examines different strategies for communicating qualitative research findings to other researchers and the general public.
Note: Normally offered in alternate years.
Prerequisite(s): 
• SOCI 515; or
• permission of the department.

SOCI 690  Units: 1.5
Directed Studies
Note: May be taken more than once for credit to a maximum of 3 units.

SOCI 693  Units: 3.0
PhD Candidacy Examinations
Students enrol in SOCI 693 for the duration of their preparation for their candidacy examinations. This begins at the time a student first enrols in the PhD program and continues until candidacy requirements have been completed. Students are expected to complete all required coursework and comprehensive exams within 25 months after entering the PhD program.
Grading: INP, COM, N, F.

SOCI 699  Units: 21.0
PhD Dissertation
Prerequisite(s): SOCI 693.
Grading: INP, COM, N, F.

SOCW

Social Work
School of Social Work
Faculty of Human and Social Development

SOCW 505  Units: 1.5
Advanced Child Welfare Seminar
Explores topics of special interest in the development of child welfare practice from a critical, anti-oppressive and social justice perspective. Students are expected to conduct an analysis on a current child welfare topic they select in conjunction with the instructor.
Notes: 
• Credit will be granted for only one of SOCW 505, SOCW 525.
• Offered as resources permit.

SOCW 506  Units: 4.5
Advanced Practicum
A minimum of 450 hours of advanced social work practice and demonstration of the application of critical analysis to practice are required. Faculty of Human and Social Development regulations concerning practica apply to the MSWI practicum.
Prerequisite(s): 
• 6 units of coursework (4.5 units of Advanced Program core courses plus 1.5 units of elective); and
• admission to MSWI Advanced program.
Grading: INP, COM, N, F.

SOCW 506A  Units: 4.5
MSWI Practicum
A minimum of 450 hours of social work practice and demonstration of the application of critical analysis to practice are required. Faculty of Human and Social Development regulations concerning practica apply to the MSWI practicum.
Prerequisite(s): 
• 6 units of coursework (4.5 units of Advanced Program core courses plus 1.5 units of elective); and
• admission to MSWI Advanced program.
Grading: INP, COM, N, F.

SOCW 510  Units: 1.5
Also: SPP 510
Policy Context of Practice
Reviews and analyzes a number of explanations of the policy making process. Examines who makes policy in both governmental and voluntary human service organizations and the impact of policy on consumers and practitioners. Analyzes the policy/practice interface and uses substantive policy domains to illustrate how policy both enhances and constrains practice and how practice in turn can influence policy. Students are encouraged to develop their own understandings of the contributions of practice to policy.
Note: Credit will be granted for only one of SOCW 510, SPP 510, HSD 510.
Prerequisite(s): Admission to MSW Advanced program.

SOCW 511  Units: 1.5
Contemporary Debates and Ethical Dilemmas in Social Work
Examines and critiques current debates, ideas and discourses relating to social work knowledge and practice, with a specific focus on ethics. Emphasis is placed on postmodern, feminist, anti-racist and Indigenous perspectives as they challenge prevailing assumptions about individualism, meritocracy, professionalism and philanthropy. Specifically looks at the contributions of these perspectives to a critical theorizing of professional practice and ethics.
Note: Credit will be granted for only one of SOCW 511, SOCW 501, SOCW 518.

SOCW 512  Units: 1.5
Knowledge and Inquiry: Re-Theorizing Social Work
Takes as its starting point the idea that responsible and effective professional and scholarly practice begins with a critical examination of how relations of power shape knowledge production. Over the term, assumptions underlying the creation of knowledge and different approaches to knowing authoritatively will be investigated. Questions of ‘how we come to know’ and ‘how we go about asking’ are explored through poststructural, postcolonial and critical race lenses.
Note: Credit will be granted for only one of SOCW 512, SPP 502, HSD 502.
Prerequisite(s): Admission to MSW Advanced program.

