RYERSON UNIVERSITY

SCHOOL OF GRADUATE STUDIES CALENDAR
FALL 2007

ALL GRADUATE PROGRAMS

ACADEMIC DEFINITIONS

Prerequisite: Student must pass Course A before taking Course B.

Corequisite: Student must take Course A prior to or concurrently with Course B.

Course Credits: One course credit is equivalent to a one-term course taken for one term. It has a course weight of 1.00 for the purpose of GPA calculations. One module is equivalent to half of a one-term course and is normally taught in a 6 week session.

Course Antirequisite: Students may not enroll in a course which lists, as an Antirequisite, one which they are also taking or in which they have already obtained standing.

Course Numbering: if the second digit of the four digit course number is "1 to 9", then the course is a one-term credit; if it is a "0" , then the course is a multi-term credit. For example, CC8900 is a one credit course, CC8020 is a two credit course.

Antirequisite: Students may not enrol in a course which lists, as an Antirequisite, one which they are also taking or in which they have already obtained standing.

Pass/Fail Courses: Are not included in GPA calculations unless otherwise stated, but are included in promotion status.

The following course descriptions are a guide to courses offered through the program from time to time. Not all courses will be offered every year. Courses are offered subject to faculty availability and are subject to change without notice.

Courses followed by a second course number in brackets indicate that the course is offered through a joint program with another university. For example: *CC8900 (CMCT 6000 3.0) Commun. and Culture: Core Issues in Cultural Studies*, indicates that the bracketed number is used at York University in the joint Ryerson/York Communication and Culture Program.

AEROSPACE ENGINEERING

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS

Master's Thesis	
Five Elective credits	5

Master of Engineering

DEGREE REQUIREMENTS

Master's Project*	
Eight Elective credits	8

*students may apply to substitute 2 courses for the project.

Doctor of Philosophy

DEGREE REQUIREMENTS

Candidacy Examination	
Dissertation	
Four Elective credits	4

Electives		*Credits*
AE8102	Adv. Fluid Mechanics	1
AE8104	Advanced Heat Transmission I	1
AE8105	Advanced Heat Transmission II	1
AE8106	Adv. Mechanics of Solids	1
AE8108	Aircraft Turbine Engines	1
AE8112	Comp Fluid Dyn & Heat Trans	1
AE8115	Finite Element Methods in Engr	1
AE8116	Flight Dyn/Control of Aircraft	1
AE8119	Intro to Composite Materials	1
AE8121	High Speed Aerodynamics	1
AE8129	Rocket Propulsion	1
AE8133	Space Mechanics	1
AE8135	Directed Studies/Aerospace Eng	1
AE8137	Advanced Systems Control	1
AE8138	Computational Dynamics	1
AE8139	Multi-Discip. Design/Aero Syst	1
AE8140	Adv. Aero. Structural Design	1
AE8141	Adv. Aero. Manufacturing	1
AE8142	Aero. Thermal Engineering	1
AE8143	Avionics	1

COURSE LISTING

Master's Thesis

The student is required to conduct advanced research on a topic related to one (or more) of the following fields: aerodynamics and propulsion; aerospace structures and aerospace manufacturing; and, avionics and aerospace systems. The topic is chosen in consultation with the student's thesis supervisor, the student presents the research plan in writing, and the research is carried out under the direction of the supervisor and monitored by a guiding committee. The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the thesis to this committee, which will assess and grade the thesis. Through the thesis, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

Master's Project
The student is required to conduct an applied advanced research project involving one (or more)of the following fields: aerodynamics and propulsion; aerospace structures and aerospace manufacturing; and, avionics and aerospace systems. The student presents the project plan in writing, and the project is carried out under the guidance of the supervisor and monitored by a guiding committee. The student must submit the completed project in the form of a technical report to an examination committee and make an oral presentation of the report to this committee, which will assess and grade the report. This is a "Milestone." Pass/Fail

Candidacy Examination
The examination consists of two parts: (i) a written examination of three hours duration, the questions to be set by the student's Supervisory Committee; and (ii) an oral defense of (a) the written examination, and (b) dissertation proposal.This is a "Milestone." Pass/Fail

Dissertation
The student is required to conduct advanced research on a topic related to one (or more) of the following fields: aerodynamics and propulsion; aerospace structures and aerospace manufacturing; and, avionics and aerospace systems. The topic is chosen in consultation with the student's thesis supervisor. The student will prepare and present a detailed research proposal prior to starting the work. The research is carried out under the direction of the supervisor(s). The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the thesis. The thesis must present original research that makes a significant contribution to knowledge in the field of study. Through the thesis, the student is expected to furnish evidence of competence in research and a deep understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

AE8102 Advanced Fluid Mechanics
A general review of principles, concepts and methods in fluid dynamics will be conducted. Advanced treatment with mathematical techniques for solving specific classes of fluid-flow problems will be introduced, including: surveys of governing equations and basis theories; two and three-dimensional potential flows; surface waves; boundary-layer theory; and, shock-wave phenomenon. Antirequisite ME8102. 1 Credit

AE8104 Advanced Heat Transmission I
An advanced study of the transmission of heat by conduction and convection. Derivation and application of their equations governing steady and unsteady conduction heat transfer, transient conduction, and numerical solutions are examined with selected topics. Governing equations for forced and natural convection; dimensional analysis and imilarity transforms are applied. Antirequisite ME8104. 1 Credit

AE8105 Advanced Heat Transmission II
An advanced study of the transmission of heat by radiation. Topics covered include: physical properties of radiation, thermal radiation laws, characteristics of real and ideal systems, geometric shape factors, grey and non-grey system analysis, energy transfer in absorbing media and luminous gases, solar radiation. Antirequisite ME8105. 1 Credit

AE8106 Advanced Mechanics of Solids
The class provides an introduction to the general equations of the theory of elasticity of an anisotropic solid. Elastic equilibrium and boundary value problem formulations are considered. The theories of thermoelasticity, viscoelasticity and plasticity are introduced. The class also provides an introduction to modelling of inhomogeneous composite solids, the effective moduli theory, and the elasticity of composite laminates. The fundamentals of fracture mechanics and applications to mechanical design are considered. Antirequisite ME8106. 1 Credit

AE8108 Aircraft Turbine Engines
Fluid mechanics, thermodynamics, and solid mechanics of aircraft turbine engines. Twodimensional and three-dimensional flow theories of compressors and turbines. Unsteady flow and noise production in turbomachinery and in complete engines. Operational limitations and instabilities. Stress and associated temperature limits and influence of blade cooling techniques on turbines. Antirequisite ME8108. 1 Credit

AE8112 Computat. Fluid Dynamics & Heat Transfer
The finite difference discretization method is applied to the solution of the partial differential equations arising from the mathematical modelling of fluid flow, heat transfer and combustion processes. The equations can be parabolic, elliptic or hyperbolic. Items like convergence, stability, consistency, numerical diffusion and turbulence modelling will also be presented. Antirequisite ME8112. 1 Credit

AE8115 Finite Element Method in Engineering
This class presents formulation and implementation of the Finite Element Method (FEM) in engineering applications. The theory of variational and weighted residual methods is introduced. Different types of elements used in FEM for discretization of PDEs, such as linear, quadratic, isoparametric and hybrid elements are covered. The numerical methods selected for spatial integration, solution of linear algebraic equations, evaluation of eigenvalues are addressed. Antirequisite ME8115. 1Credit

AE8116 Flight Dynamics and Control of Aircraft
Various analyses and tools for designing a controllable aircraft. Six-degree-of-freedom flight simulation models. Classical and modem control system techniques. Adaptive control. Digital control. Pilot-in-the-loop considerations. Antirequisite ME8116. 1 Credit

AE8119 Introduction to Composite Materials
Intended as a first course in polymer-based fiber-reinforced composite materials. Quasi-isotropic random reinforcement, orthotropic, anisotropic and sandwich construction. Classical laminate theory: lamina/laminate stress, buckling and vibration analysis. Hydrothermal, radiation and service effects on performance. Impact, delamination and fatigue failure. Overview of basic manufacturing methods and usage in the aerospace industry. Antirequisite ME8119. 1 Credit

AE8121 High Speed Aerodynamics
Planar and conical shock waves. Expansion and shock wave interference, shock tubes. Method of characteristics. Supersonic nozzle design. Airfoil theory in high subsonic, supersonic and hypersonic flows. Conical flows. Yawed, delta and polygonal wings; rolling and pitching rotations. Wing-body systems. Elements of transonic flows. Antirequisite ME8121. 1 Credit

AE8129 Rocket Propulsion
Theory, analysis and design of rocket propulsion systems. Emphasis on liquid and solid
propellant systems with an introduction to advanced propulsion concepts. Review of nozzle and fluid flow relationships. Antirequisite ME8129. 1 Credit

AE8133 Space Mechanics
Motion in outer space poses complex engineering problems, the solution of which require a thorough knowledge and understanding of the pertinent principles of mechanics and techniques of analysis. The class provides an introduction to such topics as astromechanics, satellite orbits, rotating structures with varying configuration and mass, optimization of spacecraft motion, launch dynamics, microgravity, space robotics, large displacement low frequency vibrations, ground-based and in-orbit testing. Antirequisite ME8133. 1 Credit

AE8135 Directed Studies in Aerospace Eng.
This class is available to graduate students enrolled in a Master's Degree Program in Mechanical Engineering, who wish to gain knowledge in a specific area for which no graduate level classes are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the class. Registration approval is required from the Graduate Program Director. 1 Credit

AE8137 Advanced Systems Control
Overview of classical controls and introduction to modern control theory. Control system
modeling and analysis in state space. System controllability and observability. Pole placement control design. State observers. Introduction to nonlinear control systems. Fundamentals of Lyapunov theory. Lyapunov's direct method. System linearization. Adaptive control. Antirequisite ME8137. 1 credit.

AE8138 Computational Dynamics
The objective of this course is to study the basic modeling and computational methods for rigid and flexible multi-body systems. Computational dynamics provides a fundamental tool for analyzing and computing the motion and force for large complex mechanical systems, such as robots, mechanisms, machines, automobiles. Applications of computational dynamics include analysis, design and control. Analysis is to study system behaviours for given inputs through modelling and simulation. Design is to determine the prescribed functions through synthesis and optimization. Control is to control mechanical systems based on the dynamic model. Antirequisite ME8138. 1 Credit

AE8139 Multi-disciplinary Design Optimization of Aerospace Systems
Aerospace systems modeling for design and optimization. MDO concepts including selection of design variables, objective functions, and constraints. Decomposition in multi-disciplinary, coupling variables and sensitivity analysis. Soft computing in MDO. Overview of principles, methods (such as Multi-disciplinary feasible, Individual discipline feasible , Concurrent subspace optimization, Collaborative optimization, and Bi-Level Integrated Synthesis System) and tools (such as iSIGHT) in MDO for aerospace systems. 1 Credit

AE8140 Advanced Aerospace Structural Design
Structural design from a fatigue perspective involving fail-safe, safe-life and damage tolerance methodologies applied to aerospace structures manufactured from advanced materials. Major focus will be on integral aerospace structures manufactured by laser welding, laser consolidation, autoclave curing, resin-transfer molding, and adhesive bonding processes. Advanced computation techniques will be used for structural design and analysis. 1 Credit

AE8141 Advanced Aerospace Manufacturing
Aerospace manufacturing systems will be introduced at both system and machine level. The system level includes convention systems and emerging systems in terms of product quantity and variety. Conventional systems cover job shops (low quantity, high variety, such as aircraft assembly), manufacturing cells (medium quantity, medium variety, such as wing assembly), and transfer lines (high quantity, low variety, such as turbine blades manufacturing). Emerging systems cover reconfigurable systems that can be changed from a type of the conventional system to another. The machine level includes computer controlled machines and robots. The course project will focus on automation of manual processes using robotic technologies. 1 Credit

AE8142 Aerospace Thermal Engineering
Review of heat transfer fundamentals. Steady state and transient problem modeling and
computational solution techniques. Thermal management in avionics systems, jet engine

components, and aircraft and spacecraft structures. Thermal management of high-speed flight, energy management and vehicle synthesis. Nucleonics, and heat transfer of nuclear-heated rockets. Thermal management in micro-propulsion systems. Applications to electronic packages, solar arrays, cryogenic and optical systems. 1 Credit

AE8143 Avionics
Students will review the basics of digital systems architecture, real-time analysis and network theory. The role of sensors, processing, displays and actuators will be examines. Modern aircraft and spacecraft avionics systems will be studied, with particular emphasis on predicting performance and reliability. 1 Credit

ARCHITECTURE

CURRICULUM

Master of Architecture

First Offered Fall 2007

DEGREE REQUIREMENTS		**Credits**
Masters Thesis Project		
AR8101	Studio in Critical Practice	3
AR8102	Seminar in Critical Practice	1
AR8103	Studio in Collaborative Practice	3
AR8104	Seminar in Contemp and Future Practice	1
AR8105	Intensive Research Studio and Seminar	4
AR8106	Current Topics in Architectural Praxis	1
AR8107	Collaborative Competition I	1
AR8108	Collaborative Competition II	1
Two Elective Credits		2

Electives

AR8201	Advanced Construction Case Studies	1
AR8202	Architectural Theory Since 1968	1
AR8203	Architectural Writing	1
AR8204	Architecture in Public Policy	1
AR8205	The Arch. Of Urban Housing	1
AR8206	Canadian Arch. Since 1945	1
AR8207	Contemporary Theories of Urbanism	1
AR8208	Creating Space Simulation	1
AR8209	Digital Design, Non-Standard Practice	1
AR8210	Digital Tools	1
AR8211	Ecology	1
AR8212	Fire Safety in the Built Environment	1
AR8213	Glass in Architecture	1
AR8214	Heritage Conserv., Theory and Practice	1
AR8215	How Buildings Work	1
AR8216	Landscape and Ecological Design	1
AR8217	Landscape Design Theory and Application	1
AR8218	Performance Modeling	1
AR8219	The Small Building	1
AR8220	Sustainable Ratings Systems	1

COURSE LISTING

Masters Thesis Project Working closely with a faculty advisor, students will carry out independent research on an approved topic within the field of architecture, resulting in the development of a thesis report and subsequently a critical project. The student will be required to publicly present the thesis report, which forms the critical, historical, and theoretical basis for the thesis project. A comprehensive review of literature and relevant works will form a core component of this report. The thesis project must be grounded in architectural praxis, but is not limited to the design of a building. This course culminates in a public juried presentation of thesis projects. This is a “Milestone.” Pass/Fail

AR8101 Studio in Critical Practice
In this studio, students will be expected to develop a critical approach to architectural design and production. Students will be confronted with complex design problems which require a close examination of both the conditions that underlie the practice of architecture (including the students’ own assumptions and beliefs) and the contexts within which and on which architectural practice acts. The development of an architectural response to these conditions and contexts, using ethical and professional judgment as well as techniques of critical analysis, will be the key objective of the studio. 3 Credits

AR8102 Seminar in Critical Practice
This course presents students with exemplars of critical practice and with methods of architectural research. The role of the architect as observer, critic, and form-maker within society will be discussed; critical practices will be discussed within the framework of contemporary directions in cultural and critical theory. The development of new technologies, either directly through research or indirectly through developing a demand, will be presented as a key role of the critical practice. Students may be asked to prepare a paper or other document which takes a critical position on a topic taken from one of the program's key areas of engagement – sustainability, technological innovation and the GTA. 1 Credit

AR8103 Studio in Collaborative Practice
Architecture is never the product of a single individual. The myth of the star architect as a heroic and creative genius is out of step with the reality of architectural practice in our increasingly complex society. Working collaboratively in teams, and with input from specialized consultants and stakeholder groups, students will develop the design of a complex building. A design process of enquiry, analysis and integration of technical, cultural, social, and economic issues will be stressed. 3 Credits

AR8104 Seminar in Contemporary and Future Practice
This course is meant to offer students a theoretical basis for working in or operating an architectural practice in the twenty-first century. Topics will include the legal framework for architectural practice, the role of internship, basic financial management of a practice, management and leadership principles, and so on. All aspects are presented from a critical rather than a prescriptive viewpoint: students will be asked to examine current structures of practice and propose alternative versions. Alternative forms of practice, including the Integrated Design Process, will be discussed. 1 Credit

AR8105 Intensive Research Studio and Seminar
In this course, students will work under the close supervision of an instructor on design projects related to a current issue in the instructor's area of research. Building on the introduction to research in architecture from the previous year, this course gives students an in-depth view of one research project. This course may be offered at Ryerson or off-campus, depending on the subject of the research. As part of this studio, a seminar will be offered in which students are presented with the essential characteristics and methods of research in architecture, discussed in the context of the research project being undertaken. 4 Credits

AR8106 Current Topics in Architectural Praxis
This course, offered in seminar format, will allow students in the final semester of the program to enter into a discussion of topics of current interest in architecture. Topics will vary year to year, as proposed by faculty and elected by students.
1 Credit

AR8107 Collaborative Competition I
In collaboration with fellow students at the graduate and undergraduate level, students take part in architectural competitions or other design activities approved by the Program Director. Competition teams will normally be led by Ryerson Faculty members. Pass/Fail. 1 Credit

AR8108 Collaborative Competition II
In collaboration with fellow students at the graduate and undergraduate level, students take part in architectural competitions or other design activities approved by the Program Director. Competition teams will normally be led by Ryerson Faculty members. Pass/Fail. 1 Credit

AR8201 Advanced Construction Case Studies
Through lectures and a case study approach, this course investigates recently completed architectural projects, focusing on their tangible, material resolution as an expression of design intent. A major component of this course will involve students undertaking a detailed case study of one such architectural project. Antirequisite ARC730. 1 Credit

AR8202 Architectural Theory Since 1968
This course surveys major trajectories in architectural theory of the past forty years, which form one part of the context for current architectural practice. The first half of the course will focus on a number of these trajectories which can now be treated historically: semiotics, critical histories, phenomenology, deconstruction, critical regionalism, and identity politics. Building on this foundation, the second half of the course will consider current and emerging theoretical frameworks for architecture. Antirequisite ARC732. 1 Credit

AR8203 Architectural Writing
The objective of the course is to provide students with exposure to the various forms of writing related to architecture as a professional practice and critical/cultural discipline. The goal is to improve students' writing and verbal communication in the context of architectural practice and discourse. The process of critical assessment and documentation of architecture will help students focus and clarify the intentions underlying their own design work. Antirequisite ASC751. 1 Credit

AR8204 Architecture in Public Policy
This course investigates the application of architectural principles and processes to facets of public policy not traditionally addressed by the discipline of architecture. The intent is to identify how such principles and processes can shed new light on, and positively contribute to, the evolution of public policy. Some of the public policy issues to be considered include: infrastructure (transportation, waste handling, supply of water, energy and communication), social policy (relating to poverty, homelessness and health), education and governance. Antirequisite ASC750. 1 Credit

AR8205 The Architecture of Urban Housing

This course explores the impact that globalization has had upon the design and development of urban housing and its implications for critical practice in Canada. Seen through the lens of critical practice, students will be exposed to the myriad of themes, from cultural to political to economic, having an effect on the design of contemporary housing and associated living environments. This reading-intensive course comprises discussion sessions led by the instructor and/or invited guests on one or more of the subject's core themes, augmented by comparative analyses of seminal housing projects located in major cities in Western Europe, Asia, the United States, and Canada.
Antirequisite ARC731. 1 Credit

AR8206 Canadian Architecture Since 1945
The objective of the course is to provide students with exposure to the recent history of Canadian architecture, from the immediate post-war to the present. Material will cover the basic conditions leading to and facilitating the spread of modernism as an important mode or architectural production and expression in post-war Canada, and its contribution to a national architectural identity, particularly in the context of Canada's celebration of the 1967 centennial of Confederation. Antirequisite ARC733. 1 Credit

AR8207 Contemporary Theories of Urbanism
This seminar course considers interrelationships between contemporary theories of urbanism, the role of urbanism as an instrument of analysis and criticism, and associated implications for critical practice in Canada. Theoretical issues surrounding urban design and strategy are investigated through the lenses of architecture, urbanism, and the humanities. Through an engagement of the writings and projects of Le Corbusier, Rossi, Koolhaas, Venturi and others, and placing strong emphasis on interrelationships between key theoretical concepts and the generation of new urban forms, this reading-intensive course offers a comparative analysis of the changing nature of urban theory in the context of globalization. Antirequisite ASC753. 1 Credit

AR8208 Creating Space Simulation
Increasingly, computer modeling allows designers to simulate a range of performance factors of a building, including thermal performance, ventilation, lighting, acoustics, structure and others. This course will allow students to experience the use of such software and explore its potential as a tool for the design of spaces and for current architectural practice. Students will use simulation software to analyze spaces and develop design proposals based on the results of simulation. Antirequisite ASC754. 1 Credit

AR8209 Digital Design, Non-Standard Practice
Digital design using computer software has evolved through a number of modes of design practice. Recent software applications have introduced more fluid interfaces that allow for greater serendipitous design discovery that can emerge from sketching and experimenting with forms. Students in this course will explore the potential of a number of types of software to support the digital design process. Working with these digital tools will be placed within a general creative context. 1 Credit

AR8210 Digital Tools
Digital Tools: Ways of conceiving and communicating architectural ideas. An advanced level seminar taught by department faculty members, either singly or as a team. Topics offered in various semesters will be determined by faculty expertise available. Antirequisite ASC755. 1 Credit

AR8211 Ecology
This course explores the basic dynamics of ecology through the study of varied and typical environments. The relationships between the primary factors of geology, surface deposits, hydrology, flora and fauna, together with the impact of urbanization and human activity on the natural ecosystem, are studied. 1 Credit

AR8212 Fire Safety in the Built Environment
This course provides students with an introduction to fire safety engineering. The principal objective of fire safety engineering is to provide an acceptable level of safety when an accidental fire occurs. Computational simulation software packages will be used to demonstrate fire growth and smoke movement under different scenarios. This course is designed for architecture students who have developed some basic understanding of fire and knowledge about regulations associated with fire safety in buildings. Antirequisite ASC756. 1 Credit

AR8213 Glass in Architecture
This course will take us on an in-depth study of that most expressive of modern materials and glass. The material will be looked at in a holistic manner, that is, we will approach our study from technical, historical, theoretical, and expressive directions. We will attempt to make these four trajectories not as separate paths of study, but as different elements of a single journey. Antirequisite ASC857. 1 Credit

AR8214 Heritage Conservation Theory and Practice
A course on the theoretical and practice issues of heritage conservation, particularly with regard to the preservation of buildings and sites in Ontario of architectural significance. The course reviews methods of documenting heritage resources and methodologies and techniques available for physical interventions into heritage structures. Antirequisite ARC735. 1 Credit

AR8215 How Buildings Work
Knowledge of how our buildings work is crucial to creating better architecture. Without feedback loops informing architects of the performance of their designs, most buildings become prototypes and the knowledge that could be gained from each building is lost. This course will allow students the opportunity to study, examine and understand in detail the performance

of an existing building. This will help develop a perspective for the long term performance of buildings and develop an understanding of buildings as they develop after architects have completed their design. Students may be asked to select an existing building and collect detailed information on performance from uses, management, designers and client, and present a critical analysis to the group. Antirequisite ASC851. 1 Credit

AR8216 Landscape and Ecological Design
In this course students will explore the fundamentals of landscape design principles and applied ecological form. This course will focus on theories of both designed and natural composition of landscapes elements. The course objectives are achieved through lectures, field trips, case studies and in-class assignments. Antirequisite ASC852. 1 Credit

AR8217 Landscape Design, Theory, and Application
This course in landscape design, site and environmental planning engages students in the development and application of personal design philosophy towards the built and naturalistic environment. This is achieved through researching the professional work, styles and paradigms of internationally recognized architects, landscape architects, artists, planners and designers from the 19th-21st Century. Antirequisite ASC853. 1Credit

AR8218 Performance Modeling
This course investigates issues associated with computer modeling of building performance. While the course focuses on the modeling of energy consumption and daylighting, other modeling systems will also be discussed. Principles of performance modeling will be discussed, including means for evaluating results and verifying the accuracy of the model. Antirequisite ASC854. 1 Credit

AR8219 The Small Building
Throughout history, the small building has engaged the landscape and been part of the urban environment. This course will study the small building in many cultures and will provide a greater understanding of human scale, meaning, symbol, and function, and the relationship of these factors to architecture. It is also aimed at teaching useful skills for architects, including research, writing, analysis and presentation skills. Antirequisite ASC856. 1 Credit

AR8220 Sustainable Ratings Systems
The course focuses on the environmental impact assessment method used in Canada since the launch of Canadian LEED in December 2004. Designing with LEED deals with the use of the LEED green building rating system as a design tool for the creation of environmentally responsible buildings. Other environmental issues, assessed by other methods not necessarily included in LEED, are also discussed. Antirequisite ASC855. 1 Credit

BIOMEDICAL PHYSICS

CURRICULUM

Master of Science

DEGREE REQUIREMENTS

Master's Thesis

BP8201 Master's Seminar I

BP8202 Master's Seminar II

Five credits from elective list

ELECTIVES		*Credits*
BP8101	Stats for the Health Sciences	1
BP8102	Medical Diagnostics Techniques	1
BP8103	Fndamntls of Radiation Physics	1
BP8104	Radiation Therapy	1
BP8105	Comp Methods in Biomed Phys	1
BP8106	Optcl, Acstc and Thrmal Phys	1
BP8107	Rad Protection and Dosimetry	1
BP8108	Special Topics I	1
BP8109	Special Topics II	1

Note: with permission from Supervisor and Program Director, students may use one graduate course from a relevant program in place of one elective.