SOCW 515  Units: 1.5
Transnational Social Work
Transnational feminist theorists argue that transnationalism links contemporary notions of nationality, gender, race and class to earlier histories of colonization and present day imperialism. Students examine the practices of the securitized, neo-liberal Canadian welfare state towards transnational communities by: (a) understanding transnational feminist theories, (b) analyzing nation-making and global inequality, (c) reviewing practices of transnational feminist social justice activism, and (d) critiquing international social work in view of all of the above.
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| SOCW 516    | 1.5   | Research Methodologies  
Critically reviews a wide range of research methodologies commonly practised in the human services. Considers the kinds of opportunities and challenges presented by each methodology. Emphasizes the link between the development of a research question and the selection of methodological approaches.  
**Note:** Credit will be granted for only one of SOCW 516, SPP 516, HSD 516.  
**Prerequisite(s):** Admission to MSW Advanced program. |

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</table>
| SOCW 517    | 1.5   | Research Seminar  
Focuses on specific methodological, analytical and/or theoretical aspects of research for the thesis. It supports graduate students in the thesis research and writing that they undertake following the completion of their coursework. Content varies from year to year, depending on students' interests and needs.  
**Notes:**  
- Students who are completing a thesis may request permission to register in the course.  
- Registration in SOCW 517 is normally continued until the student's thesis proposal has been approved by the supervisory committee.  
**Prerequisite(s):**  
- SOCW 516; and  
- permission of the program. |

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| SOCW 521    | 1.5   | Indigenous Perspectives on Knowledge and Research  
Explores the dimensions of Indigenous ways of knowing that influence researching activities in Indigenous communities. Students will explore how, is from where, their own knowing emerges as well as critically examine how knowledge is constructed within larger society. Focuses on how power, culture, ethics, protocols, language, place and spirit shape knowledge. |

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| SOCW 523    | 1.5   | Self-Conscious Traditionalism in Indigenous Social Work Practice Seminar  
Critical exploration of alternative models of Indigenous social work practice drawn from the literature and from their own practice. Concepts and skills of Indigenous leadership are also explored. |

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| SOCW 526    | 1.5   | Seminar in Health Policy and Practice in Indigenous Communities  
Examination of critical issues in community health such as sexual abuse, substance misuse and family violence along with the collective steps that Indigenous (and other) communities have taken to restore health. The critical issues to be examined are determined collectively by students and faculty. |

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| SOCW 531    | 1.5   | Critical Exploration of Leadership Roles for Social Workers in Health Care  
Inquiry based opportunity for students to critically examine their leadership styles and develop a foundational knowledge and skill base for effective involvement in organizational change, staff management, coaching and supervision, coordination of inter-professional teams and development of policies to address the social determinants of health.  
**Note:** Offered as resources permit. |

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| SOCW 532    | 1.5   | Introduction to Social Work in the Health Care Sector  
Examines the knowledge and skills required for social workers to be effective advocates while carrying out a range of responsibilities in the health sector within the context of a practice framework that focuses on the social determinants of health. The challenges and opportunities provided by the cultural and organizational contexts of practice in health care will be an important focus of the course for examining the inter-professional nature of practice. Particular aspects of practice such as appropriate documentation, informed consent and community development will be included.  
**Note:** Offered as resources permit. |

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| SOCW 533    | 1.5   | Working with Trauma  
Current theories and practices regarding the neurobiological, psychophysical and socio-cultural components of trauma. Four dimensions of experience will be explored: shock, developmental, accumulated stress, and socially and culturally-produced traumatic stress. Emphasis will be placed on concrete skills and strategies that have applicability to a wide variety of contexts. As well, students will learn to reduce the prevalence of secondary traumatization on themselves, colleagues, agencies and communities.  
**Note:** Credit will be granted for only one of SOCW 533, SOCW 433, SOCW 580 (if taken in the same topic). |

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| SOCW 537    | 1.5   | Environmental Justice and Social Work  
Environmentalism has gained prominence in social work scholarship and earlier practice models that ignored the physical environment are now critiqued. Students enter with political allegiance to green issues; educators find compatibility between professional practice and views on spirituality, environmental justice, and social service provision. Fears over environmental destruction and a general sense of disconnection from nature are finding traction. Students will explore these themes through the lenses of race, space, and environmental justice. |

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| SOCW 540    | 4.5   | Foundation Practicum  
A minimum of 450 hours of social work practice and demonstration of the application of critical analysis to practice are required. Faculty of Human and Social Development regulations concerning practice apply to the MSW practicum.  
**Prerequisite(s):**  
- SOCW 541; and  
- 3 units of SOCW (Foundation program core) courses.  
**Pre- or Corequisite(s):** SOCW 546.  
**Grading:** INP, COM, N, F. |

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| SOCW 541    | 1.5   | Critical Social Work Practice  
Introduces strategies for socially just social work through the exploration of Indigenous, feminist, anti-racist, anti-colonialist and post-structural approaches to practice. The development of critical consciousness (historical, socio-cultural and political influences on professional and personal identities and experiences) is emphasized, and shifting sources and forms of professional power and authority are examined. Specific skills will include interpersonal communication, problem solving, and working in alliance and solidarity in the context of increased inequality and diminished resources. |

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| SOCW 543    | 1.5   | Theorizing Social Difference  
How do we come to know who we are and how is this knowledge raced, embodied, engendered and embedded in a material context? These questions underpin social work knowledge and practice. Developing an analysis of social difference is a crucial skill for social workers. In this course students will be introduced to the concepts of marginalization and dominance as they play out (primarily) North American contexts. The course will look at social work theories and knowledge as a departure point from which to explore interdisciplinary theorizations of concepts core to the profession. |

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| SOCW 544    | 1.5   | Social Work, the State and Citizenship  
Taking the perspective of 'citizenship as social', explores the lived realities and experiences of citizenship as it is configured on the basis of geography, class, race, gender, and other identity locations. Using citizenship theories explores the nature of social inclusion and exclusion that mark citizens' lives in the Canadian Welfare state, examines the emancipatory potential of citizenship-based social work that is grounded in a vision of social justice. |

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| SOCW 545    | 1.5   | Networks and Communities  
Social work practice within communities and social networks. Definitions of community are explored as experienced and conceptualized from various locations. Critical historical and theoretical analysis and ethical dilemmas posed by various approaches to community work are examined. Students have the opportunity to develop theoretical and practical understandings of anti-oppressive, antiracist and anti-colonial community practice as experiences within their own communities. |

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| SOCW 546    | 1.5   | Collaborative Conversations  
Focuses on developing social work practice skills with individuals and communities in ways that are both difference-centred and collaborative in nature. Students will critically analyze and develop their own, individual and community development, practice skills in relation to working in various community contexts, within a social justice framework. Students will examine ways to further difference-centred practice to become more effective, participatory and collaborative with clients, social services and civil society. |
SOCW 547  
**Units: 1.5**

**Historicizing Social Work: Friendly Visits to Social Justice**

Critical examination of the constitution of social work practice and theories at different historical and contextual moments and its varying roles in regulating the boundaries between national subjects and ‘others’. Students engage in critical/reflective study of social work responses to so-called ‘problem populations’ in the context of changing political, social, economic, and moral climates and the making of citizenship and nation.

SOCW 549  
**Units: 1.5**

**Research Foundations**

This course reviews foundational concepts and strategies of social work research with a focus on the comprehension, critique and utilization of research in social work practice settings. Students critically reflect on examples of research and examine how power shapes knowledge. Research approaches for conducting ethical, emancipatory and socially just research are examined.

SOCW 550  
**Units: 1.5**

**Social Justice, Social Work and the Law**

Explores and critiques theories and critical perspectives on law, the legal system and the legal processes that have an impact on professional social work practice. Students will critically examine the interplay between marginalization, structural inequalities, social work, social justice and the Canadian legal system.

SOCW 551  
**Units: 1.5**

**Indigenous Communities: Practice and Policy**

Critically examines the historical processes of colonization in Canada and resulting barriers embedded in past and current policy and practices that affect Indigenous peoples. Students will deconstruct colonization, race, class and capitalism as embedded in social welfare. Students will have an opportunity to examine their own location, ideas, values and beliefs about working with Indigenous peoples and to develop a practice framework, based on social justice, for working with Indigenous communities.

SOCW 571  
**Units: 1.5**

**MSW Capstone**

A culminating educational experience to consolidate learning and demonstrate preparation for advanced social work practice. Students will integrate, articulate, and evaluate learning from the courses and practica in the MSW program within the context of their other professional activities and prior academic experiences.