COURSE LISTING

Master's Thesis
This a laboratory-based research project. Students are required to conduct research, submit their completed research in a thesis format to an examination committee, and make an oral presentation and defence of the research thesis and results to this committee. Through the thesis, students are expected to demonstrate competence in oral and written communicaton, experimental design and scientific thought processes, as well as a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

BP8101 Stats for the Health Sciences
This course is designed as a first course in biostatistics with emphasis on relevance in biomedical physics applications. Topics include nonparametric statistics, linear regression, errors and structural analysis of linear relationships between variables, nonlinear estimation, survival analysis and multivariate analysis of data. A statistics computer package will be used. 1 Credit

BP8102 Medical Diagnostic Techniques
This course will cover a wide variety of contemporary topics in medical imaging including x-ray imaging (production, planar x-ray, fluoroscopy, dual x-ray absorptiometry), computed tomography (CT), functional CT, magnetic resonance imaging (temperature mapping, functional MRI), ultrasound, Doppler techniques, positron emission tomography, bone densitometry, trace element detection and nuclear medicine. Antirequisite: PCS405 1 Credit

BP8103 Fndmntls of Radiation Physics
This course is designed for students with an undergraduate background in radiation physics. Topics include the Bohr atomic model, Rutherford scattering, emission of photons, x-ray spectra, Bremsstrahlung and characteristic radiation, homogeneous and heterogeneous photon beams, thin and thick x-ray targets, absorption and scatter of photon beams, beam attenuation, Thomson scattering, Photoelectric effect, Rayleigh scattering, Compton effect, pair production, interaction of neutrons with matter, radiation quantities and units, radiation decay, exposure, kerma, dose, and dose equivalent. 1 Credit

BP8104 Radiation Therapy
This course is an introduction to radiation therapy physics, including topics such as radiation teletherapy units; interaction of radiation with tissue; dosimetry of a single beam of x-ray; beam calibration and patient dose calculation; combination of beams and treatment planning, brachytherapy; radiation detection. Antirequisite: PCS407 1 Credit

BP8105 Comp Modeling in Biomed Phys
The course will focus on the use of computational modeling techniques for hypothesis driven investiigation of problems in biomedical physics. The student will apply and integrate fundamental knowledge of mathematics, physics and life sciences to design and implement appropriate models and to analyse and interpret simulation results. Emphasis will be

placed on simulation methods such as Monte Carlo methods, and finite element and finite difference techniques. Corequisite:BP8106. 1 Credit

BP8106 Optcl, Acstc and Thrml Phys
The course will begin with basic optical, acoustic and thermal propagation in biomaterials. This will be followed by the presentation of the principles of photodynamic therapy, optical sensing, ultrasound biomicroscopy, optoacoustics imaging, thermal therapy and thermography. 1 Credit

BP8107 Rad Protection and Dosimetry
The first half of the course reviews microdosimetry; the second half focuses on biological effects of radiation and radiation safety, basic radiation physics, radioactive decay, radiation producing devices, characteristics of the different types of radiation and their interactions with materials. Students will learn essentials of determining absorbed doses from ionizing radiation sources used in clinical situations and for health physics purposes. A survey of sources, applications, risks, and control of environmental radiation will be presented. 1 Credit

BP8108 Special Topics I
This course examines selected topics in areas related to the program that are not covered by existing courses. The topic(s) will vary depending on the needs and interests of the students and the instructor. The course description will be announced prior to scheduling the course. 1 Credit

BP8109 Special Topics II
This course examines selected topics in areas related to the program that are not covered by existing courses. The topic(s) will vary depending on the needs and interests of the students and the instructor. The course description will be announced prior to scheduling the course. 1 Credit

BP8201 Master's Seminar I
This course consists of weekly seminars with emphasis on current research in the specialization fields and emerging areas of medical physics. This is a two term course (Fall and Winter) in the first year of the program, and is generally one hour per week. Presentations will be given by graduate students, faculty members, visiting scholars and guest speakers. Pass/Fail.

BP8202 Master's Seminar II
This course consists of weekly seminars with emphasis on current research in the specialization fields and emerging areas of medical physics. This is a two term course (Fall and Winter) in the second year of the program, and is generally one hour per week. Presentations will be given by graduate students, faculty members, visiting scholars and guest speakers. Pass/Fail.

CHEMICAL ENGINEERING

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS*

Master's Thesis

Master's Seminar

One Group A Core Elective

Three* credits from Elective Lists B,C,D

Master of Engineering

DEGREE REQUIREMENTS

Master's Project**

Two Group A Core Electives

Six credits from Elective Lists B,C,D

** Students may apply to substitute two courses from Groups B, C or D for the Project

Doctor of Philosophy

DEGREE REQUIREMENTS

Dissertation

Doctoral Seminar

Four Elective credits from Group A, B, or D

Group A - Core Electives		*Credits*
CE8139	Prob, Stat & Stochastic Proc	1
CE8213	Advanced Numerical Methods	1
CE8301	Advanced Transport Phenomena	1
Group B		
CE8201	Model & Simulation - Chem Engr	1
CE8202	Advanced Process Control	1
CE8203	Applied Optimal Control	1
CE8303	Advanced Fluid Dynamics	1
CE8304	Rheology	1
CE8401	Ind Catalysis & Biocatalysis	1
CE8402	Applied Thermodynamics	1
CE8501	Polymer Science	1
CE8502	Polymerization Reaction Engr	1
CE8602	Industrial Biotechnology	1
CE8603	Advances in Biomaterials	1
CE8702	Dsgn & Op Sm Wtr Treat Plants	1
CE8703	Adv Water Treatment Tech	1
CE8802	Wastes from Food Processing	1
CE8803	Advanced Food Process Engineering	1
Group C - One of the following may be taken at the Master's level only:		
CE8210	Process & Engr Optimization	1
CE8310	Fluidization Engineering	1
CE8331	Membrane Technology	1
CE8510	Plastic Technology	1
CE8710	Air Pollution and Control	1
Group D - One of the following may be taken:		
CE8100	Directed St: Chem Eng (MASc)	1

CE9100	Directed St: Chem Eng (PhD)	1
ES8901	Chemical & Biological Pathways	1
ES8905	Air Pollution Science & Engr	1
ES8907	Wastewater Engineering	1
ES8909	Environmental Biotechnology	1
ES8910	Energy and The Environment	1

**If no group C credit is elected, then Master's students may take two Group D credits

COURSE LISTING

Master's Thesis
The student is required to conduct advanced research on a topic related to chemical engineering mainly in the water-wastewater/food treatment and polymer/chemical processing areas. The research topic is selected in consultation with the student's supervisor(s), where the student presents an outline of the research plan in writing, and the research is carried out under the direction of a faculty supervisor(s) and monitored by a thesis supervisory committee. On completion, the student is required to give an oral presentation on the research results in the Graduate Research Seminar Series. The research results are then submitted in a thesis format to the supervisor(s) and to an examining committee, before which an oral presentation is made for the assessment and grading of the thesis. Through the thesis, the student is expected to provide evidence of competence in carrying out research and a sound understanding of the material associated with the research. This is a "Milestone." Pass/Fail

Master's Project
The student is required to conduct an applied advanced research project on a topic related to chemical engineering. The project topic is selected in consultation with the student's advisor, where the student presents an outline of the project plan in writing, and then is carried out under the direction of a faculty advisor and monitored by an advisory committee. On completion of the project, the results are submitted in a technical report format to the advisor and then to an examining committee, which an oral presentation is made for assessment and grading of the project and the report. The student is expected to provide evidence of competence in the carrying out of a technical project and present a sound understanding of the material associated with the research project. This is a "Milestone." Pass/Fail

Master's Seminar
This course consists of presentations by graduate students, faculty members, visiting scholars, and guest speakers. In order to pass this course, the MASc student is required to attend all seminars while in the program and give one presentation towards the end of his/her thesis. This is a "Milestone." Pass/Fail

Doctoral Dissertation
The PhD student is required to conduct advanced research on a topic related to chemical engineering, mainly in the water-wastewater/food treatment and polymer/chemical processing areas. The research topic is selected in consultation with the student's supervisor(s). The student presents a proposal of the research plan in writing to a supervisory committee, and orally in the Graduate Research Seminar Series prior to taking a candidacy exam. The research is carried out under the direction of a faculty supervisor(s) and monitored by a supervisory committee. On completion, the student is required to give an oral presentation on the research results in the Graduate Research Seminar Series. The research results are then submitted in a dissertation format to the supervisor(s) and to an examining committee, before which an oral presentation is made for the assessment and grading of the dissertation. Through the dissertation, the student is expected to provide evidence of competence in carrying out original and independent research and a sound understanding of the material associated with the research. Pass/Fail

Doctoral Seminar
This course consists of presentations by graduate students, faculty members, visiting scholars, and guest speakers. In order to pass this course, the PhD student is required to attend all seminars while in the program, and give one presentation before his/her candidacy exam and one presentation towards the end of the dissertation. This is a "Milestone." Pass/Fail

CE8100 Directed Studies in Chemical Engineering (MASc)
This course is for master's students who wish to gain knowledge in a specific area for which no graduate level classes are offered. This course would involve a directed study for which the student(s) would be given credit. Students wishing to take the class would be assigned a suitable class advisor most familiar with the specific area of interest. Students would be required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study), in an organized publication format. 1 Credit

CE8139 Probability, Stats. & Stochastic Processes
This course is an introduction to stochastic processes and probabilistic models. Statistical interference techniques are also discussed. Topics covered include: probability and random variables, Bernoulli, Binomial, Markov, Poisson, Wiener and Gaussian models, stationarity and cyclostationarity, spectra of various signals, linear mean-square estimation, representation of random signals and Karhunen-Loeve expansion, Markov chains and processes, parameter estimation, mean variance, confidence intervals, Bayesian models, hypothesis testing. Antirequisite EN8910, ME8139. 1 Credit

CE8201 Modelling & Simulation in Chemical Eng.
Principles of process modeling; modeling of steady state, and unsteady state processes leading to problem formulation; numerical solutions of linear and non-linear algebraic equations, ordinary differential equations, and partial differential equations; analytical solutions of ordinary and partial differential equations; advanced techniques of computer programming; introduction to object-oriented paradigm; computer simulation of chemical engineering processes; examples from thermodynamics, fluid mechanics, heat transfer, mass transfer, and chemical reaction engineering. 1 Credit

CE8202 Advanced Process Control
System identification. Review of linear control systems and state space. Design methods of multivariable control systems. Model Predictive Control: Internal Model Control (IMC) and Dynamic Matrix Control. Applications to chemical processes. 1 Credit

CE8203 Applied Optimal Control
Extreme values of functionals; theory of first variation; sufficient conditions for a strong relative extremum; Hamilton-Jacobi theory and Pontryagin's minimum principle; variational problems with constraints; Lagrange problem; Mayer problem; isoperimeter problem; fundamental theorem on undetermined systems; theory of second variation; formulation of optimal control problems; determination of optimal controls and trajectories with using numerical methods and computational techniques. 1 Credit

CE8210 Process & Engineering Optimization
The use of optimization methods is pervasive throughout the process industries. Thus, these techniques are an important part of a chemical engineer's tool set. This course will provide a blend of important theoretical concepts and practical implementation issues. The development of a student's ability to formulate optimization problems, select solution techniques and interpret results will be emphasized. Finally, through a series of industrially relevant problem sets, the students will gain exposure to popular optimization software. Extra project/assignments are required, weighing no less than 20-30% of the final grade. Antirequisite CHE425. 1 Credit

CE8213 Advanced Numerical Methods
Review of numerical analysis. Includes: solution of systems of linear and nonlinear algebraic equations, interpolation, least squares fitting, integral and derivative evaluations, and solution of ordinary and partial differential equations. Introduction to the numerical solution of systems of linear and nonlinear partial differential equations using finite difference and finite element methods. Includes: error analysis, non-uniqueness and stability in nonlinear systems, continuation, isoparametric mapping, time integration techniques, time step controller, and mesh refinement strategies. Includes practical applications to science and engineering. Programming is required throughout the course. Antirequisite EN891. 1 Credit

CE8301 Advanced Transport Phenomena
Differential and integral balances applied to isothermal and non-isothermal systems, interphase transport in non-isothermal, single component and multi-component systems. Heat and mass transfer in packed and fluidized beds. 1 Credit

CE8303 Advanced Fluid Dynamics
Vectors and tensors; introduction to fluid dynamics; kinematics; microscopic mass and momentum balances; exact solutions of the Navier-Stokes equations; dimensional analysis and similitude; flows with negligible acceleration; high Reynolds number flows; regions far from boundaries (the Boundary Layer Theory); hydrodynamic stability; turbulence; macroscopic balances for isothermal systems; non-Newtonian fluid behaviour. 1 Credit

CE8304 Rheology
Rheology is the study of the deformation and flow of matter. This field is dominated by inquiry into the flow behavior of complex fluids such as polymers, foods, biological systems, slurries, suspensions, emulsions, pastes, and other compounds. The students will be introduced to the principles, measurements, and applications of rheology. 1 Credit

CE8310 Fluidization Engineering
Introduction to the Unit Operation. The phenomenon and its industrial relevance. Determining variables. Intervals and their effect. Two-phase and three-phase fluid beds. Entrainment, Elutriation and TDH. Introduction to pneumatic transport. Gas-solid separators. Chemical reactors. Combustion in fluid beds. Circulating and pressurized fluid beds. Transport phenomena: Heat and mass transfer. Design of fluid bed processes and their components. Current fluid bed technology. Experimental innovations. Extra project/assignments are required, weighing no less than 20-30% of the final grade. Antirequisite CHE427 1 Credit

CE8331 Membrane Technology
A study of material transport in membranes and of the modes of operation. Modeling of mass transfer in membrane processes will also be discussed. Emphasis will be on the design and applications of various membrane processes in industry, such as: membrane filtration, reverse osmosis, gas permeation and pervaporation. Extra project/assignments are required, weighing no less than 20-30% of the final grade. Antirequisite CHE715. 1 Credit

CE8401 Kinetics of Ind. Catalysis & Biocatalysis
Homogeneous catalysis reactions such as acid-base catalyses, ion catalyses, enzyme catalyses, chain reactions and polymerization will be considered. Enzymatic and microbial heterogeneous catalyses will also be described. Studies of some important industrial reactions will be made. 1 Credit

CE8402 Applied Thermodynamics.
Definitions and basic principles; conservation of mass and energy; concept of entropy; equations of change with applications; thermodynamic properties and their determination based on the change of state of system; equilibrium and stability criteria, and their applications to single and multi-component systems; Gibbs free energy and the concept of fugacity; phase equilibrium and its calculation using various thermodynamic models, and computational algorithms; chemical equilibrium in single-phase systems; chemical equilibrium of reacting mixtures; combined phase and chemical equilibrium. 1 Credit

CE8501 Polymer Science
Definitions and basic principles; polymerization mechanisms; kinetics of polymerization reactions; thermodynamics of polymer-solvent phase equilibria; diffusion and mass transfer in polymer systems; heat transfer and non-isothermal effects in polymer systems; polymer processing; mathematical modeling of mixing, extrusion, postdie processing, molding and forming. 1 Credit

CE8502 Polymerization Reaction Engineering
Introduction to polymerization. Chain growth polymerization. Kinetic model of radical polymerization, gel effect, molecular weight distribution. Stereoregulation of polymerization by Ziegler-Natta catalysis. Kinetic models. Principles of polymer reactor modeling: Batch, semi-batch and continuous reactors. Population balance equation for molecular weight. Introduction to control of polymerization reactors. 1 Credit

CE8510 Plastic Technology
Materials: classification and general properties of plastics, thermosets, thermoplastics, commodity plastics, engineering plastics, fillers and reinforcements. Polymer manufacturing processes. Converting operations: injection moulding, compression moulding, extrusion, blow moulding, wire and cable coating, thermoforming. Extra project/assignments are required, weighing no less than 20-30% of the final grade. Antirequisite CHE451. 1 Credit

CE8602 Industrial Biotechnology
A lecture and assignment course on the chemical, physical and biological aspect of industrial processes; the newly-emerging DNA-based methods for the identification and classification of bacteria of environmental, medical, food and agricultural importance. Introduction to regulatory guidelines, licensing and safety issues for the biotechnology industry. Assignments include problem-solving, proposal and report writing, and oral presentations. 1 Credit

CE8603 Advances in Biomaterials
This course introduces principles of materials engineering, important aspects of biocompatibility and response of the tissues to biomaterials, fundamentals of biomaterials engineering including design of new biomaterials for biomedical applications such as dental, orthopedics, and artificial implants. 1 Credit

CE8702 Design Operat.of Sm.Water Treat. Plants
Small water treatment plants (less than 20,000 PE) for industrial and domestic effluents play a central role in the overall water treatment policies of both developed and developing countries. The characteristics of these plants differ from those of large urban plants. Biofilm technologies like Rotating Biological Contractors, and Three-phase Fluidized Beds as well as Extended Aeration will be discussed from the point of view of design and operation. Other separation and disinfection technologies will be presented in conjunction with the treatment units. 1 Credit

CE8703 Adv. Water Treatment Technologies
Covers the sources of water and wastewater, and analytical characterization of water and wastewater. It also covers advanced oxidation technologies such as UV, UV/hydrogen peroxide, photocatalysis, and other advanced oxidation processes. Biological treatment of water and wastewater will also be discussed . 1 Credit

CE8710 Air Pollution and Control
A study of air pollution and general control methods. Air pollution measurements and emission estimates will be discussed. Fixed-box and diffusion models for air pollutant concentration will be introduced. Emphasis will be given on design of typical air pollution control equipment for volatile organic compounds (VOC), sulphur dioxide, nitrogen oxides. Introduction to control of particulate pollutants will also be included. Extra project/assignments are required, weighing no less than 20-30% of the final grade. Antirequisite CHE615. 1 Credit

CE8802 Wastes from Food Processing
Sources, composition and properties of wastes in the food processing industry. Interaction between chemical components and microorganisms present in food wastes. Biotransformations. Introduction to regulatory guidelines. Systematic procedures for the design of waste process plants, process requirements, utility needs, and associated capital and operating costs. 1 Credit

CE8803 Advanced Food Processing Engineering
Modeling of food properties . Momentum, heat and mass transfer applied to the control of moisture, microbial population, and nutritive/organoleptic properties of foods during processing operations. Optimization and scale up design. Quality systems design. 1 Credit

CE9100 Directed St in Chemical Engineering (PhD)
This course is for PhD students who wish to gain knowledge in a specific area for which no graduate level class is offered. It would involve a directed study for which for which the student would be given credit. Students wishing to take the class

would be assigned an advisor most familiar with the specific area of interest. Students would be required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study), in an organized publication format. 1 Credit

CIVIL ENGINEERING

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS

Master's Thesis

Five Elective credits (One may be a Directed Studies course)

Master of Engineering

DEGREE REQUIREMENTS

Master's Project*

Eight Elective credits (One may be a Directed Studies couse)

*students may apply to substitute 2 courses for the project.

Doctor of Philosophy

DEGREE REQUIREMENTS

Candidacy Examination

Dissertation

Four Elective credits (One may be a Directed Studies course)

ELECTIVES		*Credits*
CV8100	Directed Studies: Engr	1
CV8101	Civil Engr Research Seminar	1
CV8102	Construction Project Mgmt	1
CV8103	Research Methodology	1
CV8104	Planning & Control of Construc	1
CV8105	Construction Admin & Mgmt	1
CV8106	Advances in Concrete Materials	1
CV8200	Proc for Wtr Pollution Control	1
CV8201	Surface Wtr Quality Modelling	1
CV8202	Surface Wtr Pollution Analyses	1
CV8203	Contamnt Transp - Porous Media	1
CV8204	Soil Remediation	1
CV8205	Spec Topics: Env Engineering	1
CV8206	Water Resource System Analysis	1
CV8300	Solid Mechanics	1
CV8301	Appl of Finite Element	1
CV8302	Dynamics of Structures	1
CV8303	Renov/Repair - Existing Struct	1
CV8304	High Perf Concrete Structures	1
CV8306	Durability of Structures	1
CV8307	Adv Struct R/P Concrete Design	1
CV8308	Bridge Design and Construction	1
CV8309	Spec Topics: Structural Engr	1
CV8400	Road Safety	1
CV8401	Traffic Operations & Mgmt	1
CV8402	Public Transportation	1
CV8403	Transportation Planning	1
CV8404	Human Factors & Road Transp	1
CV8405	Pavement Design and Mgmt	1
CV8406	Adv Highway Geometric Design	1

CV8407	Special Topics: Transportation	1
CV8408	Intelligent Transportation Sys	1
CV8500	Advanced Satellite Positioning	1
CV8501	Adv Top in Spatial Info Sys	1
CV8502	Digital Stereo Image Proc	1
CV8503	Geospatial Modelling & Visualiz	1
CV8504	Adv Estim & Data Series Anal	1
CV8505	Design/Impl of Spat Info Sys	1
CV8506	Industrial Metrology	1
CV8507	Satellite Remote Sens: Urban	1
CV8600	Non-dstrct Tst & Instr - Struct	1

COURSE LISTING

Master's Thesis
The student is required to conduct advanced research on a topic chosen in consultation with the student's thesis supervisor. The supervisory committee and the thesis supervisor must approve the thesis research plan/proposal, which is presented in writing by the student. The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the research thesis, and the research results, to this committee. The examination committee will assess and grade the thesis. Through the thesis, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

Master's Project
The Project may consist of an advanced design assignment, laboratory research project, analysis of research data, or an in-depth review of an approved aspect of the scientific literature. The student submits a written proposal of the project plan, which must be approved by the project supervisor, and the supervisory committee. The MEng candidate must submit two copies of the completed project report to the supervisor. An oral presentation of the project report, and results, will be arranged in a seminar format. The supervisor and another member of the supervisory committee will assess and grade the report. This is a "Milestone." Pass/Fail

PhD Candidacy Examination
Pass/Fail

PhD Dissertation
Pre-requisite: Candidacy Examination. Pass/Fail

CV8100 Directed Studies in Engineering
Various possibilities exist for pursuing directed studies on topics approved by the course supervisor and thesis supervisor, including the other specialization course topics where they are not offered on a formal basis. 1 Credit

CV8101 Civil Engineering Research Seminar
This is a course that consists of a weekly seminar series with emphasis on current research in environmental, structural and transportation engineering. Presentations in different areas will be given by faculty and invited lecturers from industry and government agencies. Each student will prepare a major paper on a feasible research topic, complete with a comprehensive literature review, and make an oral presentation of the paper. 1 Credit

CV8102 Construction Project Management
The objective of this course is to provide participants with a detailed framework for understanding how engineering and construction projects are successfully planned, organized and controlled, and to equip them with some of the tools and techniques for developing and improving their managerial skills. Participants will learn how the various parties in the construction process organize projects, and in particular how to maximize the possibilities of realizing projects of the correct quality on time and within budget. The depth and practicality of the course will benefit participants who ideally will have at least a couple of years of industrial experience. 1 Credit

CV8103 Research Methodology
The is intended to familiarize newly enrolled graduate students with the research skills necessary for completing a major research work at the Masters or PhD level. It is taught by a series of formal lectures, small group discussions and required assignments. It is assumed that students have an adequate knowledge or expertise in their chosen field of research and are either currently involved in, or will soon be undertaking, a major experimental or survey research project. By way of introduction, students will be made to understand what graduate-level research is all about and what is expected of their thesis work. This course includes instructions on how to identify and locate electronic resources, full text of journal articles, the contents of reference and research publications, and other databases. Students will learn the skills for critical reading and for constructing valid arguments. They will also learn some common statistical tools and techniques required for the analysis of qualitative and quantitative data. This will include the design of questionnaires and field interviews, vehicles for

gathering the data and for disseminating the findings. The course ends with helpful suggestions on how to write, present and to defend a thesis. 1 Credit

CV8104 Planning & Control of Construction Proj.
This course emphasizes the techniques of planning and control within the unique project environment of the construction industry. It has a notable practical component and its contents go beyond the fundamental concepts of project planning and control. The course begins with resource planning and estimating, from a conceptual stage to the operation stage. Following a review of some of the more popular techniques of project planning and control, students have 4 "hands-on" sessions on the use of one major project management software. In addition to key topics in techniques of planning and control, this course also examines several associated and interrelated economic and financial issues in the planning and control of construction projects. These include life cycle costing, cost and time optimization, cash flow forecasting, and the economic evaluation and financing of construction projects. 1 Credit

CV8105 Construction Administration and Management
This course offers topics that focus on skills and techniques useful in administering and managing within a project environment of the construction industry. Participants should, preferably, have some previous responsibilities in one or more phases of the development of major constructed facilities, either in the planning, design, or construction of the facilities. Topics offered include international and Canadian construction, organisational design for projects and companies, management control structures and processes, meetings and negotiations, managing change in organisations, power struggles and politics in organisations, conflicts and their resolutions, claims and disputes in the industry, and the all important issue of construction safety. 1 Credit

CV8106 Advances in Concrete Materials
Chemistry and manufacturing of Portland cement; Supplementary cementing materials; Chemical admixtures for concrete; Properties of hardened concrete; Chemistry and mechanics of concrete deterioration and effects of SCM; Concrete of special properties; Advance experimental techniques in concrete. 1 Credit

CV8200 Processes for Water Pollution Control
This course expands on the principles and designs involved in the handling and treatment of different water pollution control systems: municipal, stormwater, and combined sewer overflows. Topics cover physical, chemical, and biological treatment processes, as well as the more advanced and innovative treatment including carbon columns for dissolved organics removal, biochemical phosphorus removal, biological nitrification-denitrification, ammonia stripping, alternative disinfection methods, and detoxification of sludge. A theoretical approach, supplemented by practical design applications and problem solving, will be adopted. 1 Credit

CV8201 Surface Water Quality Modelling
This course provides the fundamental concepts for modeling the physio-chemical and biological processes that pollutants undergo when discharged into different types of water bodies. Major topics include mass-balance and hydrodynamic equations in rivers, estuaries, harbours and lakes; finite-difference and finite element solution approaches; steady-state and time-variable pollutant discharges, principal water quality problems; dissolved oxygen eutrophication, toxic substances, indicator bacteria and viruses. Bioaccumulation of chemicals in aquatic animals and fishes through the food-chain and water vectors. 1 Credit

CV8202 Surface Water Pollution Analyses
A quantitative analysis of surface water pollution pathways is crucial to the development of water pollution prevention and control plans. This course will discuss the point and non-point sources in urbanized areas with emphasis on modeling approaches and analysis techniques. Topics include: surface hydrology, municipal water use cycle, urban drainage systems, point and non-point pollution control strategies for sanitary, storm, and combined sewer systems. 1 Credit

CV8203 Contaminant Transport in Porous Media
Prediction of contaminant transport in porous media is important for soil remediation and site selection for waste disposal. This course will discuss the processes governing contaminant transport and behaviour including advection, dispersion, diffusion, and adsorption. Topics include: natural groundwater quality, the geochemical origin of major ions in natural groundwater, causes of hardness, groundwater age determination using isotopes, common causes of groundwater contamination, and the transport and biochemical transformation of contaminants in the unsaturated saturated groundwater zones. 1 Credit

CV8204 Soil Remediation
This course overviews the design and operation of processes for soil remediation. Contaminants of interest include halogenated and non-halogenated volatiles, halogenated and non-halogenated semi-volatiles, flue hydrocarbons, pesticides and inorganics. Seven groups of technologies will be examined: (1) excavation and off-site disposal, (2) soil venting, (3) bioremediation, (4) thermal technologies, (5) chemical technologies, (6) mechanical flushing and washing, and (7) natural attenuation. Antirequisite ES8908. 1 Credit

CV8205 Special Topics in Environmental Eng.
The subject matter changes from year to year. The course description will be announced prior to the scheduling of the course. 1 Credit

CV8206 Water Resources System Analysis
This course deals with the planning, design and management of multi-component water resources systems. After a review of the use and nature of water resources systems, topics studied in detail are: water resource economics,

methodology of design, system analysis, system design and decision making, applied mathematical programming, probabilistic models and water quality sub-systems. 1 Credit

CV8300 Solid Mechanics
Stress: notation; 2D and 3D transformation; differential equations of equilibrium; principal stresses; invariates. Strain: strain displacement equations; 2D transformation; relative displacement and notations. Isotropic stress strain formulations for plane stress, plain strain and 3D. Polar coordinates: governing equations and solutions. Tensor fundamentals; index notation; vector transformation of components; Kronecker; permutation symbols; tensor algebra; Gauss theorem. Equations of elasticity in tensor notation. Energy theorems. 1 Credit

CV8301 Appl.of Finite Element Meth.in Struct.Eng.
Application of stiffness method for trusses and frames. Direct formulation of CST and thermal-seepage. Finite element formulation by virtual work. Elements: triangular, Lagrangian and serendipity rectangles; numerical integration; curvilinear elements; three-dimensional elements; plates, shells and axisymmetric elements. Convergence: Rayleigh-Ritz method; patch test; reduced integration. Solution of special problems: 2D and 3D problems; secondary effects; non-linear problems; soil-structure interaction. 1 Credit

CV8302 Dynamics of Structures
Free-vibration. Damping in structures. Response to harmonic and periodic excitations. Response to arbitrary, step and pulse excitations. Numerical evaluation of dynamic response. Earthquake response of linear systems. Earthquake response to inelastic systems. Structural dynamics in International Building Codes. 1 Credit

CV8303 Renovation/Repair of Existing Structures
Maintenance, renovation, rehabilitation and preservation of infrastructure. Mechanisms of mechanical, chemical and biological infrastructure degradation. Corrosion of steel condition surveys and evaluation of buildings and bridges repair and preservation of materials, techniques and strategies. Codes and guidelines. Case Studies. 1 Credit

CV8304 High Performance Concrete Structures
This course deals with the use of high performance concrete (HPC) in structures. Topics include: HPC principles, relevant properties of HPC, materials and mechanical properties, producing and curing HPC, shrinkage problems, temperature effects, design issues, case studies. 1 Credit

CV8306 Durability of Structures
Basic concepts, durability, safety, repair and strengthening. Deterioration mechanisms, corrective and preventive measures. Reliability analysis. Design for durability. Bridges. Parking structures. Steel, timber and masonry structures. Management systems. Strengthening and retrofitting. Case studies. 1 Credit

CV8307 Adv. Structural R/P Concrete Design
Reinforced Concrete: Mechanics of reinforced concrete; truss model and compression field theory for beams failing in shear; design of slender columns; shear friction and horizontal shear transfer; design of deep beams and corbels. Prestressed Concrete: Design of beams for flexure, shear and torsion; losses in prestress; design of continuous beams and frames; design for camber, deflection and crack control. Antirequisite: CVL 904. 1 Credit

CV8308 Bridge Design and Construction
Types of bridges; material properties and design of timber, steel and concrete elements; bridge loads; load distribution in bridge superstructures; simplified methods of analysis, with reference to the Canadian Highway Bridge Design Code; design of slab bridges; design of slab-beam bridges; design of box-girder bridges; joints, bearings, bridge piers and abutments. Antirequisite: CVL905. 1 Credit

CV8309 Special Topics in Structural Engineering
The subject matter changes from year to year. The course description will be announced prior to the scheduling of the course. 1 Credit

CV8400 Road Safety
This course provides an understanding of the safety management process and the variety of tools used. Topics include: probability models of accident occurrence; estimation of safety in developing and evaluating countermeasures; methods for identifying hazardous elements; safety of road facilities: intersections, roadways, roadsides, railroad crossings and traffic control elements; driver, pedestrian and bicycle safety; applications of human factors principles; safety audits; vehicle safety; biomechanics of injuries; multidisciplinary accident investigation. 1 Credit

CV8401 Traffic Operations and Management
The course introduces topics related to the management of congestion on urban road networks. These include: capacity analysis; deterministic and stochastic models of traffic behaviour; traffic assignment models; incident detection and management; ramp metering; signal timing for networks and arterials; Applications of Intelligent Transportation Systems; demand management. Antirequisite: CVL902. 1 Credit

CV8402 Public Transportation
This course deals with the planning and operational analysis of public transit systems. Topics include: classification of public transport systems, system and service planning, capacity and quality of service of transit systems, economics and finance of public transport, ridership forecasting, and advanced public transportation systems. 1 Credit

CV8403 Transportation Planning
This course deals with the process and techniques of transportation planning, with emphasis on urban and regional applications. Topics include: historical development of transportation planning in North America; transportation planning framework; surveys and data collection; transportation-land use interaction; analysis and models of transportation demand; analysis and models of transportation performance; development and evaluation of transportation planning options. 1 Credit

CV8404 Human Factors & Road Transportation
This course will deal with human physical, perceptual and cognitive limitations as they impact traffic safety. The following introductory human factors topics will be covered: road user visual limitations (field of view, foveal and central vision, colour, contrast sensitivity, acuity) and information processing limitations (attention, channel capacity, memory, visual search strategies). Road user limitations will be considered in relation to the design of traffic control devices and highway geometry. The impact of driver impairments such as fatigue, inexperience, age, medical conditions and alcohol and drug use will be discussed. Common causes of collisions will be discussed, illustrated by real-life case studies. 1 Credit

CV8405 Pavement Design and Management
Pavement performance and distress. Theory and stress analysis of flexible and rigid pavements. Properties and characterization of paving materials. Design of flexible and rigid pavement for highways and runways. Overlay design. Reliability analysis. Flexible and rigid pavement construction. Pavement management systems. Review of design projects. Antirequisite: CVL 900. 1 Credit

CV8406 Advanced Highway Geometric Design
This course deals with the theory and practice of highway geometric design, including design controls, horizontal and vertical alignments, intersections, interchanges, and cross sections. Driver ability, vehicle performance, and safety are considered. Advanced topics such as three-dimensional sight distance, intersection control, safety audits, value engineering, design flexibility, design consistency, and reliability analysis are discussed. Unconventional topics such as intelligent transportation systems and roundabouts are also discussed. 1 Credit

CV8407 Special Topics in Transportation
The subject matter changes from year to year. The course description will be announced prior to the scheduling of the course. 1 Credit

CV8408 Intelligent Transportation Systems
This course presents an overview of intelligent transportation systems (ITS) that includes a wide range of information technology applications to surface transportation. The ITS categories include traffic management systems, traveler information systems, fleet control systems, commercial vehicle regulation systems, transit systems, rural systems, and vehicle control systems. The use of advanced surveillance, navigation, communication, and computer technology to monitor, analyze, and improve the performance and safety of surface transportation is demonstrated. Human factors and institutional issues are addressed. 1 Credit.

CV8500 Advanced Satellite Positioning
Overview of satellite positioning methods; description of GPS satellite orbits; characteristics of the GPS signals; GPS signal propagation; GPS measurements errors; GPS observables; linear combination of GPS observables; GPS models for short, medium and long distances; integer ambiguity determination for one, two and three frequencies; integration of GPS and GLONASS; integration of GPS and INS; current research topics. 1 Credit

CV8501 Adv. Topics in Spatial Information Systems
This course covers such advanced issues as database management; various data models; spatial data standards and interchange, GIS data integration and software integration (e.g., OGC framework & GIS toolkits), algorithms for processing spatial and non-spatial data, basic architecture for networking GIS, characteristics of Internet GIS/mapping, and implementation and integration issues for online spatial data dissemination and GIS services. 1 Credit

CV8502 Digital Stereo Image Processing
Design characteristics of digital imaging systems for metric data capture; Geometric modeling of sensors for high precision 3D data extraction; calibration and modeling of digital imaging systems; inclusion of various geometric constraints; solution approaches for convergent imaging geometries from multi-sensor networks; automation aspects of image correlation and feature extraction; image rectification procedures; applications in the areas of engineering deformation; industrial Photogrammetry; reverse engineering and medical imaging. 1 Credit

CV8503 Geospatial Modeling & Visualization
This course will examine current research topics in applications of remote sensing imagery for generating and visualizing environmental models. The focus is on integration of multisource and multiscale geospatial data at a local and regional scale for dynamic and multidimensional modeling and visualization tasks in a stand-alone or web-based environment. Selected case studies in transportation, forestry, agriculture, and urban landscape are addressed. 1 Credit

CV8504 Adv. Topics in Estim. and Data Series Anal.
Concept of a random process, classification of processes, auto- and cross-correlation functions, spectral density function, sampling theorem, discrete Fourier transform and fast Fourier transform, introduction to wavelet theory, filters, Wiener filtering, Kalman filtering, relationship to least-squares estimation, practical applications. 1 Credit

CV8505 Design and Impl. of Spatial Info. Systems

This course addresses the software design and implementation problems for spatial information systems. It covers the topics of software engineering, spatial data structures, spatial search, and algorithms for processing spatial data, with practical applications. 1 Credit

CV8506 Industrial Metrology
Data acquisition systems employed for close range measurements. Close-range Photogrammetry and laser imaging. Mathematical formulations for self-calibration with geometric considerations. Bundle adjustment, DLT-type, sequential and phased methods. Photogrammetric network design and post-adjustment analysis. Processing of laser point clouds and form fitting. Industrial case studies. 1 Credit

CV8507 Satellite Remote Sensing of Urban Areas
This course examines the characteristics of high-resolution space-borne remote sensing systems and their applications for the mapping and analysis of complex urban scenes. Major topics include overview of high-resolution satellite remote sensors, multi-sensor data fusion, knowledge-based image analysis, photogrammetric processing of satellite images for 3D object extraction, intelligent change detection systems, and integration of remote sensing and 3D urban GIS. Selected case studies in urban transportation planning, land-use/land-cover mapping, human settlement management and environmental impact analysis are addressed. A lab-based term project with a research report or paper is required. 1 Credit

CV8600 Non-destruct. Test. and Inst. of Structures
Non-destructive testing and evaluation methods; Visual inspection; Mechanical methods; Maturity method; Stress wave methods; Acoustic emission methods; Electric and magnetic methods; Penetrability methods; Electromagnetic methods; Infrared thermographic method; Nuclear methods. 1 Credit

COMMUNICATION AND CULTURE

CURRICULUM

Master of Arts

DEGREE REQUIREMENTS		*Credits*
CC8900	Core Issues: Cultural Studies	1
CC8901	Core Issues: Commun Studies	1
CC8902	Research Methods Workshop	1
CC8903	MA Seminar: Rsrch & Practice	
Two credits from Group A: Foundation Courses		2
Four credits from Group B, C or D: Specialization Electives		4
	(at least one from two of the groups)	

AND one of the following Options:

RESEARCH PAPER Option:

Master's Research Paper

And One additional credit from Group B, C or D

THESIS Option:

Master's Thesis

PROJECT Option:

Master's Project

Doctor of Philosophy

DEGREE REQUIREMENTS		*Credits*
Comprehensive Examination		
PhD Dissertation Research		
CC8902	Research Methods Workshop*	1
CC9903	PhD Seminar: Rsrch & Practice	
CC9904	Perspectives: Comm & Culture	1
AND Two credits from Group A: Foundation Courses*		
AND Two credits from Groups B, C, or D: Specialization Electives		

*Student may apply for exemption (with substituion) if taken at the Master's level.

Group A: FOUNDATION COURSES		*Credits*
CC8920	Theoretical Appch Media & Culture	1
or CC8921	*Visual Culture*	1
CC8940	Poltc Econ of Culture and Commun.	1
or CC8941	*Issues - Commun & Cult Policy*	1
CC8960	Adv Communication Technology	1
or CC9921	*Technology Commun & Culture***	1
	***Doctoral students only*	

Group B: Specialization Electives in Media and Culture		
CC8822	Performing Arts and the City	1
CC8823	Transnat Id, New Mediations	1
CC8824	Globlzn: Mkts, Citizen, Identity	1
CC8825	Seminar Social Cultural Theory	1
CC8826	Post-Human Cndn: Theory, Polit	1
CC8827	City as Cinema	1
CC8828	Philosophy, Culture & Values	1
CC8829	Modernist Lit Circ: Cult'l Appr	1

CC8830	Writing the Self, Reading the Life	1
CC8831	Theorizing the Sacred	1
CC8920	Theoretical Appch Media & Cult	1
CC8921	Visual Culture	1
CC8922	Issues in Cultural Studies	1
CC8923	Culture as Perf: Anthr of Arts	1
CC8924	Marxism Culture and Film	1
CC8925	Reading Television	1
CC8926	Theoretical Issues in Film	1
CC8927	Reading Film	1
CC8928	Culture and the Environment	1
CC8929	Seminar: Symbolic Anthropology	1
CC8930	Cult & Values - Pop Media	1
CC8931	Popular Music Studies	1
CC8932	Commun Culture & the City	1
CC8933	Culture in the City Workshop	1
CC8934	Contemp Topics: Social Theory	1
CC8935	Critique of Everyday Culture	1
CC8936	Cultural Condit of Authorship	1
CC8938	Spec Top in Media Culture B	1
CC8939	Special Topics in Media Culture A	1
CC8020	Social Theory & Comm Process	2
CC8021	Film and Social Change	2
CC8022	Mediations of Identity	2
CC8023	Contmp Topics: Social Theory	2
CC8024	The Critique of Everyday Culture	2
CC8025	Summer Seminar in Social, Cultural Theory	2
CC9920	Topics in Psychoanal & Culture**	1

**doctoral students only

Group C: Specialization Electives in Politics and Policy

CC8840	Media Democracy	1
CC8841	Owning Culture	1
CC8842	Public Affairs Media	1
CC8843	Culture, Counterpublics & the WTO	1
CC8844	Introduction to Broadcast Management	1
CC8845	Communication & International Development	1
CC8846	Communication and Public Interest	1
CC8847	Global Media	1
CC8848	Armed Conflict, Peace & the Media	1
CC8940	The Poltc Econ of Culture & Commun	1
CC8941	Issues in Commun & Cult Policy	1
CC8942	Cross-Cult & Internat Commun	1
CC8943	Globalization of Comm & Cult	1
CC8944	Technology and Globalization	1
CC8945	Political Commun & Env Issues	1
CC8946	Communication Policy	1
CC8947	Cultural Policy	1
CC8948	The Image Industry	1
CC8949	The Communications Industry	1
CC8950	Current Issues: Telecommun	1
CC8951	Communications Law	1

CC8952	Political Economy of Media	1
CC8953	Politics of Intellec Property	1
CC8954	New Social Movements	1
CC8955	Global Justice & Environment	1
CC8956	Globlzn & Cultural Identity	1
CC8957	Appl Rsrch Mth: Policy & Reg	1
CC8958	Readings in Public Policy	1
CC8959	Spec Topics: Politics & Policy	1
CC8050	Appl Rsrch Meth: Policy & Reg	2
CC8051	Readings in Public Policy	2

Group D: Specialization Electives in Technology in Practice

CC8960	Adv Communication Technology	1
CC8961	Issues in Media Production	1
CC8962	Lang & Narrative Film/Video/Mm	1
CC8963	Social Cult Impl of New Media	1
CC8964	Diffusion of Commun Technol	1
CC8965	Communication in Organizations	1
CC8966	Activist Video Making	1
CC8967	Contemp Theory in Visual Arts	1
CC8968	History & Theory of Film & Video	1
CC8969	Media Ethics	1
CC8970	Special Topics in Cdn Cinema	1
CC8971	Experimental Media	1
CC8972	Experimental Film Processes	1
CC8973	Design: Interactive Multimedia	1
CC8974	Media Production Workshop	1
CC8975	Race & Gender in Digital Tech	1
CC8976	Digital & Interact Entertainmt	1
CC8977	Media Prod Techniques & Pract	1
CC8978	Documentary Narration	1
CC8979	Spec Topics:Technology & Commun	1
CC8980	Adv Media Production Project	1
CC8981	Internet Creativity & Innov	1
CC8982	The Body and the Culture of Modernity	1
CC8983	The Culture of the Avante-garde	1
CC8984	A History of News	1
CC8985	Photographic Vision/Practice	1
CC8986	Future Cinema	1
CC8060	Media Production Workshop	2
CC8061	Wired World: Cult Tech Phil	2
CC9921	Technology Commun & Culture*	1

**Doctoral level only*

The following courses may be used by Master's students in place of any Specialization course, with the permission of the Program Director or Associate Director.

CC8990	Directed Rdg: Commun & Cult A	1
CC8991	Directed Rsrch: Commun & Cult	1
CC8992	Directed Grp Stud: Comm & Cult	1
CC8993	Field Placements	1
CC8994	Directed Rdg: Commun & Cult B	1

CC8090	Directed Rdg: Commun & Culture	2
CC8091	Directed Rsrch: Comm & Culture	2
CC8092	Directed Grp St: Comm & Cult	2
CC8093	Field Placements	2

The following courses may be used by Doctoral candidates in place of any Specialization course, with the permission of the Program Director or Associate Director.

CC9990	Directed Readings A	1
CC9991	Directed Readings B	1
CC9992	Directed Research	1
CC9993	Directed Group Study	1
CC9090	Directed Readings A	2
CC9091	Directed Readings B	2
CC9092	Directed Research	2
CC9093	Directed Grp Stud Comm & Cult	2

COURSE LISTING

All “CC” courses have York University course numbers indicated in brackets following the Ryerson University codes.

Master's Research Paper
This is a “Milestone.” Pass/Fail

Master's Thesis
This is a “Milestone.” Pass/Fail

Master's Project
This is a “Milestone.” Pass/Fail

Comprehensive Examination
This is a “Milestone.” Pass/Fail

PhD Dissertation Research
Pre-requisite: Comprehensive Examination. This is a “Milestone.” Pass/Fail

CC8020 (CMCT 6103 6.0) Social Theory and Communication Processes
Theories of communication processes, the mass media, and symbolic behaviour. The mass media and the controversies about popular culture; criteria for evaluating the media; research methodology; and content analysis. Antirequisite SPT 6032 6.0 (York University), SOCI 6560 6.0 (York University). 2 Credits

CC8021 (CMCT 5102 6.0) Film and Social Change
This course investigates the ways in which films of all kinds can be used as a means to radical insights into culture, giving consideration to the contributions to film criticism and theory offered by various radical movements such as Marxism, Feminism, and Gay Liberation. Antirequisite FILM 4410 6.0 (Atkinson). 2 Credits

CC8022 (CMCT 5103 6.0) Mediations of Identity
This course is premised upon the principle that the mass media undertake the function of moral, political and ideological reproduction within society. In this respect, the course examines the ways in which media's representations of social identity (e.g. race, sexuality, gender, class, nation), act as highly selective and ideologically shaped portrayals of the social order. We shall closely consider current and 'classical' theories which allow particular insight into social construction of human identities, subjects and subjectivities. These theoretical frames of reference will also be applied in the analysis of various media forms and genres (including photography, television and film). Antirequisite AS/SOSC 4325 6.0 (York University). 2 Credits

CC8023 (CMCT6113 6.0) Contemporary Topics in Social Theory
The purpose of this course is to take up issues that are topical and require some knowledge of social, political, philosophical and psychoanalytic theory. Antirequisite SOCI 6220 6.0 (York University), PHIL 6640 6.0 (York University). 2 Credits

CC8024 (CMCT6121 6.0) The Critique of Everyday Culture
An attempt to integrate various theoretical frameworks centering on the twin problematics of everyday life and the study of popular culture. In particular, it examines anthropological, phenomenological, semiological, hermeneutical and neo-Marxist approaches to culture. Antirequisite SOCI 6130 6.0 (York University) & SPT 6609 6.0 (York University). 2 Credits

CC8025 (CMCT 6130 6.0) Summer Seminar in Social, Cultural Theory
This seminar examines key aspects of contemporary social and cultural theory, focusing on the writings of an important theorist in the field. Normally, that theorist will participate in the course for one week, offering a series of seminars on her/his work. 2 Credits

CC8050 (CMCT 6312 6.0) App. Research Meth: Policy & Reg. Research
Provides students with the opportunity to develop the research skills required for policy and regulatory research, and a critical appreciation of their appropriate use in the design of their own research. Antirequisite ENVS 6180 6.0 (York University). 2 Credits

CC8051 (CMCT6313 6.0) Readings in Public Policy
Exploration of key ideas about public policy processes with an emphasis on how this process is played out in the various policy areas of interest to students in the course. Antirequisite ENVS 6101R 3.0 (York University). 2 Credits

CC8060 (CMCT6510 6.0) Media Production Workshop
Combines active media analysis with the production of images/text around environmental issues. Students critically explore the production process through media observations, readings, and audio-visuals, visits to production sites, and interviews with imagemakers. There are opportunities to develop hands-on skills in photographic or video production. The central learning experience of the workshop involves a media production applying analytical insight, technical skills, and creativity. Antirequisite ENVS 6349 6.0 (York University). 2 Credits

CC8061 (CMCT6520 6.0) Wired World: Culture, Tech. & contemp. Phil.
This course explores the intersection of philosophical thought with communication and information technology. It considers both the importance of philosophical foundations for contemporary studies of technology as well as the philosophical implications of advances in contemporary communication technology. 2 Credits

CC8090 (CMCT 6911 6.0) Directed Readings in Commun. and Culture
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. 2 Credits

CC8091 (CMCT 6902 6.0) Directed Research in Commun. and Culture
The directed research course is intended to permit the student to conduct research or develop a theoretical perspective in an area of study related to the student's program objectives. The research may take the form of a pilot study for a thesis or project. 2 Credits

CC8092 (CMCT 6903 6.0) Directed Group Study in Commun. and Culture
The directed group study is intended to allow a group of students, with the agreement of a faculty member, to organize a seminar in an area not covered in the course offerings. 2 Credits

CC8093 (CMCT 6909 6.0) Field Placements
Master's students are able to receive credit for a two term course by undertaking a field placement in an appropriate institution. 2 Credits

CC8700 Intro. to Theories of Commun. & Culture
An intensive introduction to the major theories of communication and culture. The course will provide an overview of the major themes and thinkers in the area. Antirequisite AKCEFG4000 3.0 (York University).This course is a non-degree/non-credit course designed to provide background training and may be required of some students as conditions of admissions.

CC8701 Understanding Commun. Technologies
An intensive introduction for non-specialists to the history of communication technology and to the operation and uses of contemporary and emerging forms. Use of lecture, seminar and studio/lab demonstrations will provide the participant with opportunities to connect technology theory and practice. Antirequisite CDGS701 (Ryerson University, Continuing Education).
This course is a non-degree/non-credit course designed to provide background training in current communication and media production and delivery technologies and may be required of some students as conditions of admissions.

CC8822 (CMCT 6112 3.0) Performing Arts and the City
This course examines the impact of the performing arts on local communities. 1 Credit

CC8823 (CMCT 6116 3.0) Transnat. Id., New Mediations & the Public
This course explores the ways in which communications technologies shape national identities and understandings of public goods. We consider transformations and contestations of the public sphere, the public domain, intellectual property, freedom of speech, and multiculturalism in the face of an intensification of global population and cultural flows. 1 Credit

CC8824 (CMCT 6108 3.0) Globalization: Mkts, Citizenship, Identity
This course examines the discourse and theory of globalization narratives, pre-and post-Seattle from a critical perspective as they affect markets, cultural policy, public goods and diverse citizenship needs. 1 Credit

CC8825 (CMCT 6130 3.0) Summer Seminar in Social, Cultural Theory

This seminar examines key aspects of contemporary social and cultural theory, focusing on the writings of an important theorist in the field. Normally, that theorist will participate in the course for one week, offering a series of seminars on her/his work. 1 Credit

CC8826 (CMCT 6321 3.0) The Post-Human Cond'n.: Theory & Politics
Since the 1990's "cyber" has altered what it means to be human in terms of self and other, essence, agency, consciousness, intimacy, intelligence, reason, life, embodiment, identity, and gender. This course examines the meaning, possibilities, and implications of the posthuman. 1 Credit

CC8829 (CMCT 6109B 3.0) Modern Lit Circ: Cult'l Appr
Course studies culture of early twentieth-century modernist salons in New York, Paris, and London with focus on New York Dada, Left Bank Moderns, and Bloomsbury. Course explores a range of cultural expressions (print culture, visual culture and performance). More specifically, students investigate synergies of different media and nationalities and probe interrelationship among various artists; students also examine relationship of space including interior design and architecture in formation and flourishing of modernist salons and literary circles. 1 Credit.