Prerequisite(s): Completion of all required coursework in the MSW program (excluding SOCW 506 or SOCW 506A).
Pre- or Corequisite(s): SOCW 506 or SOCW 506A.
Grading: INP, COM, N, F.

SOCW 580  
**Units: 1.5 or 3.0**

**Special Topics in Social Work and Social Welfare**

A variable content course that deals with special issues in social welfare and approaches to social work practice.

Notes:
- May be taken more than once for credit in different topics.
- Offered as resources permit.


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**SPAN**

**Spanish**

**Department of Hispanic and Italian Studies**

**Faculty of Humanities**

**SPAN 500**  
**Units: 1.5**

**Introduction to Bibliography and Methods of Research**

**SPAN 502**  
**Units: 1.5**

**Core Reading List Course I**

Grading: INP, COM, N, F.

**SPAN 503**  
**Units: 1.5**

**Core Reading List Course II**

Also: ITAL 503
Grading: INP, COM, N, F.

**SPAN 505**  
**Units: 1.5**

**Also: ITAL 505**

**Medieval Literature**

Note: May be taken more than once for credit in different topics with permission of the department.

**SPAN 507**  
**Units: 1.5**

**Renaissance and Baroque Literature**

Note: May be taken more than once for credit in different topics with permission of the department.

**SPAN 511**  
**Units: 1.5**

**Peninsular Literature from the 20th Century to the Present**

Note: May be taken more than once for credit in different topics with permission of the department.

**SPAN 512**  
**Units: 1.5**

Formerly: SPAN 509, SPAN 517

**Spanish and Latin American Literature of the 19th Century**

Notes:
- Credit will be granted for only one of SPAN 512, SPAN 509, SPAN 517.  
- May be taken more than once for credit in different topics with permission of the department.

**SPAN 515**  
**Units: 1.5**

**Colonial Latin American Literature**

Note: May be taken more than once for credit in different topics with permission of the department.

**SPAN 519**  
**Units: 1.5**

**Latin American Literature from the 20th Century to the Present**

Note: May be taken more than once for credit in different topics with permission of the department.

**SPAN 590**  
**Units: 1.5 or 3.0**

**Also: ITAL 590**

**Directed Studies**

**SPAN 598**  
**Units: 3.0**

**Master’s Essay**

Grading: INP, COM, N, F.

**SPAN 599**  
**Units: 6.0**

**MA Thesis/Oral**

Grading: INP, COM, N, F.

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**SPP**

**Studies in Policy and Practice**

**Faculty of Human and Social Development**

**SPP 580**  
**Units: 1.5 or 3.0**

**Special Topics in Studies in Policy and Practice**

A variable content course which will focus on the policy, practice and/or research interests of faculty and students in the SPP Program.  

Note: May be taken more than once for credit in different topics.
SPP 590 - STAT 699

SPP 590  Units: 1.5 or 3.0
Directed Studies
Individual studies under the direct supervision of one or more faculty members. The content, credit value, and method of evaluation must be approved by the instructor and the graduate advisor prior to registering in this course.
Notes: • May be taken more than once for credit in different topics.
• Pro Forma required.

SPP 598  Units: 3.0
Extended Essay
An in-depth examination of a topic related to policy and/or practice.
Grading: INP, COM, N, F.

SPP 599  Units: 6.0
Thesis
Specialized research on a topic area chosen in consultation with the student’s supervisory committee.
Grading: INP, COM, N, F.

STAT
Statistics
Department of Mathematics and Statistics
Faculty of Science

STAT 552  Units: 1.5
Applied Stochastic Models

STAT 553  Units: 1.5
Multivariate Analysis
Multivariate normal distribution; tests on covariance matrices; multivariate analysis of variance; discriminant analysis; classification analysis; cluster analysis; principal component analysis; factor analysis; multivariate regression analysis; canonical correlation; graphical procedures.

STAT 554  Units: 1.5
Time Series Analysis
Stationary time series; non-stationary time series; transformation; smoothing techniques; autoregressive moving average models; integrated models for non-stationary data; multiplicative seasonal ARIMA models; spectral analysis; linear filters.