CC8830 (CMCT 6128 3.0) Writing the Self, Reading the Life
This course will examine a variety of genres within the broadly defined category of life writing, including diary, memoir, autobiography, and biography. By sampling a range of texts from print, graphic, and electronic sources, students will explore the diverse ways in which people, both famous and otherwise, have communicated their personal and public stories about life and selfhood throughout history. 1 Credit

CC8831 (CMCT 6125 3.0) Theorizing the Sacred
Some of the most important social theorists of the 20th Century – including Georges Bataille, Walter Benjamin, Rene Girard, Jacques Derrida, and Slavoj Zizek – have written on the sacred and its related phenomena (the gift, originary violence, monsters, etc). The sacred is not limited to religion, but also represents the underbelly of cultural and political life more generally. In analyzing the sacred, special focus will be placed on both the role and content of cinema. 1 Credit

CC8840 (CMCT 6314 3.0) Media Democracy
This course examines the central role of the news media in a democratic society, with an emphasis on Canada. The constraints on media democracy, exploring various media from newspapers to the internet and attempts to address the lack of media democracy will be explored.
1 Credit

CC8841 (CMCT 6318 3.0) Owning Culture
The course explores the ways in which law shapes popular culture, with emphasis upon the intellectual property regimes of copyright, publicity rights, trademark, and domain names. We consider how these laws create rights to control meaning and effect forms of censorship, while provoking the emergence of alternative community norms. 1 Credit

CC8842 (CMCT 6316 3.0) Public Affairs Media
This course examines public affairs radio, television and convergence media from an historical and critical perspective. These media are examined with reference to models of broadcasting, public address, technology and globalization. 1 Credit

CC8843 (CMCT 6317 3.0) Cultural Industries, Trade and the WTO
This course examines the impact of trade and the WTO framework in shaping the culture and communications policy environment for governments and communities. It is designed as a research seminar to enable students to examine the way the WTO is shaping and influencing cultural and communications policy. 1 Credit

CC8844 (CMCT 6340 3.0) Introduction to Broadcast Management
Television is the most powerful form of public communication and, in Canada, is a highly regulated business. Those who manage television enterprises must balance business objectives and the public good in a changing creative and technological environment. This course examines issues in the management of public and private television enterprises in Canada. Students will investigate each issue in its historical context and will analyze the current environment and scenarios for the future of Canadian broadcasting. The course will include field visits and industry guests. 1 Credit

CC8845 (CMCT 6321 3.0) Communication & International Development
This course brings together various theoretical and policy approaches to communication and international development. As a seminar, selected critical readings will serve as a backdrop for discussions on the nexus of communication, technology, development and the nation-state. We will interrogate the historical and social construction of development and underdevelopment, and how state actors mobilize the rhetoric of technology to galvanize support for the national development. 1 Credit

CC8846 (CMCT 6315 3.0) Communication and Public Interest
This course explores the meaning of "public" in the context of media and public information/advocacy campaigns. A background in communication theory is recommended but not required. 1 Credit

CC8847 (CMCT 63190 3.0) Global Media
This course examines global media from an historical and critical perspective. Broadcasts, publications, films and digital productions are viewed as transnational communication channels which have a decisive impact on contemporary life. 1 Credit

CC8900 (CMCT 6000 3.0) Core Issues in Cultural Studies
[formerly Theories of Communication & Culture I] This course provides an overview of the historical development of theories and approaches to cultural studies, surveying contemporary theories and discussing a wide range of approaches. The course deals with areas of inquiry in cultural studies that are the subject of debate and controversy and draws on material from a number of disciplines. The course will cover such topics as the following: the meaning of culture, subjectivity and identity, constructionism, commodification, the culture industry, hegemony, public sphere, modernity and postmodernity, colonial and post-colonial theories, citizenship and civil societies. Masters Core Course. 1 Credit

CC8901 (CMCT 6001 3.0) Core Issues in Communication Studies
[formerly Theories of Communication & Culture II] This course provides an overview of the historical development of theories and approaches to communication studies, surveying contemporary theories and discussing a wide range of approaches. The course deals with areas of inquiry in communication studies that are the subject of debate and controversy and draws on materials from a number of disciplines. The course will cover topics such as the following: political economy, commodification and markets, representation and discourse, medium theory (McLuhan), audience theory and reception theory, interpretive theories and feminist approaches. Masters Core Course. 1 Credit

CC8902 (CMCT 6002 3.0) Research Methods Workshop
Students in the core courses are required to attend a workshop on research methods in communication and cultural studies. These sessions are designed to complement the theoretical materials presented in the core seminars and will provide an overview of the range of research methods in communication and cultural studies. The course introduces students to a wide range of methods and approaches, including research design (qualitative and quantitative), survey research, content analysis, textual analysis, discourse analysis, historiography, legal and documentary research, ethnographic techniques, cultural studies approaches and others. Masters Core Course. 1 Credit

CC8903 (CMCT 6003 0.0) Seminar in Commun. Research and Practice
This seminar presents an overview of current work in the field and features presentations by faculty and students in the program on their current and proposed projects. It explores current approaches and perspectives in policy analysis and applied research in communication and culture. Masters Core Course. Pass/Fail. No course credit

CC8920 (CMCT 6100 3.0) Theoretical Approaches to Media & Culture
This course reviews central issues in the study of media and culture through an examination of the ways in which mediations of social identity (e.g. class, gender, race, sexuality, nationality), act as highly selective and ideologically shaped portrayals of the social order. The course is built around a number of current and “classical” theories which allow particular insight into the articulations of representation (discursive, imagistic, visual) with human identity, subjectivity and selfhood. These theoretical frames of reference are also applied in the analysis of various media forms and genres., including text, photography, television, film and the built environment. (Foundation Course). Antirequisite POLS 6055 3.0 (York University). 1 Credit

CC8921 (CMCT 6110 3.0) Visual Culture
The course will begin by exploring the ways in which we have been taught to analyse and understand images, and how to produce and reproduce them. The course aims, however, to move beyond analysis of specific texts in order to historicize and understand the larger cultural meanings that have been assigned to the visual. We will attempt to come to terms with what W. J. T. Mitchell has called the “pictoral turn” in all its complexity. The course includes works by philosophers and cultural theorists as well as poets, painters, novelists, videographers, filmmakers, and cyberneticists. 1 Credit

CC8922 (CMCT 6101 3.0) Issues in Cultural Studies
This course is an advanced examination of the contribution of cultural studies perspectives to the study of communication and culture, with emphasis on contemporary problems and theories. 1 Credit
Note: This course will focus on the needs of PhD students. MA students with appropriate background will be admitted with permission.

CC8923 (CMCT 6102 3.0) Culture as Performance-Anth. of the Arts
This course explores expressive culture by examining the performance and products which express cultural meaning. It investigates how performances are produced, interpreted and transformed through time, utilizing theoretical arguments related to the process of cultural production, including structuralism, formal analysis, semiotics and hermeneutics. Key questions include: how are artistic domains integrated within a society? What regularities and patterns can be seen cross-culturally within one form of artistic expression? How do artistic forms condense and communicate key symbolic messages? How is artistic expression transformed through mass culture and tourism? 1 Credit

CC8924 (CMCT 6095 3.0) Marxism, Culture and Film
This course examines the Marxist tradition in cultural and aesthetic theory and practice. It considers selections from the philosophical and aesthetic writing of Marx and Engels and later Marxists like Lukacs, Gramsci, Lenin and Trotsky and goes on to consider the Frankfurt School, James, Debord, Althusser, Williams, Jamieson, Said and Eagleton, among others. Theoretical and creative work by major artists like Brecht, Eisenstein, Godard and Alea be discussed. Selected important debates and controversies about Soviet culture, the role avant-gardes, realism and socialist realism, cultural imperialism and colonialism, feminism, modernism and postmodernism will be discussed. Specific discussions will focus on analysis and practice related to the Marxist and socialist tradition in film, selected from the Soviet 20s, Renoir and the French Popular Front, the Hollywood Reds, Italian neo-realism, Godard and May '68 and the Third Cinema of the "third world". Antirequisite POLS 6055 (York University). 1 Credit

CC8925 (CMCT 6104 3.0) Reading Television
Fundamental to contemporary cultural studies is recognition that the meaning, form and value of cultural products such as situation comedies, soap operas, advertisements, cannot be separated from the social context in which they are produced and received. The course will explore such questions as: What are the genre conventions? How do different individual communities use and value television products? To what extent do television products promote resistance and change and to what extent do they preserve the status quo? Students will apply several frameworks to selected products in order to analyse how the products work in relation to individuals and communities. 1 Credit

CC8926 (CMCT 5101 3.0) Theoretical Issues in Film
This course examines screen representation from a historical, sociological, and critical perspective, introducing relevant contemporary theoretical approaches framed as analysis of a particular theme, period, filmmaker, or genre. Attention is given to a range of problems including filmic representation and indexicality; dramaturgy; the history of filmic representation and its political economy; filmic representation and hegemony. Antirequisite FILM 5210 3.0 (York University). 1 Credit

CC8927 (CMCT 6096 3.0) Reading Film
The course examines screen representation of gender as expressivity and enactment, from a historical, sociological, and critical perspective focusing largely on dramaturgy. Relevant approaches are introduced and a focused study of films and theoretical issues of choice is enabled. 1 Credit

CC8928 (CMCT 6120 3.0) Culture and the Environment
Critical exploration into current literature in the emerging field of Cultural Studies. Examination of the discourses through which we attach "culture" to nature, place, and space. Particular attention is given to what resources contemporary cultural studies might offer in analyzing interactions between culture, nature, and place; between social identity, community, and built and natural environments. 1 Credit

CC8929 (CMCT 5104 3.0) Seminar in Symbolic Anthropology
Particular attention is placed on a fundamental understanding of symbolic thought and action with the aim of addressing the questions: how do symbols symbolize? How do they function to mediate meanings and transform sentiment and emotions into significant inducements or dispositions to action? Literature in anthropology, language and linguistics, semiotics and literary criticism among others are surveyed. Antirequisite ANTH 5140 3.0 (York University). 1 Credit

CC8930 (CMCT 6105 3.0) Culture and Values in Popular Media
This course examines the rights, freedoms and social obligations of the media, with special attention to content producers and disseminators, both private and public. The issues of freedom of expression and its limits, access to information, privacy, and accountability are highlighted. The role of audiences as citizens, consumers and potential producers of content is also examined. 1 Credit

CC8931 (CMCT 6106 3.0) Popular Music Studies
The phenomenon of popular music is investigated from a number of perspectives through a survey of scholarly and popular vernacular literature. Issues in popular music, including paradigms for analysis and interpretation are examined. Antirequisite MUSI 6320 3.0 (York University). 1 Credit

CC8932 (CMCT 6114 3.0) Communication, Culture and the City
This course will examine a variety of conceptions of culture in use in the social sciences, humanities and fine arts in particular with relevance to how they can be used to inquire into social forms and practices of city life. The course will further seek to perpetuate an ongoing intellectual relationship to the reciprocal exchanges between interpretation of culture and of the city and bring this discussion to bear on representations of space, urbanity, communication, congestion and memory. Readings will include Durkheim, Weber, Simmel, Park, Bakhtin, Benjamin, Harvey, Seja, and Sassen. . Antirequisites SOCI 6132 3.0 (York University), SPT 6626 3.0 (York University). 1 Credit

CC8933 (CMCT 6115 3.0) Culture in the City Workshop
This course will be conducted as a research workshop in which students will be encouraged to initiate, design, and develop an exploratory study on a specific social process in the city, and create a framework for treating spaces and localities as interpretive problems through qualitative methods. The workshop will provide experience and skill in case study analysis and ethnographic and documentary methods for interpreting texts, sites and social actions. The instructor will aid students in identifying problems related to select areas of urban life and in generating a small study as a course requirement. Students will be expected to contribute to the collegiality of the environment by discussing their mutual work as part of a process of developing theoretically informed case studies. Antirequisite SOCI 6132 3.0 (York University), SPT 6626 3.0 (York University). 1 Credit

CC8934 (CMCT6113 3.0) Contemporary Topics in Social Theory
The purpose of this course is to take up issues that are topical and require some knowledge of social, political, philosophical and psychoanalytic theory. Antirequisites SOCI 6220 3.0 (York University), SPT 6043 3.0 (York University), PHIL 6640 3.0 (York University) 1 Credit

CC8935 (CMCT 6121 3.0) The Critique of Everyday Culture
An attempt to integrate various theoretical frameworks centering on the twin problematics of everyday life and the study of popular culture. In particular, it examines anthropological, phenomenological, semiological, hermeneutical and neo-Marxist approaches to culture. Antirequisites SOCI 6130 3.0 (York University), SPT 6609 3.0 (York University) 1 Credit

CC8936 (CMCT 6107 3.0) The Cultural Conditions of Authorship
With its focus on the author and the cultural conditions of authorship, this course aims to fill a gap in current course offerings in the Media and Culture stream of Program. The author and the book are all but absent from a program that studies the dynamics of media and cultural production. This course returns to the subject of the book as one of the earliest and most enduring examples of cultural production. By focusing on the economy of the culture industry – specifically the social, political, historical, and material conditions of authorship – this course undertakes a study of the commodification of Canadian authors that began in the early nineteenth century and continues to this day.
1 Credit

CC8938 (CMCT 6109B 3.0) Special Topics in Media and Culture B
Under this rubric, program faculty members propose limited duration courses arising from major research projects or current issues.
1 Credit

CC8939 (CMCT 6109A 3.0) Special Topics in Media and Culture A
Under this rubric, program faculty members propose limited duration courses arising from major research projects or current issues.
1 Credit

CC8940 (CMCT 6300 3.0) The Political Econ. of Culture & Commun.
This course reflects the theoretical perspective that communication systems and cultural practices shape and are shaped by the social distribution of power in all societies. It examines the role of the state, the market civil society in the production and distribution of cultural products and the implications of their relationships for society. (Foundation Course)
1 Credit

CC8941 (CMCT 6301 3.0) Issues in Communication & Cultural Policy
This course focuses on specific issues that are shaping communication and cultural policy, including the emergence of the "information highway," globalization and convergence. (Foundation Course) 1 Credit

CC8942 (CMCT 6302 3.0) Cross-Cultural and International Commun.
This course examines communication in the context of divergent cultural value systems, differing levels of technological adaptation, and unequal power configurations. It explores applications in international development, business communication, and cross-cultural electronic communication. 1 Credit

CC8943 (CMCT 6303 3.0) Globalization of Communication & Culture
This course focuses on the role and significance of the rapid growth of multinational communication industries in shaping the modern world, with particular emphasis on the relationship between technology and the structures of power and control. Global communication systems, the global economy, and global crises will be examined from a critical perspective. 1 Credit
Note: This course will focus on the needs of PhD students. MA students with appropriate background will be admitted with permission.

CC8944 (CMCT 5301 3.0) Technology and Globalization
This course examines the role of technology within the global context. What will it mean to be part of a global audience, work in a global factory, shop in a global supermarket, be governed by a world government? Can technology help to solve problems of environmental depletion and pollution? What role does technology play in escalating militarism around the world? Can technology reduce the gap between rich and poor, within nations and between nations? Antirequisite: POL607. 1 Credit

CC 8945 (CMCT 6304 3.0) Political Commun. & Env. Issues
This course examines the communication strategies of governments, political parties, and advocacy groups in the context of contemporary media and communication technologies, with particular reference to Canada. It examines theories of political discourse, ideology, and public opinion. Antirequisite ENVS 6143 3.0 (York University) and POLS 6165 3.0 (York University). 1 Credit

CC8946 (CMCT 6305 3.0) Communication Policy
This course will examine the structure and functioning of the media industries and explore the government policies that have been developed to try to ensure that the media function effectively and in the public interest. While emphasis will be placed on the communication media in Canada, attention will also be given to the way in which the media function in other countries and on an international basis. In examining Canadian government policy, attention will be given to public policies in other countries.

The mandate and operation of agencies such as the CRTC, the CBC, the National Film Board, and Telefilm Canada will be examined, as well as the central policy development mandate of the federal Department of Canadian Heritage (Previously the Department of Communications). The course will include an examination of a number of major federal policy documents. Attention will be given to special issues arising from the bilingual nature and regional character of Canadian society and to the respective roles of federal and provincial governments. While the primary emphasis is on established media, the course will include consideration of issues related to new media, including discussion of the Information Highway Advisory Council's Phase I and II reports. Antirequisite ARTM 6330 3.0 (York University). 1 Credit

CC8947 (CMCT 6306 3.0) Cultural Policy
This course examines the relationship between cultural and social policy in Canada through the study of historical and contemporary examples. In so doing, focusing on arts policies, the course will examine the historical development of policy and the formulation and execution of municipal, provincial and federal policies in Canada. The course will have a research orientation and will focus in particular on current issues in arts and cultural policy and strategies for the future. Where appropriate, comparative analyses will examine other policy models with special reference to Europe, Britain, and the United States. Antirequisite ARTM 6300 3.0 (York University). 1 Credit

CC8948 (CMCT 5302 3.0) The Image Industry
Images are organized into presentations and exhibitions in books and periodicals, in cinemas, in concerts, plays, and performances, at conferences and conventions, in galleries, in lectures and readings on television and closed circuit systems, in recordings, and theatres. This course examines the nature and operations of the image industry, its relationship with image users and consumers and its interaction with individual image makers. Antirequisite NPF 552. 1 Credit

CC8949 (CMCT 5303 3.0) The Communications Industry
This course is designed to provide a perspective on the Canadian information technology and telecommunications industry, in international context. It provides an in-depth understanding of the structure and dynamics of voice, data, video, internet, wireless, hardware and content markets. It explores the current environment, trends, and major players, including their strategies and prospects. Antirequisite AIM 307. 1 Credit

CC8950 (CMCT 5304 3.0) Current Issues in Telecommunications
This course explores emerging issues of interest to telecommunications and information technology analysis, managers, and policy-makers. It assumes a basic understanding of the technology and industry and features presentations by leading experts in regulations, technology, and emerging issues. Antirequisite AIM 407. 1 Credit

CC8951 (CMCT 6307 3.0) Communications Law
Communication law and regulation are viewed from two perspectives: first, the rationales for regulating broadcasting and telecommunications are explored; and secondly, areas of law and regulation in the fields of broadcasting and telecommunications are examined, including cultural regulation, standards, access, quality service, new services, and rates. This course will examine law, policy, and regulations concerning broadcasting (radio, TV and news services) and telecommunications. Of particular interest are questions about controversial and biased programming, access to media, Canadian content, and the implications of competition and new services in the Canadian broadcasting system. In telecommunications, emphasis will be given to issues arising from competition and new technologies. Antirequisite Law 3005 3.0 (Osgoode). 1 Credit

CC8952 (CMCT 6310 3.0) Polit.Econ.of Media: Tech/Polit/Global
The course examines the profound transformation of the media industries by new technologies and market applications, such as satellite television, the Internet, and the digital revolution. These technological and commercial forces have destabilized national media landscapes, especially where government policies and regulations have attempted to protect and promote domestic cultural and communications industries. The course examines the emergence of transnational commerce actors in the media industries and their impact on political arrangements. Canada is discussed in comparative perspective. 1 Credit

CC8953 (CMCT 6308 3.0) The Politics of Intellectual Property
The expansion of intellectual property rights (IPRs) has become a major area of international controversy and global resistance as these properties come into conflict with broader public interests and violate human rights. The course explores the new regimes of trade that are expanding the privatization of more and more areas of human life, the political and social consequences of these expanded rights and struggles involving farmers, feminists, developing countries and indigenous peoples to protest and contain these rights. 1 Credit

CC8954 (CMCT 5307 3.0) New Social Movements
Examination of new social movements that have arisen in response to the crisis of industrial culture, economic restructuring, shifting political formations, and ecological disasters. The focus is on current theories of social movements in action. Opportunities for students to gain first-hand experience with social movement organizations through participatory research projects are provided. Antirequisite ENVS 5073 3.0 (York University), ENVS 4161 3.0 (York University). 1 Credit

CC8955 (CMCT 5306 3.0) Global Justice and the Environment
Introduction to socio-environmental ethics in general and, in particular, to social justice, as applied to issues of global development, the global environment, and international relations; theoretical schools of thought and particular public controversies are covered. Antirequisite ENVS 5068 3.0 (York University), ENVS 4311 3.0 (York University). 1 Credit

CC8956 (CMCT 6311 3.0) Globalization and Cultural Identities
This course explores globalization and its influence on the construction of cultural identities. We address the contested term and its impact on nations, institutions, and peoples as they experience in local situations special and temporal transformations produced in discourses, images, and actions resulting from this process. Antirequisite SPTH 6212 3.0 (York University) and ANTH 5135 3.0 (York University)
1 Credit

CC8957 (CMCT 6312 3.0) App. Research Meth: Policy & Reg. Research

Provides students with the opportunity to develop the research skills required for policy and regulatory research, and a critical appreciation of their appropriate use in the design of their own research. Antirequisite ENVS 6180 3.0 (York University). 1 Credit

CC8958 (CMCT 6313 3.0) Readings in Public Policy
Exploration of key ideas about public policy processes with an emphasis on how this process is played out in the various policy areas of interest to students in the course. Antirequisite ENVS 6101R 3.0 (York University). 1 Credit

CC8959 (CMCT 6309 3.0) Special Topics in Politics and Policy
Under this rubric, program faculty members propose limited duration courses arising from major research projects or current issues.
1 Credit

CC8960 (CMCT 6500 3.0) Advanced Communication Technology
This course is an exploration of the major current issues for communication and culture raised by contemporary and emerging communication technologies and their applications. The course encompasses theoretical and applied perspectives. (Foundation Course) 1 Credit

CC8961 (CMCT 6501 3.0) Issues in Media Production
Contemporary theory is employed to examine the changes in socio-technical systems and the production environment as well as the craft. Group projects may include radio news and drama, broadcast and print journalism, documentation for studio television, as well as CD-ROM, visualization, and web-based projects. 1 Credit

CC8962 (CMCT 6503 3.0) Language & Narrative in Film/Video/Mm
Each medium has its own conventions for creating meaning. New interactive media demand new approaches to creating meaning. This course examines the evolution of language and narrative from a theoretical and practical perspective. 1 Credit

CC8963 (CMCT 6504 3.0) Social and Cult. Implications of New Media
This course focuses on the changes brought about by changes in communication technology for individuals, groups and organizations, and the challenges and opportunities presented by them. 1 Credit

CC8964 (CMCT 6505 3.0) The Diffusion of Commun. Technologies
Technology is often adopted in ways not anticipated by its creators and is shaped by the interaction of technological innovation, economic interests, and social and political power. This course explores the models developed for understanding the diffusion of communication technologies in society and examines specific cases, such as the printing press, the motion picture, the telephone, television, the computer, and the Internet. 1 Credit

CC8965 (CMCT 6506 3.0) Communication in Organizations
This course presents a framework for understanding communication in organizations, including contingency, structuration, and interpretive approaches. The course exposes students to a variety of perspectives on telecommunication. It considers technological, social, cultural and economic perspectives at the organizational level and their implications. 1 Credit

CC8966 (CMCT 6516 3.0) Activist Video Making
From the earliest of times, the potential of using film and video to animate, agitate and educate has attracted committed film and video-makers. Participants in this course will be involved in the collaborative production of short community-based video works focused on selected social and political issues. The course will also include an historical overview of documentaries made by film and video makers engaged in radical production, post-production and distribution practices. Antirequisite FILM 5320 3.0 (York University) 1 Credit

CC8967 (CMCT 5501 3.0) Contemporary Theory in the Visual Arts
The course contextualizes the contemporary structuralist, psychoanalytical feminist, Marxist, and postmodernist theory with respect to the history and development of specific art practice in the visual arts and its relationship to society. The relationship between contemporary critical theory and artistic production will be addressed through an examination of prescribed reading and examples of works drawn from the visual arts, film, video, new media and performance. This examination incorporates an analysis of French, British and North American sources together with debates, artistic productions, and explorations by contemporary artists. Antirequisite VISA 5600 3.0 (York University).
1 Credit

CC8968 (CMCT 5502 3.0) History and Theory of Film and Video
This course enables students to concentrate on specific aspects of the history and theory of film and video. The course deals with national and alternative cinema, film genres and alternative video. The relationship between the aesthetic features of given works and their cultural production are emphasized. Antirequisite NPF 557. 1 Credit

CC8969 (CMCT 5503 3.0) Media Ethics
An examination of the rights, freedoms, and obligations of the media and of practicing journalists. The course deals with such issues as the grounds and limits of freedom of expression, moral responsibilities respecting truth, balance, and objectivity; ethical and business pressures in media; obligations to the public, the audience, sources, colleagues, employers, and oneself. The course includes case studies and discussion of ongoing media activity. Antirequisite PHL 530. 1 Credit

CC8970 (CMCT 5504 3.0) Special Topics in Canadian Cinema
A seminar course focusing on particular topics in Canadian film and video. Antirequisite FILM 5310 3.0 (York University). 1 Credit

CC8971 (CMCT 5505 3.0) Experimental Media
In the past century, groups of artists have repeatedly called for new methods for the creation of artworks, to revitalize arts that had grown dreary, stale, and predictable. The course comprises workshops and seminars and explores the value of such proposals. Antirequisite NPF555. 1 Credit

CC8972 (CMCT 5506 3.0) Experimental Film Processes
An exploration of alternatives to conventional ways of producing black and white and colour cinematographic images, including non-standard ways of generating cinematographic images and unorthodox means of transforming them. Antirequisite FNP 544. 1 Credit

NOTE: Students with appropriate background may take selected production courses in various units for graduate credit, with permission. A list of Ryerson and York courses available for this purpose will be made available prior to registration in September.

CC8973 (CMCT 6502 3.0) Design for Interactive Multimedia
This course examines multimedia production in the context of a studio environment. Particular emphasis is placed on design models and their applications. 1 Credit

CC8974 (CMCT 6510 3.0) Media Production Workshop
Combines active media analysis with the production of images/text around environmental issues. Students critically explore the production process through media observations, readings, and audio-visuals, visits to production sites, and interviews with imagemakers. There are opportunities to develop hands-on skills in photographic or video production. The central learning experience of the workshop involves a media production applying analytical insight, technical skills, and creativity. Antirequisite ENVS 6349 3.0 (York University). 1 Credit

CC8975 (CMCT 6511 3.0) Race and Gender in Digital Technology
In recent years, corporate leaders, government officials, and media pundits have portrayed the western restructured socio-economic near-future as a "digital" one, forefronting the centrality of digital technology and the digitisation of information to the social, economic, and political changes currently sweeping Canada, as well as the rest of the OECD. In this course, we will examine the ways in which race and gender manifest in the discourses, policy decisions and representations of digital technology in Canada. 1 Credit

CC8976 (CMCT 6512 3.0) Digital and Interactive Entertainment
This course examines the convergence of digital content, broadband and wireless distribution over a variety of display platforms. If compatibility standards and data-protection schemes are worked out, we will be able to enjoy, create and distribute content in a variety of new ways. 1 Credit

CC8977 (CMCT 6517 3.0) Media Production Techniques and Practices
This course introduces students to a wide range of media-making techniques and production processes, including those currently employed and emerging in various media industries. The course will include lab demonstrations, practical workshops and examination of the context and social implications of these techniques and processes. 1 Credit.

CC8978 (CMCT 6514 3.0) Documentary Narration
While non-fiction films are most frequently discussed in terms of the images they bring to us, most of these films from early sound newsreels to present day historical essays are in fact highly dependent upon the quality of their voice-over narration. This course will focus on the nature of the writing that has shaped those works, including its relationship to the images. The course will also examine the way in which voice-over narration is used in television news and television actuality programming as well as personal essays. Antirequisite: FILM 5320P 3.0 (York University). 1 Credit

CC8979 (CMCT 6509 3.0) Special Topics in Technology and Commun.
Under this rubric, program faculty members propose limited duration courses arising from major research projects or current issues.
1 Credit

CC8980 (CMCT 6518 3.0) Advanced Media Production: Project
This course offers students who have advanced production skills and who have successfully completed the necessary technical proficiency examinations to access equipment and an opportunity to develop and produce their own media project. Students will work independently or in teams to produce a previously approved production using existing or emerging technologies from a variety of media. 1 Credit

CC8981 (CMCT 6513 3.0) Struggle for Internet Creativity & Innov.
This course is about the future of ideas. The Internet environment was originally designed to enable the new and is now being transformed to protect the old. The course examines principles and technologies needed to let innovation flourish on the Internet. 1 Credit

CC8982 (CMCT 6118 3.0) The Body and the Culture of Modernity
In the later half of the twentieth century, the body emerged as a topic that attracted the efforts of many artists who were committed to some form of cultural critique. Many recent artists have revolted against the modern body – the mechanized, regimented, controlled and profoundly unfree body. They have strived to move beyond the culture of modernity by creating a Dionysian body culture that is life-affirming, a culture that expresses bodily energies and passions, a culture that will bind people together in shared cultural experiences of ecstasy and intoxication. They have strived to dissolve the individual ego in collective ecstasy and sensual surrender. In this course we will survey some themes that arise in recent body art and assess their political/cultural implications. 1 Credit

CC8983 (CMCT 6117 3.0) The Culture of the Avant-garde
In this course we survey a number of avant-garde art movements of the twentieth century. We first consider the cultural paradigm that these various artistic movements reacted against, the paradigm known as modernity. We then examine various vanguard artistic movements of the twentieth-century as expressions of discontent with the culture of modernity. We do this partly through selected readings in cultural theory; however, the principal source of information will be the manifestos the various movements issued. 1 Credit

CC8984 (CMCT 6519 3.0) A History of News
This course studies the evolution of news as a historical phenomenon. It focuses on the various forms which news has taken at different periods and in different places; on how these forms have been influenced by changing technology, business organization, and markets; on how different audiences have responded to news; and on how the producers of news have understood their role in relation to their society, their audiences, their employers and their peers. 1 Credit

CC8985 (CMCT 6515 3.0) Photographic Vision/Practice
The importance of photographic imagery in history, culture, media and communication is widely acknowledged but is for the most part unexamined. This course proposes an investigation into the materials and methods of photographic image-making, combined with a survey of key critical writings and the contemporary theories about photographic representation that grow out of these. This dual investigation will be supplemented by independent research and writing undertaken by each student. Critical texts will balance writings of practicing photographers (Paul Strand, Gisele Freund, Henri Cartier-Bresson, Robert dams) with those of critics and theorists (Walter Benjamin, Jean Beaudrillard, Alan Sekula, Susan Sontag); in addition, several contemporary anthologies (by Richard Bolton, Vicki Goldberg, Liz Wells) will also provide source material. 1 Credit

CC8986 (CMCT 6507 3.0) Future Cinema
This course examines the shift from the traditional cinematic spectacles to works probing the frontiers of interactive, performative, and networked media. Drawing upon a broad range of scholarship, including film theory, communication studies, cultural studies and new media theory, the course will consider how digital technologies are transforming the semiotic fabric of contemporary visual cultures. 1 Credit

CC8990 (CMCT 6911 3.0) Directed Readings in Commun. and Culture A
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. 1 Credit

CC8991 (CMCT 6902 3.0) Directed Research in Commun. and Culture
The directed research course is intended to permit the student to conduct research or develop a theoretical perspective in an area of study related to the student's program objectives. The research may take the form of a pilot study for a thesis or dissertation project. 1 Credit

CC8992 (CMCT 6903 3.0) Directed Group Study in Commun. and Culture
The directed group study is intended to allow a group of students, with the agreement of a faculty member, to organize a seminar in an area not covered in the course offerings. 1 Credit

CC8993 (CMCT 6909 3.0) Field Placements
Master's students are able to receive credit for a one term course by undertaking a field placement in an appropriate institution. 1 Credit

CC8994 (CMCT 6911 3.0) Directed Readings in Commun. and Culture B
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. 1 Credit

CC9090 (CMCT 7011 6.0) Directed Readings A
A directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. Doctoral Course. 2 Credits

CC9091 (CMCT 7012 6.0) Directed Readings B
A directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. Doctoral Course. 2 Credits

CC9092 (CMCT 7002 6.0) Directed Research
A directed research course is intended to permit the student to conduct research or develop a theoretical perspective in an area of study related to the student's program objectives. The research may take the form of a pilot study for a thesis or dissertation project. Doctoral Course. 2 Credits

CC9093 (CMCT 7003 6.0) Directed Group Study in commun. & Culture
Under this heading, a group of students, with the agreement of a faculty member, may organize a seminar in an area not covered in the course offerings. Doctoral Course. 2 Credits

CC9903 (CMCT 6003 0.0) PhD Seminar in Research and Practice
This seminar presents an overview of current work in the field and features presentations by faculty and students in the program on their current and proposed projects. It explores current approaches and perspectives in policy analysis and applied research in communication and culture. PhD Core Course. Pass/Fail. No course credit

CC9904 (CMCT 7000 3.0) Perspectives in Commun. & Cultural Studies
[formerly Advanced Theories in Communication & Culture I] This course provides an advanced exploration of the major theories and research approaches in the field, with particular attention to a critical assessment of contemporary theories and methods. The first segment of the course will introduce students to those classical theorists and philosophers whose work was taken up and developed by more recent studies in the late twentieth century. It therefore deliberately anticipates

issues that were subsequently developed so that students may be equipped to decide in the second part of the course which themes are relevant or irrelevant to the study of communication and culture. Doctoral Course. 1 Credit

CC9920 (CMCT 7120 3.0) Selected Topics in Psychoanalysis and Culture
This course will survey some of the key concepts of Freudian and post-Freudian theory and assess their value in the study of culture and society. The course will then present an overview of some of the ways that psychoanalytic theory has been used in the study of culture.
1 Credit

CC9921 (CMCT 7500 3.0) Technology, Communication and Culture
Employing the insights of the Toronto school and related theories, this course explores culture and technology as productive processes, with emphasis on the historical development of communication technologies and their influence on culture and society. Doctoral Foundation Course. 1 Credit

CC9990 (CMCT 7011 3.0) Directed Readings A
A directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. Doctoral Course. 1 Credit

CC9991 (CMCT 7012 3.0) Directed Readings B
A directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's program objectives. Doctoral Course. 1 Credit

CC9992 (CMCT 7002 3.0) Directed Research
A directed research course is intended to permit the student to conduct research or develop a theoretical perspective in an area of study related to the student's program objectives. The research may take the form of a pilot study for a thesis or dissertation project. Doctoral Course. 1 Credit

CC9993 (CMCT 7003 3.0) Directed Group Study
Under this heading, a group of students, with the agreement of a faculty member, may organize a seminar in an area not covered in the course offerings. Doctoral Course. 1 Credit

COMMUNICATION AND DESIGN ELECTIVES

CD8310 Topics in Cross Cultural Comm
The term *cross-cultural competence* denotes a vast complex of competencies, which educators, politicians and business leaders around the world have identified as one of the most crucial of the 21st century. The purpose of this course will be to foster such "competence" through a wide-ranging examination of the major social issues that affect communication across national and cultural boundaries. 1 Credit

CD8320 Media Lang: Forms, Approaches
This interdisciplinary course will investigate both common elements (visual and auditory narratives, methods of presentation/distribution, cultural roles) and specific attributes (individual characteristics and technologies) of contemporary media forms. Key developments in the evolution of media types and media languages will be explored in the larger context of understanding critical and theoretical issues associated with these forms and languages. 1 Credit

CD8330 Audiences and the Public
This course will begin with the work of Jurgen Habermas and his influential notion that "the public" is not something that can be taken for granted, but a very specific historical development that first emerged in the 17th century in the bourgeois societies of Western Europe. The course will examine how the idea of "the public" or "the audience" has taken shape at different times; for example, the "imagined communities; that are the foundations of modern nations could not have taken shape in the absence of mass media. Different conceptions of the audience that arise from the different disciplines offered across the Faculty of Communication & Design will be examined. 1 Credit

COMPUTER NETWORKS

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS

Master's Thesis		
CN8811	Multimedia Proc & Digital Comm	1
CN8812	LAN and WAN Switching	1
CN8813	IP Protocols	1
CN8814	Network Math & Simulations	1
CN8815	Network Architectures	1
Two Elective credits		2

Master of Engineering

DEGREE REQUIREMENTS

CN8001	Master's Project/Case Study	2
CN8810	Intro to Computer Networks	1
CN8811	Multimedia Proc and Digital Comm	1
CN8812	LAN and WAN Switching	1
CN8813	IP Protocols	1
CN8814	Network Math & Simulations	1
CN8815	Network Architectures	1
Four Elective credits		4

Electives

CN8816	Network Security	1
CN8817	Wireless Networks	1
CN8819	Multimedia Networks	1
CN8821	Software Engineering	1
CN8822	Network Operating Systems	1
CN8823	Embedded & Real-Time Op Sys	1
CN8825	Network Design	1
CN8831	Adv Topics in Network Security	1
CN8841	Content-Aware Networking	1
CN8861	Network Management	1

COURSE LISTING

Thesis
The student is required to conduct advanced research on a topic chosen in consultation with the student's thesis supervisor. The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the research thesis, and the research results, to this committee. Through the thesis, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

CN8001 Project/Case Study
The student will be required to analyze the performance of a network and either design a new network or an upgrade to an existing network. Some approved projects could be undertaken with collaborating external corporation(s) under the supervision of faculty advisor(s). Pass/Fail

CN8810 Introduction to Computer Networks
This course offers a general introduction to computer networks. It explores goals, services and problems with computer networks. Computer communication is examined using the seven-layer OSI model. The purpose of each layer is discussed both from conceptual and practical aspects. Topics include: OSI model, layered architecture, data link protocols, LAN protocols, WAN protocols and details of Internet protocol. There will be several lab projects to reinforce the topics discussed in the lectures. 1 Credit

CN8811 Multimedia Processing and Digital Communication
The course first covers the basic concepts in source and channel coding techniques. It subsequently introduces various aspects of multimedia processing. Topics include: sampling, quantization, PCM, DPCM, delta modulation, line coding, digital modulation, information theory on entropy, Huffman coding, Lempel Ziv coding, model-based coding, information theory on channel capacity, linear block codes, cyclic codes, convolutional codes, trellis code modulation, multimedia data compression standards, and multimedia information retrieval. Theoretical concepts will be re-enforced through some real-time experiments in the laboratory using Matlab and C. 1 Credit

CN8812 LAN and WAN switching
This course covers both LAN and WAN switching. In addition, it discusses various WAN technologies. It first covers Ethernet switching and related topics such as spanning tree, VLAN, and trunking. Next, it examines switch architectures and performances. The protocols in X25 and Frame-Relay networks are then studied. ATM technology and protocols are discussed with the emphasis on Quality–of-Services (QoS), traffic shaping, and traffic policing. Finally, various wide-area access technologies are introduced and studied. 1 Credit

CN8813 IP Protocols
The course provides an in-depth coverage of the Internet protocols. It has two main focuses. First, it studies various interior gateway protocols: RIP, IGRP, Enhanced IGRP, and OSPF. It then concentrates on the protocols related to the Internet operations and management, such as ICMP, DHCP, DNS, and SNMP. Other topics include multicasting and IPv6. Prerequisites CN 8810 and CN8811. 1 Credit

CN8814 Network Mathematics and Simulations
This course provides foundations in probability and random processes, and develops the understanding of Markov processes and the simulation of Markov Chains. The course also covers queuing systems and Monte Carlo simulation. Basic simulation and modeling techniques are then discussed, followed by output data analysis. The course concludes with various Computer Networks Simulation projects using OPNET. Prerequisites: CN 8810 and CN8812. 1 Credit

CN8815 Network Architectures
This course covers the design aspects of large scale internets. It introduces the concept of route distribution and examines the use of Border Gateway Protocol (BGP) for interdomain routing. Multi-Protocol Label Switching (MPLS), an advanced datagram forwarding architecture, is also introduced, and its applications in Virtual Private Networks (VPNs) and traffic engineering are studied. Prerequisite CN8813. 1 Credit

CN8816 Network Security
This course covers the cryptographic algorithms and secure protocols, and their applications in security mechanisms for computer networks. The course introduces conventional encryption algorithms and Public Key Algorithm with integrity mechanism. Authentication mechanisms for OSI protocols and TCP/IP are also discussed, and their applications in Firewall and IDS (Intrusion Detection System) are studied using actual industrial (for example CISCO's) products. Prerequisities CN8810 and CN8812. 1 Credit

CN8817 Wireless Networks
This course provides an overview of wireless networking, including wireless physical characteristics and mobility, wireless channel characteristics, signal propagation and multiplexing techniques. Specialized medium access protocols for TDMA and CDMA are then discussed, followed by an overview of the architecture of 3G systems (UMTS and CDMA2000). The course also discusses the IEEE 802.11 standard for wireless LAN, mobile routing techniques including Ad Hoc networking, mobile IP and roaming protocols, and wireless transport/TCP enhancements. The course also includes a design project of a small scale wireless network. 1 Credit

CN8819 Multimedia Networks
This course covers the concepts and design of multimedia networks. It first introduces the real-time transport protocols and various signaling protocols in multimedia-over-IP environments. A significant part of the course discusses the design and implementation of integrated voice/data networks. Different methods will be investigated to maintain the desirable voice quality performance. The course includes the following topics: Signaling system #7 (SS7), RTP and RTCP, multimedia signaling protocols such as H323, SIP, and MGCP, congestion control methods, and RSVP. Prerequisites CN8812 and CN8815. 1 Credit

CN8821 Software Engineering
This course includes the study of the software development process, software requirements and specifications, and software design techniques. The material is presented in the context of distributed networked systems design and implementation. 1 Credit

CN8822 Network Operating Systems
This course focuses on the issues surrounding network design using Unix and Microsoft Windows Operating Systems (OS). It explores the structure and networking capabilities of the OS's, introduces students to OS interprocess communication and client-server application design. The lab component focuses on network design, providing essential network services, and monitoring performance using Unix and Microsoft Windows servers. 1 Credit

CN8823 Embedded & Real-time Operating Systems
This course covers the basics of real-time operating systems and embedded system organization. It introduces the background knowledge required for understanding real-time and embedded systems, architecture of embedded networking devices and system on chip technologies. The students will be able to grasp the internals of an operating

system including processes/tasks threads and scheduling techniques. The course will emphasize real-time task scheduling and provide hands on experience to develop applications using the industry standard real-time operating system, VxWorks. Tornado integrated development environment from Wind River Systems will be employed for developing VxWorks applications. Fault-tolerance concepts required for safety critical and high availability real-time systems will also be presented in the course. Case studies of various networking devices utilizing the real-time system concepts will also be conducted. 1 Credit

CN8825 Network Design
This course presents the methods used for the design of various types of communication networks. The topics include: management and business perspectives on network design, estimation of traffic demand, network cost analysis, topological design, capacity assignment, routing, virtual network design, wireless network design, availability analysis and survivable network design. 1 Credit

CN8831 Advanced Topics in Network Security
Students of this course will obtain a firm understanding of the theory and applications of network security. Topics include: AAA mechanisms, secure policy manager, network secure management, Internet security and privacy, and web security. In addition, it covers wireless security fundamentals and addresses common risks and threats on wireless environment. 1 Credit

CN8841 Content-Aware Networking
This course provides a focused perspective on the core technologies of the World Wide Web, and also state-of-the-art technologies of how to improve the web performance and how to build a content-aware and intelligent network. We focus on architectures, protocols, standards and devices (such as client, proxies, servers and load balancers) that constitute the web and deliver the content across the Internet. The course also covers web caching, content delivery networking, peer-to-peer networking, and multimedia streaming. 1 Credit

CN8861 Network Management
The course first provides an introduction and overview of Network Management models. It then focuses mainly on the TCP/IP-based Internet management including SNMP, agent architectures, MIB, and FCAPS management. The course also introduces and discusses advanced topics such as policy-based management, distributed management, and service management architectures. 1 Credit

COMPUTER SCIENCE

CURRICULUM

Master of Computer Science

First Offered Fall 2007

DEGREE REQUIREMENTS		**Credits**
Master's Thesis*		
Mandatory Courses		
CP8101	Research Methods	1
CP8102	Computer Science Seminar	
Core Courses (Minimum of Two required)		
CP8201	Algorithms and Computability	1
CP8202	Advanced Software Engineering	1
CP8203	Advanced Database Systems	1
CP8204	Advanced Programming Languages	1
CP8205	Adv Human-Computer Interaction	1
CP8206	Soft Computing and Machine Intel	1
CP8207	Special Topics: Core Computer Sci	1
Non-Core Area Courses (Minimum of Three Required)		
CP8301	Secure Computing	1
CP8302	Software Metrics	1
CP8303	Collaborative Computing	1
CP8304	Distributed Systems	1
CP8305	Knowledge Discovery	1
CP8306	Presence	1
CP8307	Image Analysis	1
CP8308	Visualization	1
CP8309	Special Topics: Emerging Comp Sci	1
CP8310	Directed Studies in Computer Sci	1

COURSE LISTING

Master's Thesis
This is a "Milestone." Pass/Fail

CP8101 Research Methods
This course is intended as a transition to research-based learning for computer science graduate students. It is designed to assist students in developing skills necessary to design and execute a research protocol. The course is intended to complement the specific research programs devised by the student and their advisors. The course covers the following topics: nature of scientific inquiry, library skills, formulation and testing of hypotheses, experimental design, statistical analysis of data, human subjects, use of humans and animals in research, and professional responsibility in research. Pass/Fail

CP8102 Computer Science Seminar
A regular weekly seminar presenting research problems currently under investigation. Each student is expected to regularly attend for four semesters and to present one of the talks. Pass/Fail

CP8201 Algorithms and Computability
The concepts of algorithms and computability together with techniques for analysis of the efficiency and complexity of algorithms are studied. Logical formalisms and their application in computing environments and the use of logical reasoning in establishing the correctness of implementations of algorithms are discussed. Abstract models are discussed with respect to advanced computational models. 1 Credit

CP8202 Advanced Software Engineering

Modern approaches to software development are studied including requirements analysis, system design techniques, formal description techniques, implementation, testing, debugging, metrics, human factors, quality assurance, cost estimation, maintenance, and tools. 1 Credit

CP8203 Advanced Database Systems
Object-Oriented and Object-Relational Database Systems; Distributed and Multi-database Systems; Advanced Database Applications: Web-Based Database Access, Data Warehouses. 1 Credit

CP8204 Advanced Programming Languages
A study of the principles, concepts, and mechanisms of computer programming languages - their syntax, semantics, and pragmatics; the processing and interpretation of computer programs; programming paradigms; and language design. Additional topics will include language design principles and models of language implementation. 1 Credit

CP8205 Advanced Human-Computer Interaction
Current trends in user interface technology; topics include alternative interaction devices, user interface tools, and interface modeling techniques. Usability testing and human factors. 1 Credit

CP8206 Soft Computing and Machine Intelligence
Introduction to basic concepts and techniques of soft computing including: neural, fuzzy, evolutionary computation and their applications. 1 Credit

CP8207 Special Topics: Core of Computer Science
This special topics course examines selected, advanced topics in areas related to the core areas of computer science series that are not covered by existing courses. The topic(s) will vary depending on the need and the instructor. 1 Credit

CP8301 Secure Computing
The importance of security for computer systems: protection, access control, distributed access control, Unix security, applied cryptography, network security, firewalls, secure coding practices, safe languages, mobile code. Computer and network forensics techniques. Computer security techniques. Legal and Ethical issues. Topics may include cryptographic protocols, privacy, anonymity, and/or other topics as time permits. 1 Credit

CP8302 Software Metrics
The theory of measurement, experimental design, software metrics collection, statistics for analyzing measurement data, software size and software structure, resource measurement, prediction of software characteristics, planning software measurement, software quality and reliability. 1 Credit

CP8303 Collaborative Computing
Technical and societal perspective on technology enhanced collaboration. Multicasting, Groupware, Computer Supported Cooperative Work, Web technologies and services to support collaboration, social networking environments and the protocols driving them, coordination frameworks, agents to support collaborative activities, and implied security concerns. 1 Credit

CP8304 Distributed Systems
The evolution of high-performance distributed computer systems. Models for distributed processing. Taxonomy and performance evaluation of multiprocessor systems. Interconnection networks. Memory and I/O system for multiprocessor architectures. Performance of distributed systems. Architectural issues of distributed database systems. 1 Credit

CP8305 Knowledge Discovery
Steps in the process of knowledge discovery: data preprocessing, data mining, post-processing and knowledge utilization. Preprocessing: data cleaning, integration, transformation and reduction. Data mining methods: association rules, classification and clustering. Post-processing: knowledge evaluation, interpretation, presentation and visualization. Knowledge discovery and data management. Possibly other selected topics in knowledge discovery**.** 1 Credit

CP8306 Presence
Teleoperators, telepresence, telebotics. Remote interaction and manipulation. Environmental, societal and personal presence. Factors influencing presence. The course is highly interactive and will involve the creation of mechanisms for the remote interaction with real environments in order to establish a sense of presence. 1 Credit

CP8307 Image Analysis
Continuous, variable and discrete variable imaging. Continuous and discrete transforms. Image enhancement. Image analysis including multidimensional edge-primitive theories, shape analysis. Multispectral imaging and applications. Image modeling. Syntactical analysis, aspects of image database theories. 1 Credit

CP8308 Visualization
Use of computer graphics to understand patterns, relationships and trends in scientific and information systems data. Topics include: historical overview, fundamental concepts, scientific visualization techniques for scalar and vector data, visualization systems, interaction with 2D/3D graphical interfaces, web-based visualization and collaborative visualization over the internet, software visualization, information visualization. 1 Credit

CP8309 Special Topics: Emerging Computer Science

This special topics course examines selected, advanced topics in areas related to emerging areas of computer science that are not covered by existing courses. The topic(s) will vary depending on the need and the instructor**.** 1 Credit

CP8310 Directed Studies in Computer Science
This course is for master's students who wish to gain knowledge in a specific area for which no graduate level classes are offered. Students wishing to take the class would be assigned a suitable class advisor most familiar with the specific area of interest. Students are required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study) in an organized format. 1 Credit

DOCUMENTARY MEDIA

CURRICULUM

Master of Fine Arts

First Offered Fall 2007

DEGREE REQUIREMENTS		**Credits**
Master's Project		
DM8101	Master's Project Seminar	1
DM8102	Documentary Studies I	1
DM8103	Documentary Studies II	1
DM8104	Productn I: Image, Frame, Seq	2
DM8105	Productn II: Motn, Time, Sound	2
DM8106	Productn III Nar Intractv Frms	2
DM8107	Productn IV: Pres and Exhibitn	2
DM8108	Research Methods	1
1 credit from Documentary Media Electives 1 credit from Advanced Theory Electives 1 credit from Communication & Design Electives		1

ELECTIVES

Documentary Media		
DM8201	Sound Design - Visual Media I	1
DM8202	Cinemetog, Lighting Design I	1
DM8203	Interaction Design	1
DM8204	Authoring for New Media	1
DM8205	Topics and Issues in Design	1
DM8206	Media and Communication	1
DM8207	Movmnts, Issues-Contemp Photog	1
DM8208	Interactivity and Networking	1
DM8209	Experimental Media	1
DM8210	Hist and Theory of Film,Video	1
Advanced Theory		
DM8301	Adv Topics in Hist. of Docmtry	1
DM8302	Cult of Avt Grde Mdrns Discnts	1
DM8303	Hist/Historiography: Vis Arts	1
DM8304	Dig Media: Theortical Framewrk	1
DM8305	Dbs, Arcs, Virt Exprnce of Art	1
DM8306	Studies in Culture, Perception	1
DM8307	Representational Media	1
Communication & Design		
CD8310	Topics in Cross-Cultural Comm	1
CD8320	Media Langs: Forms & Apprches	1
CD8330	Audiences and the Public	1

COURSE LISTING

Master's Project
The final course requirement in the MFA curriculum is the development and preparation of a visual project in documentary form, to be completed and publicly displayed/screened at the end of the second year of the program. It may be presented in photographic, film, digital video or digital interactive format. It must demonstrate professional competence in the chosen medium/format, and must be produced under the student's sole creative control in consultation with faculty advisors, and be accompanied by a written paper of an appropriate length (30-40 pages) which provides a project synopsis and critical analysis. As part of the final project display, students must prepare a brief talk on their project, and be prepared for a critical review by program faculty and invited jury members. This is a "Milestone". Pass/Fail

DM8101 Master's Project Seminar

Taken concurrently with Production III and prior to Production IV, this course focuses on the three stages involved in any major documentary production: preliminary planning and research, material gathering and production, and editing and completion. Methods and approaches for each stage will be presented and examined, as will selected case studies, media references, and documentary works in a variety of forms. Pass/Fail. 1 Credit

DM8102 Documentary Studies I
The first in a two-course sequence in the traditions, methods and applications of documentary forms, this course will instruct students in the fundamental principles of authorship and creation of documentary artifacts. Emphasis will be placed on the history of the documentary approach, applied subject research, the development of structure, and image capture techniques and applications. The course will be supplemented with a required series of screenings, exhibitions and visiting artist lectures; these activities will provide a social and cultural context for understanding the many roles undertaken or assumed by documentary media in defining the present era. 1 Credit

DM8103 Documentary Studies II
This is the second course in a two-course sequence in the traditions, methods and applications of documentary forms. The emphasis will be on aspects of production that lead from raw material to finished product: post production techniques and technologies, concepts and software, and modes of editing and presentation. The course will place emphasis on contextualizing and understanding the idea of a documentary "stance" and the notions of "truth" in documentary as these have evolved over time. The screenings, exhibitions and lectures associated with Documentary Studies I will continue into the second term of the program as a requirement for this course. 1 Credit