STAT 556  Units: 1.5
Topics in Statistics
Topics include Analysis of Wildlife Populations, Bayesian Statistics, Bioinformatics, Biostatistics, Optimal design, Robust Statistics, Sampling Methods, Statistical Computing.
Note: May be taken more than once for credit in different topics with permission of the department.

STAT 558  Units: 1.5
Design and Analysis of Experiments
Basic principles of experimental design; factorial designs; block designs; fractional factorial designs; response surface designs; nested and split-plot designs; optimal designs; techniques of analysis of variance; fixed effects models; random effects models.

STAT 559  Units: 1.5
Survival Analysis
Theory and techniques for censored and truncated data; nonparametric estimation of survival and cumulative hazard functions and associated hypothesis tests; semiparametric proportional hazards regression; survival models; regression diagnostics; inference for parametric regression models.

STAT 560  Units: 1.5
Bayesian Statistics
Bayesian modelling, prior distributions; Jeffreys prior, posterior distributions, single and multi-parameter models; Bayesian point and interval estimation; Bayes factors and point null hypothesis testing; Bayesian computation; decision theory. Other topics may include: hierarchical modeling, Bayesian model selection.
Notes: • Credit will be granted for only one of STAT 460, STAT 454 (if taken in the same topic), STAT 560, STAT 556 (if taken in the same topic).
• May be offered as a joint undergraduate and graduate class.

STAT 562  Units: 1.5
Distribution Free Statistics
Classical distribution free methods: tests based on the binomial distribution, contingency tables, methods based on ranks, statistics of the Kolmogorov-Smirnov type. Computing intensive distribution-free methods: resampling methods and empirical likelihood methods.

STAT 563  Units: 1.5
Also: BIOL 563
Biostatistics
Survival analysis, generalized linear models, multivariate normal models, resampling methods, nonparametric and robust methods, meta-analysis, miscellaneous techniques.

STAT 564  Units: 1.5
Also: STAT 464
Master’s Thesis
Grading:

STAT 565  Units: 1.5
Hours: 3-0-0
Statistical Methods for Genomic Data
Introduction to genomic data and statistical methodology for its analysis; examples of data may include single-nucleotide polymorphisms or gene expression levels, generated from microarrays or next-generation sequencing. Statistical techniques may include data preprocessing, filtering, normalization, exploratory methods, visualization, dimension reduction, differential expression, generalized linear models, corrections for multiple comparisons, clustering, gene ontology analyses, genome-wide association studies.
Notes: • Credit will be granted for only one of STAT 565, STAT 556 (if taken in the same topic).
• May be offered as a joint undergraduate and graduate class.

STAT 566  Units: 1.5
Robust Statistics
Influence function and breakdown point; efficiency and robustness; robust location and scale estimation; robust regression; robust covariance matrix estimation; robust k-means clustering; robust principal component analysis; outlier detection.
Notes: • Credit will be granted for only one of STAT 566, STAT 556 (if taken in the same topic).
• May be offered as a joint undergraduate and graduate class.

STAT 568  Units: 1.5
Generalized Linear Models
Exponential family of distributions and generalized linear models; maximum likelihood estimation and inference; regression diagnostics; logistic regression; nominal and ordinal logistic regression; Poisson regression and log-linear models; clustered and longitudinal data.

STAT 589  Units: 1.5
Statistics Seminar
Note: May be taken more than once for credit with permission of the department.

STAT 598  Units: 3.0
Master’s Project
Grading: INP, COM, N, F.

STAT 599  Units: 6.0
Master’s Thesis
Grading: INP, COM, N, F.

STAT 693  Units: 3.0
Candidacy Examination
Grading: INP, COM, N, F.

STAT 699  Units: 21.0-30.0
Dissertation
Corequisite(s): STAT 693.
Grading: INP, COM, N, F.
THEA 500A Units: 1.5
Formerly: THEA 500
Methods and Materials of Theatre Research
Note: Credit will be granted for only one of THEA 500A, THEA 500.