DM8104 Production I: Image, Frame Sequence
An overview of the fundamental elements of visual media: the lens-formed or digitally captured image; framing, recording and compositional/structural elements; images in sequence and the creation of meaning; principles of documentation in still-frame media. The emphasis is on photography and digital still-frame imaging in relation to the documentary tradition. 2 Credits

DM8105 Production II: Motion, Time, Sound
This course will continue with an overview of the fundamental tools of moving and time-based media: the recording of movement, the establishment of temporal relations and frameworks, and the use of sound in moving and interactive media. The emphasis is on film, video and moving/streaming digital and web-based imagery as utilized in documentary practice. 2 Credits

DM8106 Production III: Narrative and Interactive Forms
The course examines ways in which narration and interactivity animate all forms of image gathering and documentary production. The role of editing in moving images, the role of scripting in narrative media, and the use of sound will all be explored. In addition, the roles of programming and software applications in interactive and web-based documents (particularly image databases and user-adaptive moving image sources) will be examined. 2 Credits

DM8107 Production IV: Presentation and Exhibition
The final course in the production sequence is taken in conjunction with work on the Master's Project, described at the end of this section. The course examines aspects of presenting and exhibiting finished work: venues and the associated criteria for each, as well as existing and emerging markets and distribution networks are all examined in detail. The documentary industry and the workings of this industry in relation to content production and distribution are also examined. 2 Credits

DM8108 Research Methods
Students will be introduced to the theories, methodologies and methods that take into account creative, humanities-based and social scientific perspectives. A second goal of the course will be to familiarize students with the research and information gathering process, with the use of the library and library resources, electronic and online research, and creative and unusual research strategies. The third goal is to provide an introduction to the art of project design and the writing of proposals. 1 Credit

DM8201 Sound Design for Visual Media I
This course will expand on basic sound theory and technology and their application within various media productions. Students will explore the conceptualization, production and postproduction of sound. Through applied projects, students will further explore sound-image relationships. Material covered will include digital sound systems and techniques. The computer will be introduced as a musical instrument, sequencer and recorder. Antirequisite FPN323. 1 Credit

DM8202 Cinematography and Lighting Design I
This workshop is an exploration of cinematography, with a special focus on the stylistics of lighting as an essential aspect of cinematography. It centres on using lighting design not merely to establish a mood or time of day, but to support and further the theme or premise of the work. Antirequisite FPN531. 1 Credit

DM8203 Interaction Design
From an applied design perspective, this course will allow advanced students to explore the new possibilities and challenges for visual and virtual media. Through the construction of new media objects, students will explore creative applications of communication models and paradigms, including the design implications of alternative modalities and practices with the changing cultures of presentation-reception. Antirequisite FPN535. 1 Credit

DM8204 Authoring for New Media

This course is an introduction to authoring for new media. Topics to be explored will include authoring environments, interface design, structuring of applications, scripting languages, output devices, networked-based and stand-alone applications. Students will experience the full process of creating an interactive application. Antirequisite FPN538.
1 Credit

DM8205 Topics and Issues in Design
This course will consider the influential role of design in film, photography and new media from a historical and theoretical perspective. The specific content of the course may vary according to the context and the particular focus of the curriculum in any given year. Practical workshops may be offered if appropriate to the material being presented. Antirequisite NPF558. 1 Credit

DM8206 Media and Communication
This course provides students with the opportunity to study the process and media of communication from a variety of theoretical perspectives provided by, for example: aesthetics, business, education, history, information theory, mass media studies, science, semiotics, the social sciences, technology. Antirequisite NPF562. 1 Credit

DM8207 Movements/Issues in Contemporary Photography
The major movements, figures and issues in twentieth-century photography are the focus of this seminar course, which will follow the evolution of the photographic medium over the century's span. The shift from pictorial to realist representation, the influences of surrealism, abstraction and modernism, the fragmentation of movements and styles in recent decades, and the development of new image-forming systems will all be examined. The course encourages individual exploration and research, and presupposes a basic knowledge of photographic history. Antirequisite NPF548.
1 Credit

DM8208 Interactivity and Networking
Students studying the new media, and innovative aspects of film and photography, have available to them as an aspect of their production practice the relatively new communications discipline of interactivity, most typically by means of high-speed computer-controlled cable and wireless systems. Interactive and/or networked media and media systems will be traced from their beginnings up to the current state of ultra-high-speed computing and optical signal processing. By means of selected historical and contemporary case studies the interrelated cultural phenomena of interactivity and networking will be studied as both first-order paradigms of communicative-behavioural change and as applied creative and expressive modalities for new-media makers. Antirequisite NPF551. 1 Credit

DM8209 Experimental Media
In the past century, groups of artists have repeatedly called for new methods for the creation of artworks, to revitalize arts that had grown dreary, stale, and predictable. This course comprises workshops and seminars and explores the value of such proposals: means to be considered will be the use of aleatory methods, algorithmic procedures, interference structures (Schillinger methods), exquisite corpses (in words and pictures), practices based on the methods of dreams, and methods based on the deliberate rejection of all formations that can be rationally explained. Workshop projects utilizing these methods will be realized in different media. Seminars will explore both historical questions concerning the provenance of such practices and theoretical questions about the extent to which these practices have the potential their proponents claimed for them. A portion of the course will be given over to considering philosophical questions concerning the role of novelty in the arts. Antirequisites NPF555, CC8971. 1 Credit

DM8210 History and Theory of Film and Video
This course enables students to concentrate on specific aspects of the history and theory of film and video. Each semester will be devoted to a different topic, e.g., national and alternatively cinemas, film genres and alternative video. The relationship between the aesthetic features of given works and their cultural production will be emphasized. AntirequisiteS NPF557, CC8968. 1 Credit

DM8301 Advanced Topics in the History of Documentary
The history of documentary can be understood entirely in terms of an aesthetic and philosophical engagement with the ever-changing epistemological status of the form itself. What started out as a response to fiction or an adjunct to the dominant form now seems to have merged, in the audience's eyes at least, into some sort of hybrid, postmodern comment on reality. This course will undertake a historical study of the evolution of documentary's truth claims from the 1890's to the present day. Informing this historical study will be the seminal theoretical works that have mapped out the precarious philosophical terrain the form insists on cultivating. 1 Credit

DM8302 The Culture of Avant-Garde: Modernity's Discontents
This course explores the discontent that members of vanguard artistic movements of the 20th century harbored relative to the culture of modernity, and examines the different forms that this discontent (or protest) assumed in Futurism, Dada, Surrealism, Lettrism and Situationism. The course examines both key documents in cultural theory and the manifestos issued by various groups, and is concerned particularly with artists who attempted to forge a link between political revolution and a revolution in consciousness. The role the cinema played in all these artistic movements is given special consideration, as is the re-contextualization of this work as a document of its own culture and time. Antirequisite CC8983.
1 Credit

DM8303 History and Historiography: Critical Studies in the Visual Arts
A directed reading, seminar course examining recent developments in historical and critical studies across all media, with an emphasis on investigating developments in the fields of cultural studies which utilize contemporary visual media as

primary source material. The ever-expanding literature related to documentary forms and practices, as well as the changing historical roles of these forms, will be another essential subject of investigation. 1 Credit

DM8304 Digital Media: Towards a Theoretical Framework
As digital media evolve, critical theory struggles to either keep pace or develop unifying-field theoretical constructs. This course looks at critical writings on digital media, with a particular focus on publications and on-line sources from the last decade. Relations between developments in critical theory and the rapid evolution of the technologies of digital media are actively tracked throughout the course; as are ways in which digital media aggregate to form new collections of digital documents. 1 Credit

DM8305 Databases, Archives and the Virtual Experience of Art
Visual information takes on different forms in the digital realm, and multifaceted databases accumulate more and more of this information. Our perceptual and social understandings of images -- even our cultural identities and memories -- are increasingly stored in systems through which only reproductions and virtual images can be retrieved. This course examines the larger implications of this phenomenon for image makers as well as for societies and cultures. 1 Credit

DM8306 Enabling Technologies and the Illusions of Knowledge: Studies in Culture and Perception
Building on the premise explored in the course described immediately above, this course looks at ways in which enabling technologies increase the malleability of visual records and visual documents. Image politics, culture wars and new forms of propaganda are critically examined in this context, as are these issues in relation to the larger issues of accuracy in representation and the verifiability of virtual documents. 1 Credit

DM8307 Mirror, Prosthesis, Storage Device: Representational Media and Epistemologies
What are media and how do they shape and contain knowledge? This course critically engages with a history of ideas about the nature of the document. Students will work through a body of philosophical and theoretical writings from the ancient and contemporary worlds that consider media as mirror to nature, as prostheses or extension of the human body, as storage device, and as communication system, in conjunction with examples drawn from art, literature, photography, film, and new media. 1 Credit

EARLY CHILDHOOD STUDIES

CURRICULUM

Master of Arts

DEGREE REQUIREMENTS		*Credits*
Master's Research Paper*		
CS8901	Research Methods in ECS	1
CS8902	Curriculum Design	1
CS8903	Educational Equity: Families	1
CS8904	Theoretical Frameworks: ECS	1
Three elective credits		3

** Students may apply to substitute three courses for the Master's Research Paper*

ELECTIVES

CS8921	Elements of Statistics	1
CS8922	Inclusion: Educational Change	1
CS8923	Social Justice in Education	1
CS8924	Inclusion: Issues in Assessment	1
CS8925	Multiage Groupings in ECS	1
CS8926	Risk and Resil: Child/Family	1
CS8927	Social/Political Contexts for ECS	1
CS8928	Transformative Literacy	1
CS8929	The Minority Child	1
CS8930	Social Research with Children	1
CS8931	Children and Canadian Policies	1
CS8932	Learning Theories Technologies	1
CS8933	Directed Studies in ECS	1
CS8934	Special Topics in ECS	1
CS8935	Human Services Evaluation	1
CS8936	Children's Rights	1
IS8921	Equity for Newcomers: Schools	1
IS8934	Multicultural Cities–Planning Plcy	1

COURSE LISTING

Master's Research Paper
Students will conduct specialized research on a topic of their choice and produce a scholarly paper, based on primary and/or secondary sources, addressing an early childhood topic from any disciplinary perspective. Students will be required to submit a proposal for faculty approval identifying their topic, its significance for early childhood studies, sources, and methodology. The research paper will be evaluated by a three-person committee and will require an oral defence examination. The Master's Research Paper is a "Milestone." Pass/Fail

CS8901 Research Methods in ECS
In this course, students will learn the qualitative and quantitative methods that are key to research in this field. They will become skilled in evaluating current research, and, by the end of the course, they will have developed a full proposal for their required research paper. 1 Credit.

CS8902 Curriculum Design in a Changing Society
This course will address the many possible adaptations of curriculum that facilitate the successful inclusion of students who speak languages other than English and children with an identified special need. It will discuss traditional non-inclusive practices and the obstacles to be overcome in order to move curricula to a more supportive and successful inclusion of children with diverse needs. 1 Credit

CS8903 Educational Equity: Families
This course will investigate the institutional processes in education that routinely disadvantage certain populations. Approaches to equity will be explored from three perspectives: research and theory on social dominance; recent attempts by educational organizations to develop processes that are friendly to immigrant families; and research on what migrants

(children and parents) in the educational system say about their experiences. Several populations, selected in consultation with the class, will be the subject of these investigations. 1 Credit

CS8904 Theoretical Frameworks: ECS
In this course, students delve deeply into the foundations of developmental theory that show the great variations existing in patterns of child development. They will also examine anthropological and sociocultural theories and their implications for research and practice in early childhood studies. 1 Credit

CS8921 Elements of Statistics
This course will cover the basic theory behind hypothesis-testing and explore various techniques for summarizing data, measuring relationships, and making inferences. Common statistical techniques such as correlation, t-tests, analyses of variance, simple linear regression, and chi-square will be taught. Students are expected to learn how to use the SPSS statistics package or equivalent. 1 Credit

CS8922 Inclusion: Educational Change
Educational change processes for inclusive school delivery models will be explored in this course within the sociopolitical context of family, school, community and society. The skills and role of the resource consultant as a collaborator in change, and the impact of inclusion on families, educators, and learners from diverse populations will be considered.
1 Credit

CS8923 Social Justice in Education
In this course students will explore the role of language and discourse in making people feel included in or excluded from our schools and society. Through the lens of postmodernism, students will examine theories and ideologies such as emancipatory leadership, social justice, critical realism, and cultural capital, and will develop a critically informed knowledge base for the pursuit of social justice as an explicit and necessary educational practice. 1 Credit

CS8924 Inclusion: Issues in Assessment
This course will focus on authentic assessments of learners with special needs across diverse populations. Issues of eco-behavioural assessment, evidence-based pedagogy, adaptive instruction and assistive technology for children with special needs will be highlighted. 1 Credit

CS8925 Multiage Groupings in ECS
This course introduces students to the discourses of multiage groupings, framing them within a cultural-contextual approach and presenting them as alternative constructions that challenge the legitimacy of the mainstream same-age grouping approach. Emphasis will be placed on community development, programming models for multiage groupings, elements of quality, fostering positive relationships, and children's learning. 1 Credit

CS8926 Risk and Resil: Child/Family
This course will examine the constructs of health and resilience and the factors that contribute to healthy outcomes for children in the face of risk and adversity. Students will critically examine the social, familial, and individual factors that pose risks for childhood development and identify points of intervention and change, with an emphasis on how diverse social and cultural experiences offer varied paths to adulthood. Research and theories on resilience will also be critically examined. 1 Credit

CS8927 Social/Political Contexts for ECS
This course explores social and political factors that shape learning opportunities and determine access to early childhood education programs. An historical and international perspective will be used to examine the respective roles of the family, government, non-profit sector and for-profit sector in providing early childhood services. Students will be provided an opportunity to develop their roles as advocates and change agents within a particular education/care context. 1 Credit

CS8928 Transformative Literacy
Transformative approaches to early literacy build a foundation for positive academic outcomes by addressing the goals of bilingualism, biculturalism, and biliteracy. Transformative approaches involve collaborations between educators and their students¿ families to write books intended to strengthen the students¿ cultural, ethnic, and linguistic identities. This course introduces examples of transformative literacy programs and evaluates the implications of employing these approaches in the education of young children whose families are either newcomers to Canada or members of language minorities. The course provides opportunities to collaborate in the implementation of small-scale transformative literacy initiatives. 1 Credit

CS8929 The Minority Child
This course takes a sociolinguistic approach to understanding the central role of language in explaining a diverse social world and the power of classroom contexts and teacher practices in this regard. Topics covered include different cultural discourse norms, mismatches in discourse, bi-lingual and ESL education, standard and non-standard language varieties, the signing deaf and gendered discourse norms. 1 Credit

CS8930 Social Research with Children
Building on the core course in research methods, this course will focus on current debates and discussions regarding research that involves children. Methodological and ethical issues such as informed consent, children as collaborators in the research process, and power issues in social research with children will be considered. 1 Credit

CS8931 Children and Canadian Policies

This course will critically examine a wide range of Canadian social policies that touch the lives of young children. Policies that impact children's health, care, education, family life, and future well-being will be evaluated. The course will include the assessment of public policies that specifically affect Aboriginal children and public policies that specifically affect the children of newcomers. The beliefs and values that form the foundation for present policies will be clarified. Options for future policy development will be discussed. 1 Credit

CS8932 Learning Therories Technologies
This course will critically evaluate the role of technology in the lives of children. Ideally, computers and online technologies are tools for putting people in touch with people and the objects they create. However, much of the technology is designed for children without sufficient investigation as to how children conceptualize technology in the context of constructivist and constructionist theories of learning. Traditional learning theories have not kept pace with new technologies, and as a result, much of the content developed for online learning does not take into account either the advantages of the new technologies, or the development of children's thinking as a result of the dramatic increase in computer-mediated experiences. This course will explore learning technologies as they relate to children from a variety of perspectives. We will consider how technology is used in formal and informal learning environments, as well as the variety of interactions children typically have with technology through the consideration of children's theories of learning, children's software, and technical production with children (learning by doing, and performative thinking). 1 Credit

CS8933 Directed Studies in ECS
This course is for Masters Students who wish to gain knowledge in a specific area for which no graduate level class is offered. It would involve a directed study for which the student would be given credit. Students wishing to take the class would be assigned an advisor most familiar with the specific area of interest. Students would be required to present the work of one term (not less than 90 hours in the form of directed research, tutorials and individual study), in an organized publication format. 1 Credit

CS8934 Special Topics in ECS
This course provides students with the opportunity to pursue advanced studies on issues and themes of immediate and current significance in the fields of Early Childhood Studies. It allows students to access leading-edge research and to explore new and emerging models of practice. The particular theme, topic and structure of the course will vary in response to changes and trends in the field, availability of specialists and student interest. 1 Credit

CS8934 Special Topics in ECS
This applied social research course introduces the principles and methods of evidence-based practice (EBP) in human service programs. Topics to be addressed include research design, methods of data collection, interpretation of statistics and the use of requests for proposals as a component of program evaluation. The course includes discussions of studies from the current literature, including work from peer-reviewed journals as well as work by human service agencies, government ministries and NGOs. 1 Credit

CS8936 Children's Rights
The United Nations Convention on the Rights of the Child is examined. The convention is explored within the framework of human rights principles and citizenship. Policy and practice implications will be considered through the lens of a child rights approach. Consideration will be given to understanding children's development as `citizens¿ and children's participation in society. 1 Credit

ELECTRICAL AND COMPUTER ENGINEERING

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS

Master's Thesis

EE8010 Master's Research Seminar in ELCE

Five Elective credits

Master of Engineering

DEGREE REQUIREMENTS

Master's Project*

Eight Elective credits

*students may apply to substitute 2 courses for the project.

Doctor of Philosophy

First Offered Fall 2004

DEGREE REQUIREMENTS

Candidacy Examination

Dissertation

EE9010 PhD Research Seminar in ELCE

Four Elective credits

(Only one elective credit may be a Directed Studies course)

ELECTIVES		*Credits*
EE8102	Signal Detection Theory	1
EE8103	Random Processes	1
EE8104	Adaptive Signal Processing	1
EE8105	Digital Signal Processing I	1
EE8107	Digital Communications	1
EE8108	Multimedia Processing & Comm	1
EE8109	Wireless Communications I	1
EE8111	Digital Signal Processing II	1
EE8112	Digital Waveform Compression	1
EE8113	Statistical Time Series Anal	1
EE8114	Optical Commun & Networks	1
EE8115	Network Engineering Anlys	1
EE8119	Wireless Communications II	1
EE8120	Applied Optimization Technique	1
EE8121	Wireless Networks	1
EE8122	Opto-electronic Devices	1
EE8201	Computer Vision	1
EE8202	Digital Image Processing I	1
EE8204	Neural Networks	1
EE8205	Embedded Computer Systems	1
EE8207	High Perform Comp Sys Design	1
EE8208	Arch Synth & Des of Dig Sys	1
EE8209	Intelligent Systems	1
EE8211	Advanced Topics in Comp Networks	1
EE8212	Digital Image Processing II	1
EE8213	Computer Network Security	1

EE8214	Computer Systems Modelling	1
EE8215	Human Computer Interaction	1
EE8216	Computer Networks	1
EE8301	Linear System Theory	1
EE8306	Fund Robot Dynamics & Control	1
EE8401	Computer Methods Pwr Sys Analysis	1
EE8403	Adv Topics in Power Systems	1
EE8405	Power Sys Stability & Control	1
EE8406	Electric Motor Drives	1
EE8407	Power Converter Systems	1
EE8408	Switch Mode Power Supplies	1
EE8409	Electromagnetic Theory	1
EE8410	Power Electronics	1
EE8412	Advanced AC Drive Systems	1
EE8413	Adv Digtl Contrl Of Power Elec	1
EE8501	VLSI System Design	1
EE8502	CMOS Analog Int Circuits	1
EE8503	VLSI Circuits & Sys for Comm	1
EE8504	VLSI Dsgn Automtn & CAD Tools	1
EE8505	Digital Systems Testing	1
EE8506	Digital CMOS VLSI Integrated Circuits	1
EE8601	Directed St: Electrical Engr	1
EE8603	Selected Topics: Computer Engr	1
EE8604	Selected Topics: Electrical Engr	1
EE8605	Selected Topics: Computer Sci	1

COURSE LISTING

Master's Thesis
The student is required to conduct advanced research on a topic chosen in consultation with the student's thesis supervisor. The supervisory committee, and the thesis supervisor, must also approve the thesis research plan/proposal, which is presented in writing by the student. The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the research thesis, and the research results, to this committee. The examination committee will assess and grade the candidate's research thesis. Through the thesis, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

Master's Project
The Project may consist of an advanced design assignment, laboratory research project, analysis of research data, or an in-depth review of an approved aspect of the scientific literature. The student presents the proposed project plan in writing, which must be approved by the project supervisor, and the supervisory committee. The MEng candidate must submit two copies of the completed project report to the supervisor. An oral presentation of the project report, and results, will be arranged in a seminar format. The supervisor and another member of the supervisory committee will assess and grade the candidate's project report and the presentation. This is a "Milestone." Pass/Fail

Candidacy Examination
This is a "Milestone." Pass/Fail

Dissertation
The student is required to conduct advanced research on a topic chosen in consultation with the student's supervisor. The supervisor and supervisory committee must approve the research proposal, which is presented in writing and orally by the student. The student must submit the completed research in a dissertation format and make an oral presentation to an examination committee. The examination committee will evaluate the presentation and the dissertation. Through the dissertation, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. The research is expected to result in original and significant contribution to knowledge in the discipline. Pre-requisite: Candidacy Examination. This is a "Milestone." Pass/Fail

EE8010 Master's Research Seminar in Electrical and Computer Engineering
This course consists of weekly seminars with emphasis on current research in the specialization fields and emerging areas of electrical and computer engineering. This course will run through Fall and Winter semesters, 1 hour/week. Presentations will be given by graduate students, faculty members, visiting scholars and guest speakers. In order to

achieve a pass grade in the course, the student must attend a minimum of 75% of the seminars and do an oral presentation on a research topic. Pass/Fail.

EE8102 Signal Detection Theory
Classical and statistical detection theory, multiple hypotheses, composite hypotheses, sequential analysis. Classical estimation theory. Representation of random processes. Detection of signals (white and coloured noise, signals with unknown parameters). Estimation of signal parameters. Linear filtering theory, estimation of continuous waveforms. Wiener and Kalman filtering. 1 Credit

EE8103 Random Processes
Probability theory: mathematical model, conditional probabilities, random variables, pdf, transformation of random variables, conditional densities, statistical averages. Random processes concept; ensemble, stationarity, ergodicity, correlation and covariance, power spectral density, calculation and measurement of AVF and PSD, Gaussian random processes, noise. Transmission of random processes through linear systems: time-invariant systems, multiple terminals, Gaussian processes, non-stationary processes.
1 Credit

EE8104 Adaptive Signal Processing
The course begins with a brief review of linear signals and systems. Adaptive filter algorithms such as least mean squares (LMS), recursive least squares (RLS), and recursive least squares lattice (RLSL) will be covered. Linear prediction theory, autoregressive modeling, and spectral estimation will also be discussed. The course will briefly cover advanced adaptive signal analysis techniques based on time-frequency and wavelet transforms. 1 Credit

EE8105 Digital Signal Processing I
The class provides an introductory treatment of the theory and principles of digital signal processing, with suitable supporting work in linear system concepts and digital filter design. More specifically, the class deals with the following topics: general concepts of digital signal processing, continuous-time system analysis, Fourier analysis and sampled-data signals, discrete-time system analysis, discrete-time systems, infinite impulse response digital filter design, discrete and fast Fourier transforms, and general properties of the discrete Fourier transform. Antirequisite: ELE 792. 1 Credit

EE8107 Digital Communications
The class is intended to introduce the student to the concepts and theory of digital communications. The concepts of information, channel capacity, error probability, intersymbol interference, pulse shaping and spectrum shaping and optimum filtering are discussed. Digital multiplexing and bit stuffing, encoding, scrambling, equalization and synchronization problems are studied. Regenerative repeaters, M-ary signaling systems, basic modulation techniques - ASK, PSK and FSK; and performance characteristics of digital transmission systems are considered. 1 Credit

EE8108 Multimedia Processing and Communications
This course will touch some of the fundamental issues in media processing and applications. It will start with a quick look at the standards which set the baseline work for multimedia, such as MPEG-4 and MPEG-7. It will then present to the class the latest and the most important issues in multimedia, including indexing and retrieval, media coding, media transmission, human-computer interface, image and speech processing for multimedia, wireless multimedia, and more. Examples, demonstrations, and applications will also be provided. 1 Credit

EE8109 Wireless Communications I
This class provides an overview of wireless communications systems and fundamental analysis and design techniques. The class introduces cellular system, channel characterization for propagation losses, fading, and interference. Coding, modulation, and advanced transceiver design issues are examined. Modern mobile wireless communication system applications are reviewed. 1 Credit

EE8111 Digital Signal Processing II
This course covers signal processing topics such as discrete cosine transform, principal component analysis, continuous and discrete wavelet transforms, multirate filterbanks, independent component analysis, and quadratic time-frequency distributions. Applications of the above techniques in denoising, data compression, feature extraction, and source localization will also be discussed. Prerequisite: EE8105 or equivalent 1 Credit

EE8112 Digital Waveform Compression
Numerical representation of waveform information; common waveform communication systems; statistical models used for waveforms; Differential PCM, motion estimation/compensation for video compressions. Transform coding: run length coding, Huffman and arithmetic coding, segmentation/ contour/edge based coding; pre-processing and post-processing strategies. Vector quantization. Sub-band coding and wavelet transform. Zero trees. Channel concerns: robustness, error recovery, masking video/image bit rate source models. Coding of two-level graphics. Review of standards: JPEG, MPEG, H.261. 1 Credit

EE8113 Statistical Time Series Analysis
Time-series analysis and spectrum estimation constitute an important area of digital signal processing that finds applications in sonar and radar, geophysics and oil exploration, biomedicine, speech and image processing. This course will cover the basic principles and wide variety of signal processing techniques developed for time series and spectral analysis. Topics include: definitions of power spectrum; conventional spectrum estimation methods, maximum likelihood method of Capon; maximum entropy method; parametric modeling of time series; AR and ARMA spectrum estimation;

harmonic decomposition techniques; duality between spectral analysis and array processing; signal and noise subspace methods in array processing. Higher-order spectral analysis methods and applications. 1 Credit

EE8114 Optical Communications and Networks
The objective of the course is to provide an in-depth understanding of light wave communication systems. Active and passive state of the art photonic devices that form the backbone of high-speed optical systems will be studied. Theoretical and practical aspects of the devices as well as the optical channel will be evaluated. Relevant issues such as analog and digital optical modulation techniques, noise sources and mechanisms, optical signal processing techniques and multiple access techniques such as DWDM (dense wavelength division multiplexing) and CDMA (code division multiple access) will also be covered. Both the guided (fiber based) and free space (optical wireless) systems will be discussed. 1 Credit

EE8115 Network Engineering and Analysis
This course covers queuing theory, self similarity and flow control. The topics to be covered are: review of basic continuous-time and discrete-time probability distributions: exponential distribution and Poisson process, concept of Markov modeling, Markov chain and basic queueing theory, analysis of M/M/1, M/M/m, M/M/m/m, M/G/1 models, network traffic modeling: an introduction to self-similarity, fitting of different self-similar traffic models, network traffic flow control and engineering: additive-increment and multiplicative-decrement (AIMD) etc., analysis of different designs based on AIMD. 1 Credit

EE8119 Wireless Communications II
This is an advanced course on wireless communication. The topics to be covered include: communication over fading channels, equalization, synchronization; Spread Spectrum Systems; Co-channel Interference Control: power control, interference statistics and performance analysis, opportunistic communication over fading channels; Diversity Techniques: time, space and frequency diversity and macro diversity; Multi-antenna and Multi-carrier Systems: MIMO channels and capacity, OFDM and MC-CDMA; State-of-the-art development in digital mobile communication systems. Prerequisite: EE8107/EE8109 or equivalent 1 Credit

EE8120 Applied Optimization Techniques
This course covers the following topics: Linear and nonlinear programming, unconstrained optimization techniques such as gradient techniques (steepest descent, conjugate gradient, Newton-Raphson) and constrained optimization techniques such as Lagrange multiplier, quadratic and dynamic programming, least square techniques, integer and mixed-integer programming. NP-complete problems: branch-and-bound as well as heuristic algorithms, graph colouring, partitioning, and maximum matching. Bounds, variable priorities, special ordered sets and search algorithms (random search, binary search, genetic algorithms, and tabu search). Optimization algorithms in Electrical and Computer Engineering areas will be discussed in depth. 1 Credit

EE8121 Wireless Networks
This course is a moderately advanced level course on wireless networks. This course will assume necessary background knowledge in Internet Protocol (IP) networks with particular emphasis on routing, transport protocol design (congestion control and flow control), and quality of service and then build upon it. In particular, this course focuses on four major areas of wireless networks: (1) Design of different WNs including their integration, (2) Medium access control for WN, (3) Routing in WN, and (4) TCP design for WN. A discussion on applications and security is also included to introduce the students with those topics. 1 Credit.