THEA 500B Units: 1.5
Formerly: THEA 500
Methods and Materials of Theatre Research
Note: Credit will be granted for only one of THEA 500B, THEA 500.

THEA 501 Units: 1.5 or 3.0
Seminar in History and Criticism of Tragedy

THEA 502 Units: 1.5 or 3.0
Seminar in History and Criticism of Comedy

THEA 503 Units: 1.5 or 3.0
Seminar in European Theatre History

THEA 504 Units: 1.5 or 3.0
Seminar in North American Theatre History

THEA 505 Units: 1.5 or 3.0
Seminar in Theatrical Styles

THEA 508 Units: 1.5 or 3.0
Scene Design

THEA 509 Units: 1.5 or 3.0
Lighting Design

THEA 510 Units: 1.5 or 3.0
Costume Design

THEA 511 Units: 1.5 or 3.0
Production

THEA 512 Units: 1.5 or 3.0
Directing

THEA 513 Units: 1.5 or 3.0
Seminar in Theatre Aesthetics

THEA 514 Units: 1.5 or 3.0
Seminar in Design

THEA 515 Units: 1.5 or 3.0
Production Experience

THEA 516 Units: 1.5 or 3.0
Seminar in Theatre History

THEA 520 Units: 1.5 or 3.0
Advanced Problems in Scene Design

THEA 521 Units: 1.5 or 3.0
Advanced Problems in Lighting Design

THEA 522 Units: 1.5 or 3.0
Advanced Problems in Costume Design

THEA 523 Units: 1.5 or 3.0
Advanced Problems in Directing

THEA 524 Units: 6.0
MFA Practicum
Grading: INP, COM, N, F.

THEA 532 Units: 1.5
Workshop Facilitation
Principles of workshop design, and skills of facilitation and enabling in educational and community contexts.

THEA 533 Units: 1.5
Making Theatre
Explores the process of devising and the art of play-making.

THEA 535 Units: 1.5
Research Methods in Applied Theatre
Introduces different methodological approaches to researching and interpreting applied theatre practice, including qualitative and quantitative methods of theatre action research, ethnography and practice as research. Allows first-hand experience of conducting a theatre-based project and/or performance that targets a specific community.

THEA 590 Units: 1.5 or 3.0
Directed Studies
Note: May be taken more than once for credit in different topics with permission of the department.

THEA 598 Units: 4.5
MA Essay
Grading: INP, COM, N, F.

THEA 599 Units: 6.0
MA Thesis
Grading: INP, COM, N, F.

THEA 690 Units: 1.5-6.0
Directed Studies
Note: May be taken more than once for credit with permission of the department.
Prerequisite(s): Permission of the department.

THEA 693 Units: 3.0
Dissertation Proposal/Candidacy Exam
Grading: INP, COM, N, F.

THEA 699 Units: 30.0
Dissertation
Prerequisite(s): THEA 693.
Grading: INP, COM, N, F.

WRIT 500 Units: 1.5
Graduate Writing Workshop
A workshop in which students will focus on writing and workshopping in one genre: poetry, fiction, creative nonfiction, playwriting or screenwriting.
Note: May be taken more than once for credit in different topics to a maximum of 4.5 units.

WRIT 501 Units: 1.5
Special Topics in Advanced Studies in Writing
A class that focuses on literary models, specific elements of craft, and topics of interest to writers in more than one genre.

WRIT 509 Units: 1.5
Instructional Skill Preparation
A seminar which focuses on pedagogy and teacher training in creative writing.

WRIT 590 Units: 1.5
Directed Studies in Instructional Skills Preparation
A course which focuses on teacher training in creative writing.
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<th>Course</th>
<th>Units</th>
<th>Description</th>
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| WRIT 591 | 1.5   | Directed Studies in Writing  
A course tailored to the needs of a particular student in consultation with the supervisor and in the student’s area of studies. |
| WRIT 598 | 9.0   | Major Writing Portfolio  
The creation of an original creative writing portfolio in one of the following genres: poetry (30-50 pages), creative nonfiction (60-120 pages), fiction (60-120 pages), a stage play (60-100 pages), a film script (60-90 pages) or a production project with script/manuscript in one of the above genres.  
Grading: INP, COM, N, F. |