EE8122 Opto-electronic Devices
This course offers a comprehensive overview of optical properties of semiconductors devices. The course begins with the transmission properties of electromagnetic wave in different media. This introduction is followed by the devices that generate light: light-emitting diodes (LEDs) and laser diodes (LDs). Topics also include optical spectra and transitions, spontaneous and stimulated emission, population inversion, carrier and optical confinements in heterostructures, etc. Some of the most popular devices such as LCD, CCD, DVD and LED will be discussed. The last part is the semiconductor photodetectors such as photoconductors, photodiodes and avalanche photodiodes. 1 Credit.

EE8201 Computer Vision
This course introduces the fundamental concepts for computer and robot vision. Mainly, intermediate and high-level vision processes will be covered, including shape feature extraction, representation and aggregation. Basic concepts of surface orientation, optical flow, and texture will be introduced for 3D shape analysis. Shape from shading, contour, texture, motion and stereo techniques will also be covered. Special topics in application of computer vision including automated visual inspection; robotic vision, autonomous navigation, etc. will be presented.
1 Credit

EE8202 Digital Image Processing I
This course starts with the introduction to digital image fundamentals, imaging geometry, and image storage formats. Simple spatial domain techniques as well as spatial frequency domain methods and digital filter design for image enhancement and restoration are discussed. Low-level image segmentation and feature extraction concepts will also be introduced. Special topics in application of image processing including remote sensing, medical imaging, etc. will be presented. 1 Credit

EE8204 Neural Networks
The class deals with preliminaries of artificial neural systems including fundamental concepts and models. Single layer perception classifiers and multi-layer feed forward networks, single-layer feedback networks, and associative memories are covered. 1 Credit

EE8205 Embedded Computer Systems
This course focuses on the design and implementation of software for embedded systems. High performance embedded system and safety critical embedded system architecture will be introduced, Fault-tolerant and reliable embedded system design techniques are also highlighted. The main topics to be covered include embedded computer organization, hardware/software codesign of embedded systems, CAD tools for hardware/software codesign, system on chip, advance concepts of real-time operating systems and real-time scheduling. The course introduces the technologies used in the design of embedded systems such as processor cores, embedded system specification languages, and software tools for hardware/software co-verification and system partitioning. The application of embedded systems for emerging networking and medical devices will also be covered. 1 Credit

EE8207 High Performance Computer System Design
This course will focus on the design of high performance computer systems. Topics covered include: Advanced pipelining and parallelism issues, including branch prediction, instruction and data level parallelism; Advanced processors including superscalar, VLIW, speculative, vector and multi-processors; Physical limitations and scalability issues; Real-world examples including MMX technology, PowerPC and Alpha architectures, and DLX architectures. The lab projects include using CAD tools to design a branch predictor and trace cache for Pentium 4 processor. Antirequisites: ELE818, COE818. 1 Credit

EE8208 Architectural Synthesis & Design of Digital Systems
This course will explore the methodologies for high-level architectural synthesis and low-level logic design of digital systems and architecture-to-task optimization techniques. Topics will include: architecture overview of modern computing systems, overview of recent hardware basis for custom digital systems (FPGA and CPLD) and hardware description languages (VHDL), methodology for high-level architectural synthesis including resource scheduling and binding, and low-level logic synthesis of digital systems. Case studies on synthesis process of digital systems from functional and technical specification to electrical schematic diagram will be discussed. Students are expected to read selected papers from current research literature, learn one of hardware description languages (VHDL or Verilog) and perform a project using a commercial CAD system. 1 Credit

EE8209 Intelligent Systems
This course introduces the fundamental practice and underlying principles involved in the study of intelligent systems. The emphasis of the course is on a practical approach to problem solving and learning processes in the context of neural networks. In addition to theoretical, mathematical, and implementation of such systems students will get exposure to some of the popular intelligent systems tools. Applications in signal processing, pattern recognition and vision will be considered. Antirequisite: ELE888 1 Credit

EE8211 Advanced Topics in Computer Networks
Topics covered include design and operation of computer networks, Gigabit Networking, Fiber Optics and SONET standards, Cell Networking, Asynchronous Transfer Mode, Wide Area and Local Area Cell networks, Gigabit packet networks, Applications, Internetworking Protocols, Traffic Modelling ad Performance Issues, Switch Architectures and current research areas. Practical aspects of network software design are also discussed. 1 Credit

EE8212 Digital Image Processing II
This course deals with advanced concepts in digital image processing. In particular, emphasis will be on color image processing. The concepts that will be covered include: color vision, trichromacy theory, color spaces, colour image creation/representation/storage, component colour image processing, vector colour image processing, segmentation, and colour image compression. The course will include a practical aspect by discussing applications and implementations of image processing techniques currently in use in industry. The course will have student implemented assignments and projects that will require hands-on programming, literature reviews and oral presentation. Prerequisite: EE8202 or equivalent 1 Credit

EE8213 Computer Network Security
This course provides a thorough understanding of technologies and methodologies in network security. It deals with the fundamental techniques used in implementing secure network communications, and forms of attacks on computer networks and approaches to their prevention and detection. Topics that are covered include Introduction to Cryptography, Virtual Private Networks (VPN), Firewalls and intrusion detection techniques. In addition, the course covers worms, viruses, and DDOS attacks and their remedies. Kerberos authentication Protocol, SSL, and anonymous communication protocols. 1 Credit

EE8214 Computer Systems Modeling
The objectives of this course are to study the characteristics of various analytical models of computer systems and to learn how to apply those models to analyze system performance and dependability. The modeling techniques to be covered include Poisson, renewal, Markov processes, fault trees, Petri nets and queuing networks. Examples include models of computer systems, computer networks, and wireless systems. 1 Credit

EE8215 Human Computer Interaction
The course is designed as an introduction to Human Computer Interaction from the perspective of human capabilities and limitations. It will provide the student with an understanding of human sensory systems and information processing models to support future work in any systems design where there is a human interface. Applications range from basic computer interfaces and web page design to semi-autonomous robotics and remote systems control to the design of complex systems such as flight simulators or other virtual environments. By the end of the course, the student will have gained

knowledge in some of the essentials of cognitive human factors and information theory concepts, and an understanding of factors that affect human performance such as memory, learning, attention and reaction times. The student will be capable of specifying displays and controls to optimize overall useability and system performance outcomes. 1 Credit

EE8216: Computer Networks
This is an advanced course in computer networking. The course is designed to include materials relevant to the industry, for example IP QoS and TE necessary for VOIP and MPLS services. The course deals with the principles, architectures, algorithms, and protocols related to Internet, with emphasis on routing, transport protocol design, flow control and congestion control, IP Quality of Service and Traffic Engineering. It also introduces IP security. Anti-requisite: COE865 or ELE865. 1 Credit

EE8301 Linear System Theory
The main thrust of the class is to introduce an algebraic unification of finite-dimensional linear systems with emphasis on continuous and discrete dynamic systems, using an operator theoretic approach. Topics covered include transition matrices, functions of matrices, adjoint systems, weighing patterns, realizability; canonical forms; stability, minimal realization; minimum norm, and approximation problems. 1 Credit

EE8306 Fundamentals of Robot Dynamics and Control
This course provides a comprehensive treatment on the fundamentals of robotics, particularly in the kinematics, dynamics and control of robotic manipulators. Topics include: forward dinematics, homogeneous transformation; the Denavit-Hartenberg representation of linkages. Inverse kinematics: closed-form and numerical solutions. Differential motion; Jacobian matrix; singularities. Dynamics: the Euler-Lagrange formulation. Trajectory generation. Motion and interaction control of robotic manipulators. Actuators and sensors. Antirequisite: ELE869 1 Credit

EE8401 Computer Methods in Power System Analysis
Advanced topics in load flow analysis; Decoupled load flow, inclusion of high-voltage direct current links in load flow. Parameter estimation for power systems. Static state estimation. Load modeling. 1 Credit

EE8403 Advanced Topics in Power Systems
Basic concepts. Review of optimization techniques. Linear and non-linear programming. Pontryagin's maximum principle. Fletcher-Powell method, etc. Systems security monitoring. State estimation. Optimal power flow. Real and reactive power optimization. On-line optimization. Load dispatching. Generator scheduling, maintenance scheduling in hydro, thermal and hydrothermal systems. Some case studies.
1 Credit

EE8405 Power System Stability and Control
This is an advanced course in power system stability studies focused on the design of digital signal processing systems for improvement of steady state and transient power system stabilities. This course provides studies on analytical techniques and computer methods for power system stability enhancement, and digital signal processing control design and implementation of advanced power system stabilizers. 1 Credit

EE8406 Electric Motor Drives
Characteristics of dc and ac motors, speed-torque profiles of motors and loads, motor models, principle of motor speed control, field and armature current control for dc motor drives, V/F control and field oriented control for ac motors, motor drive dynamics, digital implementation, drive performance evaluation, industrial application examples. 1 Credit

EE8407 Power Converter Systems
Principle of ac to dc converters, dc/dc and dc/ac converters, voltage and current source converters, multi-level high-power converters, pulse width modulation techniques, harmonic reduction techniques, modeling and simulation techniques, and industrial applications. 1 Credit

EE8408 Switch Mode Power Supplies
Flyback converters, forward converters, bridge converters, Cuk converters, pre-regulators, inrush control, start-up methods, overvoltage and undervoltage protections, foldback current limiting, output filters, transformer design, induction and choke design, current mode control, stability. 1 Credit

EE8409 Electromagnetic Theory
The course will cover the following: Electromagnetostatic fields, Maxwell's equations, Poynting and uniqueness theorems, losses due to polarization damping forces, Helmholtz wave equation, auxiliary potential functions, reciprocity theorem. Transverse electromagnetic waves, wave polarization, reflection and transmission at interfaces, wave matrices, oblique incidence. Waves between parallel planes, rectangular and circular waveguides, microwave cavities, Antennas, antenna characteristics. 1 Credit

EE8410 Power Electronics
A course on microprocessor-controlled solid state converters. Major topics include: solid state switching devices, dc-dc switch mode converters, diode & thyristor rectifiers, current & voltage source inverters, industry applications and microprocessor programming techniques. Typical control schemes for these converters will also be discussed. Important concepts are illustrated with laboratory design projects. An MC68HC11 microprocessor based MPP board will be used in the projects. Antirequisite: ELE754 1 Credit

EE8412 Advanced AC Drive Systems

The topics include general configurations of voltage source inverter (VSI) and current source (CSI) fed drives, reference frame theory, space-vector and dq-axis models of ac machines, dynamic behavior of ac machines, principle of field orientation, indirect and direct field oriented controls for VSI and CSI drives, direct torque control, sensorless control of ac drives, observers for flux, torque and speed, and simulation and design of closed-loop control systems. 1 Credit

EE8413 Adv Digital Control of Power Electronics
A course on the design of digital system for power electronic applications. Major topics include are: digital implementation of switch mode power supplies, digital control of active filters, voltage compensators, reactive power compensator, PWM rectifiers, and AC motor drive systems. The course focus on the digital design of the control system including modeling, digital signal processing, digital filter design and digitalize of an analog control system. The implementation includes the DSP/FPGA control system, A/D conversion, gate signal generation and hardware design of the digital control system. 1 Credit

EE8501 VLSI System Design
This course deals with the design of CMOS integrated circuits using deep sub-micron CMOS technology at the system level. The course consists of two essential components: theory and project. The theoretical component consists of : advanced topics on modeling of MOS transistors, modeling of interconnects (lumped, distributed RC, distributed RLC, and transmission line models), impedance matching techniques, layout techniques for high-speed digital and mixed analog-digital circuits, clock generation and distribution on chip, power distribution on chip, analog and digital grounding of mixed analog-digital circuits on chip, I/O and pad design, packaging and ESD protection, switching noise, and high-speed data links. The project component consists of design, layout, and simulation of CMOS circuits using state-of-the-art CMOS technology and CAD tools. Antirequisite: ELE863 1 Credit

EE8502 CMOS Analog Intergrated Circuits
The class deals with providing a detailed description of the MOS (Metal-oxide-semiconductor) transistor in conjunction with analog MOS circuitry. Major topics that will be covered are: introduction to semiconductor physics, pn junctions, MOS capacitors, DC and AC characteristics of MOSFET, analysis of analog MOS elements (current mirrors, amplifiers, and biasing circuitry), noise and RF using MOS transistors will also be addressed. Antirequisite ELE704. 1 Credit

EE8503 VLSI Circuits and Systems for Communications
This advanced graduate course deals with the design of VLSI circuits and systems for communications. Major topics include fundamentals of data communications (modeling of MOS devices, noise figure, PCM, PAM, inter-symbol interference, modeling of channels, transmission lines and impedance matching, pre-emphasis and post-equalization), wideband amplifier design techniques (low-noise design, gain-boosting, bandwidth enhancement, switching noise, mismatch compensation, voltage-mode and current-mode), high-speed electrical signaling schemes, Gbps serialization and de-serialization, voltage and current-controlled oscillators, phase noise of oscillators, phase-locked loops, clock and data recovery. Prerequisites: EE8501 or EE8502 or equivalent 1 Credit

EE8504 VLSI Design Automation and CAD Tools
The objective of this course is to introduce the fundamental principles of VLSI (Very Large Scale Integrated) circuit design and layout. This course is targeted towards an introduction to the mathematical topics of “algorithmic graph theory”, and will be followed by introductions to “computational complexity” and “general methods for Combinatorial optimization” for layout partitioning, floorplanning, placement, routing and compaction based on exact mathematical programming (linear, integer and nonlinear programming) as well as an introduction to advanced heristic techniques (i.e. Tabu search, genetic algorithms and simulated annealing, neural networks, etc.). 1 Credit

EE8505 Digital Systems Testing
The course covers theory and techniques for digital systems testing and testable design. The concepts of fault modeling, fault simulation, test generation, bridging faults testing, functional testing, and logic-level diagnosis are examined. RAM testing, PLA testing, FPGA and microprocessor testing, and design for testability issues are discussed. Compression techniques, built-in self-test and self-checking circuits are considered. 1 Credit

EE8506 Digital CMOS VLSI Integrated Circuits
This course will provide students with various topics in the design and analysis of digital CMOS VLSI integrated circuits. Some of these topics will be discussed deeply and other moderately. The major topics to be covered are: (1) System-level and intellectual property block design methodologies, (2) MOSFET (Metal Oxide Semiconductor Field Effect Transistor) modeling and analysis, (3) Logic families such as complementary CMOS, ratioed CMOS, and dynamic CMOS, (4) Circuit characterization and performance estimation, (5) Interconnects analysis and modeling, (6) Sequential circuits design, and (7) Subsystems design and analysis. 1 Credit

EE8601 Directed Studies in Electrical Engineering
This class is available to graduate students in electrical engineering, who wish to gain knowledge in a specific area for which no graduate-level classes are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the class. 1 Credit

EE8603 Selected Topics in Computer Engineering
This course consists of lectures, seminars, and readings covering the latest advances and research in Computer Engineering such as communications, signal processing, and computer hardware and software. The course description will be announced prior to scheduling of the course. 1 Credit

EE8604 Selected Topics in Electrical Engineering

This course consists of lectures, seminars, and readings covering the latest advances and research in electrical Engineering such as electronics, electromagnetics, controls and power devices. The course description will be announced prior to scheduling of the course.
1 Credit

EE8605 Selected topics in Computer Science
This course consists of lectures, seminars, and readings covering the latest advances and research in Computer Science. The course description will be announced prior to scheduling of the course. 1 Credit

EE9010 PhD Research Seminar in Electrical and Computer Engineering
This course consists of weekly seminars with emphasis on current research in the specialization fields and emerging areas of electrical and computer engineering. This course will run through Fall and Winter semesters, 1 hour/week. Presentations will be given by graduate students, faculty members, visiting scholars and guest speakers. In order to achieve a pass grade in the course, the student must attend a minimum of 75% of the seminars and do an oral presentation on a research topic. Pass/Fail.

ENVIRONMENTAL APPLIED SCIENCE AND MANAGEMENT

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS		*Credits*
*ES8901	Chemical and Biological Pathways	1
ES8921	Environmental Law and Policy	1
ES8930	Seminar in Env. Appl. Science & Mgt.	1

AND one of the following Options:

PROFESSIONAL PROJECT Option

Master's Project

Seven Elective credits, with a minimum of two from Group A and two from Group B — 7

THESIS Option

Master's Thesis

Four Elective credits, with a minimum of one from Group A and one from Group B — 4

ELECTIVES

Group A: Environmental Applied Science		*Credits*
*ES8902	Wtr Pollution Control Process	1
*ES8903	Pollution Prevention	1
*ES8904	Waste Management	1
ES8905	Air Pollution Science and Engr	1
ES8906	Water Pollution Transport	1
ES8907	Wastewater Engineering	1
ES8908	Soil Remediation	1
ES8909	Environmental Biotechnology	1
*ES8910	Energy and The Environment	1
ES8911	Ecotoxicology	1
Group B: Environmental Management		
ES8801	Facil Siting & Env Risk Asses	1
ES8922	GIS for Environmental Management	1
ES8923	Environmental Assessment	1
ES8924	Environmental Mgmt Systems	1
ES8925	Dec Making & Strat Plan Mgmt	1
ES8926	Environmental Economics	1
ES8927	Risk Assessment in Envl Mgmt	1
Group C: Environmental Applied Science and Management		
ES8950	Indp Study in Env Sci & Mgmt	1

***Platform Courses:** The program offers a set of five platform courses in environmental applied science. They are structured to provide both foundational knowldege and advanced study at the graduate level. These courses enable students from a wide range of academic backgrounds (including geography, Public Health Urban and Regional Planning, and Environmental Studies) to take engineering and applied science subjects. Students who successfully complete a Platform Course will have the option of enrolling in advanced applied environmental science courses in subsequent semesters.*

COURSE LISTING

Master's Project

The research project option is intended for students following a professional career path in environmental applied science and management, and is typically conducted in an applied setting. In the project, students propose and carry out advanced work in an industry or a public sector organization under the direction of a faculty supervisor and a project

supervisory committee. The research project is submitted in a written report to the faculty supervisor and is evaluated by a project examining committee. This is a "Milestone." Pass/Fail

Master's Thesis
In the thesis option, students conduct an advanced examination of a topic in the environmental applied science and management areas. Students propose and carry out the research under the direction of a faculty supervisor and a thesis supervisory committee. On completion, the research is submitted in a thesis format, to the supervisor and defended by the student before a thesis examining committee. This is a "Milestone." Pass/Fail

ES8801 Facility Siting & Env. Risk Assessment
This course explores the theory and practice of public facility siting and the role that risk analysis and risk assessment play in the siting process. The course will examine the nature of facility siting conflicts, the effects of objective and perceived risks, the methods used in risk analysis and assessment, and the means presently employed in environmental management practice to analyze and manage risks that are the unavoidable consequences of many6 large-scale public undertakings. Antirequisite: UPE815. 1 Credit

ES8901 Chemical and Biological Pathways
This course is devoted to the examination of fundamental and applied aspects in chemical and bio-geochemical processes in the environment. It will primarily deal with the mechanisms which affect the dispersion of naturally occurring and xenobiotic compounds in soils and water. The use of such information and its incorporation into environmental models will be covered. The effect of environmental impacts on chemical and biological processes will be emphasized. The course will include a combination of lectures, student-led seminars and case studies, and a computer-modeling workshop/laboratory. (Platform Course) 1 Credit

ES8902 Water Pollution Control Processes
This course will examine the sources of water pollution including wastewater, non-point source pollutants and storm water run off. The analytical characterization of contaminants will be covered for the major sources and control processes will be reviewed with a focus on wastewater processes. This will be followed by a review of the most relevant technologies used to treat industrial and municipal effluents. (Platform Course) 1 Credit

ES8903 Pollution Prevention
The course examines a number of industry-environment interactions. It discusses pollution prevention and industrial ecology, and it presents a survey of environmental concerns including material and energy budgets, life-cycle assessment, and industrial process wastes and their minimization. Design for environmental quality is discussed including energy use and design for energy efficiency. The course explores the future of industrial activity with regard to the environment and it reviews studies in selected industrial applications. (Platform Course) 1 Credit

ES8904 Waste Management
This course describes the development of solid waste management in response to legislative requirements for waste transport and disposal. To know when solid waste is a resource or a disposal problem requires its analysis and classification. Processing and handling of solid waste demands the proper application of available technology and basic engineering principles. These will be explained and followed by more advanced principles related to separation (including recycling), processing, and transformation of solid waste. Hazardous waste and hazardous materials, as well as federal and provincial regulatory processes governing hazardous wastes, will also be examined. Waste stabilization and solidification, land disposal of waste, environmental site and subsurface characterization will be discussed. Physical conversion of waste including incineration technologies, chemical and biological conversion technologies as well as successful combinations of the three will be described. The course will conclude with a brief review of the main issues in integrated solid waste management. (Platform Course) 1 Credit

ES8905 Air Pollution Science and Engineering
This course examines the nature and movement of pollutants released into the atmosphere and the theoretical aspects upon which devices and technologies for air pollution engineering are based. The characteristics of airborne contaminants are examined and their dispersion is discussed in relation to atmospheric circulation patterns, wind profiles, turbulent diffusion, topographical effects, local circulation effects, temperature in the atmosphere, atmospheric stability, general plume behaviour and the Gaussian model. The characteristics and operation of the relevant devices and technologies are investigated. The design of devices and their integration into overall pollution control systems are covered. The devices considered include: settling chambers, cyclones, particulate scrubbers, electrostatic precipitators, fabric filters, VOC incinerators, adsorption, absorption, and condensation devices. 1 Credit

ES8906 Water Pollution Transport
A quantitative analysis of surface and subsurface water pollution pathways is crucial to the development of water pollution prevention and control plans. This course discusses the point and non-point pollution sources in urbanized areas with emphasis on modeling approaches and analysis techniques. It examines the processes governing contaminant transport and behaviour including advection, dispersion, diffusion and adsorption. Topics include: surface hydrology, municipal water use cycle, urban drainage systems, point and non-point pollution sources and pollution control strategies for sanitary, storm, and combined sewer systems. It also examines natural groundwater quality, the geochemical origin of major ions in natural groundwater, causes of hardness, groundwater age determination using isotopes, common causes of groundwater contamination, and the transport and biochemical transformation of contaminants in the unsaturated and saturated groundwater zones. 1 Credit

ES8907 Wastewater Engineering
The course is an advanced description of the unit operations in wastewater engineering. It includes physical, chemical and biological processes. In the first case, filtration, sedimentation and clarification of solids will be discussed. Liquid-liquid and gas-liquid separations will follow. Chemical operations will include neutralization, precipitation, chemical redox and ion exchange. The last part of the course will cover fixed and suspended growth biological processes. 1 Credit

ES8908 Soil Remediation
This course overviews the design and operation of processes for soil remediation. Contaminants of interest include halogenated and non-halogenated volatiles, halogenated and non-halogenated semi-volatiles, fuel hydrocarbons, pesticides and inorganics. Seven groups of technologies will be examined: (1) excavation and off-site disposal, (2) soil venting, (3) bioremediation, (4) thermal technologies, (5) chemical technologies, (6) mechanical flushing and washing, and (7) natural attenuation. Antirequisite CV8204. 1 Credit

ES8909 Environmental Biotechnology
This course, as a series of lectures and student-led discussions, covers the application of biologically-based technologies in environmental control and remediation. Particular emphasis is placed on understanding the key metabolic processes involved in biodegradation and biodeterioration. Areas of application covered include control of biodeterioration, biologically-based remediation of air, soil, solid waste, wastewater, energy, and bio-control agents. The relevant technologies are also discussed along with the potential positive and negative impacts which may be associated with the use of biotechnologies in the environment. 1 Credit

ES8910 Energy And The Environment
A review of thermodynamic fundamentals is provided including combustion, electricity generation, co-generation, heating, cooling and incineration. Energy utilizing technologies in the residential, commercial, institutional, industrial and transportation sectors and their impacts on the environment are examined. Methods and technologies for controlling and reducing the environmental impacts of energy technologies are discussed. The course covers the design of energy technologies for environmental management. (Platform Course) 1 Credit

ES8911 Ecotoxicology
The course examines the fate and transport of the major inorganic and organic contaminants in the biosphere. Their properties, release, environmental destiny, and impact on ecological systems will be studied. Included will be the molecular basis of pollutant toxicity, progressing to consequent effects at higher levels of organization including cellular, whole organism, population, community, and ecosystem. From lower levels of ecological structure to global effects, including geopolitical ramifications, it provides perspectives on this multidisciplinary science. 1 Credit

ES8921 Environmental Law and Policy
Major themes in environmental law and policy are the effects of scientific uncertainty, political interest groups, economic principles and environmental ethics on the development of environmental policies and laws. Current concepts such as sustainable development, the precautionary principle and the ecosystem approach are critically examined in relation to their legal manifestations. Traditional and novel legal techniques for motivating change in behaviour are compared in terms of their effectiveness: performance and procedural approaches, bench-marking, economic rewards and sanctions, and internal auditing. A comparative approach is taken with environmental laws and policies in other jurisdictions such as the United States and the European Union. A close connection is made between environmental management systems and the need for establishing a due diligence defence for all members of an organization in the event of prosecution.
1 Credit

ES8922 GIS for Environmental Management
Geographic Information Systems (GIS) are used to examine the spatial dimensions of environmental data and provide capabilities for data analysis in managing environmental problems. GIS systems are being increasingly recognized for their environmental modeling capabilities. This course indicates the uses of GIS in support of site evaluations, effects monitoring, policy development and decision making. Environmental management research opportunities are explored through lectures, case studies, seminars and hands-on activities using major GIS software packages. 1 Credit

ES8923 Environmental Assessment
This course provides an integrated, interdisciplinary approach to the application and evaluation of current biophysical, social and economic impact assessment. It examines environmental assessment as an environmental decision making instrument in provincial, federal and international contexts and it reviews methods to predict, evaluate and mitigate impacts in both human and natural environments. The course reviews the technical and scientific concepts that must be addressed in a comprehensive assessment of project impacts on complex, interacting physical and human systems. This is complemented by a critical appraisal of institutional structure and decision making in environmental management. Evaluation methods and practical applications are emphasized. 1 Credit

ES8924 Environmental Management Systems
This course examines the legal, economic and ethical reasons for the development, implementation and monitoring of a comprehensive, location-specific Environmental Management System (EMS). An EMS enables an organization to systematically identify environmental concerns and address them. The elements of a generic EMS are explored: planning and risk assessment phases; establishment of a policy; the outline of organization arrangements; design of the array of programs that address specific sets of environmental concerns such as production methods, energy use and waste disposal; and the development of a program of periodic environmental audits. The requirements of ISO 14000 are explored. Issues relating to the integration of EMS with quality management systems and occupational health and safety systems are discussed. 1 Credit

ES8925 Decision Making/Strategic Plan. in Mgt.
This course presents methods in tackling decision making problems and strategic planning issues in engineering and management. Topics in quantitative decision theory such as influence diagrams, decision trees, subjective probability assessment, and the role of information in decision making including Bayesian analysis are discussed. Multi-criteria decision making techniques such as multi-attribute utility theory and Analytic Hierarchy Process are covered. Key steps and end results of the strategic planning process are analysed. Formulating planning assumptions, analysing opportunities, setting objectives, developing strategies and implementing strategic plans are discussed. Case studies are an integral part of the course. 1 Credit

ES8926 Environmental Economics
Environmental economics considers economic tools and analyses and their application in understanding environmental issues. Key economic concepts such as opportunity cost, marginal benefits and costs, and consumer and producer surplus are applied in examining the relationship between economic activities and the environment. The equimarginal principle, the Coase theorem, and the central concepts in cost-effectiveness and cost-benefit analyses are discussed. Case studies are used to illustrate the role of economics in evaluating environmental policies and regulations. The course also examines how business managers are meeting the environmental challenge. The question of how environmental problems and policies affect different groups within society is a central focus of the course. 1 Credit

ES8927 Risk Assessment in Environmental Mgt.
This course examines the application of risk analysis and assessment in environmental management. It reviews the methods of estimating probabilities and consequences of risks in the environment including new technologies, chemicals, biological agents and risk generating facilities. Risk analysis includes risk identification, risk pathways, exposure models and dose-response relationships. The course also sets out the principles of risk management and the process by which risks are perceived and communicated in making environmental decisions. A critical evaluation of risk assessment in environmental decision making is supported by a review of selected cases. 1 Credit

ES8930 Seminar in Env. App. Sci. & Mgt.
The seminar course introduces students to a range of existing environmental problems and the ways that management concepts, drawn from both environmental science and management, can be applied to them. Seminars will include the participation of academic and professional experts in a number of disciplines who will present research and case reviews in environmental practice. Students are assigned to multi-disciplined teams and are required to apply science and management concepts to environmental applied science and management problems. Students demonstrate in their group work, problem definition and analysis, the design of feasible solutions and multi-disciplinary processes for achieving objectives. Each team is required to produce a report that outlines the analytic and decision resolution of the problem.
1 Credit

ES8950 Independent Study in Env. Sci. & Mgt.
Individual directed study of subject areas in environmental applied science and management not addressed in the current curriculum will be carried out under the supervision of a faculty member. A program of supervised, advanced study related to the student's area of concentration will be negotiated on an individual basis with the supervising faculty member. The independent study course is normally intended for students in the final semesters of study. 1 Credit

IMMIGRATION AND SETTLEMENT STUDIES

CURRICULUM

Master of Arts

DEGREE REQUIREMENTS		*Credits*
Master's Research Paper		
IS8100	Seminar and Field Placement	1
IS8901	The Cdn Immigration Experience	1
IS8902	Settlemnt Experience in Canada	1
IS8903	Imm Law Policy Politics Pract	1
IS8904	Research Methods	1
Three credits from Elective List		

ELECTIVES

IS8921	Equity for Newcomers:Schools	1
IS8922	Changing Multicult Mosaic: GTA	1
IS8923	Immigrants' Voices in Cdn Lit	1
IS8924	The Economics of Immigration	1
IS8925	Glbl Migration & Pop Movements	1
IS8926	Women Immigration & Settlement	1
IS8927	Imm Fams & Intergenerat Rltns	1
IS8928	Law Enforcement in Cdn Imm Sys	1
IS8929	Issues of Aging in Settlement	1
IS8930	Race and Ethnic Relations	1
IS8931	Refugee Issues	1
IS8932	Immigration and Health	1
IS8933	Ethical Issues: Migratn & Sett	1
IS8934	Multicultural Cities–Planning Plcy	1

COURSE LISTING

Master's Research Paper
In this course students will conduct specialized research on a topic of their choice. Students will be required to submit a Paper proposal for faculty approval which identifies the topic, its significance for immigration and settlement, sources and methodology. Students may choose to undertake a scholarly study based on primary and/or secondary sources; or to undertake an applied demonstration project as the basis of their research. Papers in the former category may address an immigration and/or settlement topic from any disciplinary perspective in an advanced, scholarly fashion. By way of illustration, students may conduct research on such topics as: immigrant-ethnic economies; the history of a particular immigrant community; immigrant residential settlement patterns; immigrants and schooling; immigration, global cities and transnationalism; intersections of newcomer status and race, gender, religion, language, sexual orientation and class. Papers in the demonstration project category may engage any issue related to immigration and/or settlement in a policy, service-delivery or advocacy capacity. By way of illustration, students may write their 'demonstration project' papers on service agency attempts to develop new programs for under-serviced newcomer communities; on newcomer community attempts to advocate changes in government policy; on the implications of a new immigrant-selection system for Canada. The research paper will be evaluated by a three-person committee, including the supervisor, and will involve an oral defence. This is a "Milestone." Pass/Fail

IS8100 Seminar and Field Placement
This course affords students the opportunity to prepare, undertake and present their learning in a seminar linked to a practicum served with an organization engaged in immigrant and settlement policy, programs or services. Through this practicum, students will apply and test their classroom learning in applied settings such as immigrant-serving agencies, newcomer community organizations, schools and government departments. Students will have the opportunity to analyze how organizations' mandates shape their "culture", policies, practices, and interpersonal behaviour; and the challenges facing immigrant-serving groups in the context of today's ever-changing environment. During the Fall and Winter terms, students will attend seminar presentations from practitioners in policy development, service delivery, and community advocacy. Supplemented by complementary readings, these seminars will provide students with the theoretical and applied grounding for their practicum. Typically, for full-time students this will involve three weeks of full-time equivalent placement with an appropriate organization during the Spring/Summer term. Scheduling of placements for part-time students will incorporate the necessary flexibility to assure equivalent placement time, consistent with the work responsibilities of part-time students. The course will conclude with a post-placement symposium in which students

present their placement learning to students, faculty and external practitioners. A placement paper is required which relates practicum learning to literature in the field. Pass/Fail

IS8901 The Canadian Immigration Experience
North America is a continent of immigrants and Canada is a nation of immigrants. This has held true from the arrival of the first native peoples to the landing of our most recent potential citizens. This course examines the immigrant phenomenon, beginning with a description of the social, political, and economic factors which drive emigration/immigration. These factors are then applied to successive waves of Canadian immigration from the sixteenth to the twenty-first centuries. Some attention is given to where immigrants chose to settle, and to immigrants who, for reasons that will be explained, did not stay in Canada, but the focus is on migration rather than settlement. The course draws heavily on immigrant diaries/reminiscences to illustrate the process of immigration, as well as statistical and secondary source material. Comparisons will be drawn to immigration and settlement experiences of newcomers to other countries, in order to illustrate the commonalities and uniqueness of Canada as an immigrant receiving country. 1 Credit

IS8902 The Settlement Experience in Canada
This course examines the experiences over time of the immigrants who have settled in Canada, their integration into Canadian society, and the social processes of marginalization, Antirequisite, or banishment in those experiences. It will study the institutions they have built as well as the practices and barriers that affect immigrants and refugees in their interactions with Canadian institutions. Comparative reference will also be made to settlement experiences of newcomers to other countries. Students will develop an understanding of the lived experiences of migrants and the practical interventions that may interact with, reproduce, or challenge processes of social Antirequisite. Equitable and anti-oppressive approaches to service provision and community development with refugees and immigrants, including social movement and immigrant-based services, will be explored in depth. 1 Credit

IS8903 Imm Law, Policies, Politics, & Practices
This course begins with the legal foundations, both international and national, for the migration of immigrants and asylum-seekers to Canada. It then examines various theoretical approaches to understanding policy development and their impacts; the evolution of Canadian immigration policy; and contemporary challenges facing immigration policies. It also provides a comparative analysis of Canadian immigration policy and practices with those of other traditional countries of immigration, such as the United States and Australia; as well as countries more recently receiving large numbers of newcomers, such as Germany, Italy, Switzerland and Holland. The course will thus enrich understanding of the distinctive characteristics of Canadian immigration policy. 1 Credit

IS8904 Research Meth. in Imm. & Sett. Studies
This course yields to the research aspirations of the students. What are the questions that students wish to address? How can they be framed for the purpose of logical inquiry? In what ways do various theoretical approaches and previous studies influence the nature of the questions being asked, the types of information being sought, and the analytical procedures to be used? What is 'information'? – and what influences how it may be interpreted? What are the types of information that are available to researchers in the field? How must researchers handle surveys involving human subjects? To whom, and how, should research be addressed and disseminated? At the conclusion of the course, the student will have prepared a draft research proposal for use in IS8000: Research Paper, and have examined the usefulness of demographic, quantitative, qualitative, economic, and evaluative methods for the varied purposes of research in immigration and settlement. 1 Credit

IS8921 Equity for Newcomers: Schools
This course will investigate the institutional processes (policies and practices) in education that routinely disadvantage certain populations, especially migrants and those whose first language is not English. The approaches to equity will be explored from three perspectives: research and theory on social dominance; recent attempts by educational organizations to develop educational processes that are friendly to immigrant families; and research on what the migrants (children and parents) in the educational system say about their educational experiences. Several populations, selected in consultation with the class, will be the subject of these investigations -- such as first generation families from East Asia, Africa, and Latin America; and second generation children of various groups. 1 Credit

IS8922 Changing Multicultural Mosaic of the GTA
Toronto is, without question, one of the world's most multicultural cities. According to the latest census information it is home to people from about 170 different countries of origin, and its citizens speak more than 100 languages. The purpose of this course is to explore this diversity from a spatial or geographic perspective by asking who lives where in the GTA and why? The answers to such questions have important policy implications in relation to the equitable and efficient provision of a variety of services to immigrants who choose to settle in the Toronto area. Students will be introduced to the use of data, in combination with Geographic Information Systems, to identify, display, and analyze recent socio-cultural trends in the Toronto region. 1 Credit

IS8923 Immigrants' Voices in Canadian Literature
The radical transformation of Canadian Literature into a robust body of writing occurred during the twentieth century, a period of intense immigration to this country. This course will examine a range of work by newly arrived and not-so newly arrived writers and will consider how identity is affected by the physical and cultural upheaval that characterizes the immigrant's experience. Whether and how the "self" is (re)constituted through immigration narratives will be considered. The course will focus on writing of the past 30 years, when an increased number of individuals from around the globe arrived and settled in Canada, some of whom have produced literary texts out of disrupted lives.
1 Credit

IS8924 The Economics of Immigration
The course begins with an overview of labour economic theory and economic models of migration. These theories are then applied to the context of immigration with particular emphasis on labour market outcomes of both the immigrants and the 'native born'. Does immigration affect the labour market outcomes of the 'native born'? Do immigrants' earnings catch up to those of 'native born'? Do immigrants drain public spending on social assistance? Economic push and pull factors determining immigration flows are also examined. Special issues are also discussed, such as the economic effects of migration on the source country. 1 Credit

IS8925 Global Migration & Population Movements
This course reviews historical, geographical, and sociological sources to compare various patterns of population movements and migrations. Historical and sociological records demonstrate that geographic mobility rather than permanence has been the characterizing dynamic in shaping human settlements. Ecological factors, demographic and economic pressures, plagues, wars, and various violent social disruptions have resulted in various forms of voluntary and involuntary population movements. While the state often aimed to restrict population movements, it sometimes fostered migration through slavery, deportation, and colonialism. 1 Credit

IS8926 Women, Immigration, and Settlement
This course offers an analytical and theoretical orientation to understanding how immigrant women's lives are shaped by the intersection between gender, social class, race, ethnicity, and immigrant status. We will explore the history of Canadian immigrant women through the periods of colonization, agrarian transformation, nation state formation, industrialization, and globalization. Through these time periods, we will uncover patterns in the shaping of immigrant women's economic, political, and social rights, together with the attendant changing historical images of immigrant women. Particular attention will be paid to the changing nature of immigration policy, and immigrant women's settlement experiences – focusing on the multiple effects of immigrant status, gender, and race on employment and community life. 1 Credit

IS8927 Imm. Families & Intergenerational Relations
This course will explore family and intergenerational relations in the immigration and settlement process through an analysis of: the diversity of kinship and family forms; the evolution of obligations and roles; and, the changing nature of kinship and intergenerational relations upon immigration. How do families cope with disruption to their customary kin relations? How do immigrants manage and maintain their family connections over time and distance? What factors contribute to the process of family reunification? How do immigrants create new family units if their customary kin relations are permanently disrupted? What kinds of issues arise with regard to the different generations of parents, children, and grandparents? What are the most significant changes in family relationships that result from family reunification? Can customary kinship patterns survive the process of immigration and settlement? 1 Credit

IS8928 Law Enforcement in Canada's Imm. System
This course examines the more contentious issues involving immigration to Canada, such as terrorism, criminality, and illegal migration. Who is a terrorist? Why are some people refused admission? Who decides who comes in? In addition, legal and procedural mechanisms used to bar some people entry to Canada are examined. The course then turns to an investigation of how and why Canada perceives threats to its public and national security interests, and what effect such definitions have on certain immigrant groups. Specific case studies will provide both insight into how Canada's immigration system actually works and opportunities to discuss many of the difficulties confronting both the law enforcement establishment and those seeking to come into Canada. 1 Credit

IS8929 Issues of Ageing in Settlement
This course examines some of the historical, sociological, and residential issues that are part of the experience of older ethno-racial immigrants to Canada. Many of these individuals arrived after age 50 to join family as part of a family reunification process. Sociological issues revolve around the structure of support that is available from both family friends and the wider community. Gender issues arise because many senior immigrant women have foreshortened educational experiences that reflect their class status and the culture of their country of origin. Finally, we address how issues of race, language, education, and community combine to inform all aspects of the experience of ageing within Canada's multicultural mosaic. 1 Credit

IS8930 Race and Ethnic Relations
This course is constructed on the premise that systemic racism and ethnocentrism have been and continue to be prominent features of Canadian society, as are anti-racist organizing and community action, which have challenged the dominant institutions. The course will examine the historical roots, contemporary manifestations and continual reproduction of racism and ethnocentrism, starting at the point of first contact between European colonizers and Aboriginal peoples, and continuing to draw examples from the subsequent patterns of immigration including the most recent attention to racialized minority immigrants. In its multi-dimensional approach to race and ethnic relations, the course will first discuss how dominant or majority group values, norms, and conflicting ideologies affect the development and maintenance of inequitable social, political, economic and cultural systems and structures in Canada. Second, race and ethnic relations will be analyzed by looking at how they are manifested in government, immigration policy, education, media, human services employment, justice, and law enforcement. Third, the course will examine the ways in which racism and ethnocentrism affect individual and group identities. Central to this debate is a need to examine critically both state policies of multiculturalism and policies that seek to integrate racialized minorities into Canadian society. 1 Credit

IS8931 Refugee Issues
To be developed. 1 Credit

IS8932 Immigration and Health
To be developed. 1 Credit

IS8933 Ethical Issues: Imm and Sett
To be developed. 1 Credit

IS8934 Multicultural Cities-Planning Policy
Recent immigration patterns have prompted the need to explore how local governments provide urban facilities, services and infrastructures. This course will prepare students on how modern cities of diverse cultures evolve and what policy approaches can sustain them. The course offers a balanced mix of theoretical explanations about the geographic, political and economic bases of multicultural cities and a critical review of current policies and planning practices. It compares cities around the world, yet the Greater Toronto Area remains the pivot. 1 Credit

INTERNATIONAL ECONOMICS AND FINANCE

CURRICULUM

Master of Arts

DEGREE REQUIREMENTS		Credits
Master's Research Paper		
EF8901	Micro Economics	1
EF8902	Macro Economics	1
EF8903	Econometrics	1
EF8904	Financial Theory	1
Three elective courses		3
One of the following Fields:		
Field I - International Finance		
EF8911	Internat Monetary Economics	1
Field II - International Trade & Policy		
EF8931	Internat Trade Theory & Policy	1
Electives		
EF8912	Country Risk Analysis	1
EF8913	Internat Financial Markets	1
EF8914	Financial Econometrics	1
EF8915	Internat Corporate Finance	1
EF8932	Intnl Trade-Imperfect Comp	1
EF8933	Empirical Topics: Intnl Trade	1
EF8934	Global Inst & Internat Economy	1
EF8935	Law/Reg-Intnl Trade & Invest	1
EF8936	International Public Economics	1
EF8937	International Labour Economics	1
EF8938	Microecon Issues	1
EF8939	Nonparapmetric Econometrics	1
EF8940	Environment and Econom Growth	1
EF8941	Topics: Internat Econom Devel	1

COURSE LISTING

Master's Research Paper
The student is required to complete a research paper on a topic related to his/her field of specialization (international trade or international finance). The research topic is selected in consultation with the student's supervisor, where the student presents an outline of the research plan in writing, and the research is carried out under the direction of a faculty supervisor and monitored by a supervisory committee. On completion, the research results are submitted in research paper format to the supervisor and a second reader, who assess and grade the research paper. Through the research paper, the student is expected to provide evidence of competence in carrying out research and a sound understanding of the material associated with the research. This is a "Milestone." Pass/Fail

Mathematics and Statistics Review
All students who have been admitted to the International Economics and Finance program must demonstrate competence in quantitative methods by passing a preliminary course in mathematical economics. The course will review some of the mathematics and statistics used in graduate economics courses. Course material will be provided both in class and on the web during the last two weeks of August and the first week of September. Attendance is highly recommended but not compulsary. This is a pass/fail, non-credit course for which there will be an exam during the first month of studies in the program. Students who fail the course can rewrite the exam before the end of the first term. Students who fail on their second attempt will be asked to withdraw from the program. This is a Milestone. Formerley EF8100. Pass/Fail

EF8901 Micro Economics
This course provides in depth coverage of the foundations of microeconomic theory required for effective analysis of international economic issues. Fundamentals such as static and dynamic optimization, consumer choice (deterministic and under uncertainty), and producer theory (profit maximization, costs, and duality) will be supplemented with

applications to market structure, game theory in trade and policy, the economics of information, and general equilibrium. Examples and illustrations will be drawn from an international context throughout the course. 1 Credit

EF8902 Macro Economics
This course is an introduction to graduate macro economics and the techniques associated with analyzing macroeconomic models. Topics include theories of aggregate supply, rational expectations, inflation and monetary policy, growth theories, consumption and savings, open economy macro economics and empirical methods suitable for studying international linkages of exchange rates, interest rates and prices. The technical tools include standard calculus, linear algebra, optimization in continuous time using the Hamiltonian, optimization in discrete time using dynamic programming, and methods in time series analysis. 1 Credit

EF8903 Econometrics
This course is an introduction to the theory and practice of econometric modeling. The theoretical aspects of the course include specification, estimation and inference in the context of the classical linear regression and time series models, and under conditions when the classical assumptions about the error term are violated such as under heteroskedasticity and autocorrelation. The focus of econometric modeling and estimation will be on empirical models for the exchange rate, international interest parity and purchasing power parity, using data sets from the Canadian and the international economy. Students are required to have working knowledge of one or more statistical packages such as EVIEWS, TSP, Stata or SAS. 1 Credit

EF8904 Financial Theory
This course will teach fundamentals of finance in an international framework. After introducing students to foreign exchange markets, we will examine return and risk concepts for internationally diversified portfolios. We will concentrate on shareholder wealth maximization for both domestic and multinational firms. During the course students will learn about financial instrument valuation (stocks, bonds and derivative securities). In the second half of the course capital budgeting, capital structure and dividend policy of domestic firms and multinational firms will be investigated. 1 Credit

EF8911 International Monetary Economics
(International Finance Field)
This course examines theoretical and empirical issues regarding international monetary arrangements. Topics include the determinants of the international balance of payments, theories of foreign exchange rate determination, fixed versus flexible exchange rate regimes and the efficacy of monetary and fiscal policies under such regimes. The course also examines the theories of optimum currency areas, dollarization and currency boards. 1 Credit

EF8912 Country Risk Analysis This course introduces the students to the theory and practice of managing cross-border lending and international investment risk. The course gives a comprehensive coverage of the analysis and reporting of sovereign creditworthiness, political risk, current account analysis, statistical credit-scoring methodologies, loan valuation, portfolio management and regulatory supervision. Several case studies will be used, including the Mexican Peso crisis and the collapse of the markets in South East Asia.
Anti-requisite: ECN 821. 1 Credit

EF8913 International Financial Markets
The objective of this course is to develop a solid understanding of international financial markets and examine managerial decision making in an international setting. International financial markets will be studies in the context of the foreign exchange, offshore, derivative securities, and international asset portfolio markets. Theoretical and empirical aspects of these markets will be analyzed in detail. Decision making regarding the measurement and management of risk in international markets will be analyzed from the point of view of individuals and firms. 1 Credit

EF8914 Financial Econometrics
The purpose of this course is an introduction to the theory and econometric techniques that are necessary to undertake empirical analysis of financial time series. Topics include univariate linear and nonlinear stochastic models such as ARMA processes, ARIMA processes, ARCH-GARCH processes, martingales and random walks. Multivariate stationary and non-stationary processes will also be examined in the context of Vector Autoregressive (VAR) models and Vector Error Correction Models (VECM) for integrated processes. Empirical application of these techniques will be done using data from the Canadian and/or international financial markets. Students of this course are expected to have a solid background in econometrics and have working knowledge of an econometrics package such as EVIEWS, TSP, Stata or SAS. 1 Credit

EF8915 International Corporate Finance
The purpose of this course is for students to understand the dynamics of international corporate finance by concentrating on the financing and investment policies of multinational corporations. We will examine how to evaluate international projects which require large investments and calculate the cost of capital. We will investigate the costs and benefits of issuing securities on international markets. Other topics include international portfolio diversification, taxation issues and functions of offshore centres.
This course offers an in-depth treatment of the Classical, neoclassical, and contemporary theories of international trade. Topics include commercial policy, income distribution, international factor movements, and growth. The course also examines various trade policies and their impact on welfare. 1 Credit

EF8931 International Trade Theory and Policy
(International Trade Field)

This course offers an in-depth treatment of the Classical, neoclassical, and contemporary theories of international trade. Topics include commercial policy, income distribution, international factor movements, and growth. The course also examines various trade policies and their impact on welfare. 1 Credit

EF8932 International Trade under Imperfect Competition
This course will provide students with a firm grasp of theoretical and empirical methods of analyzing international trade outside of the traditional competitive framework, utilizing the tools of New Trade Theory. Topics addressed include multinational corporations, strategic interaction between governments and firms, intra-industry trade, intellectual property rights and the emergence of international technology gaps. 1 Credit

EF8933 Empirical Topics in International Trade
This course examines the pattern of trade and the welfare consequences of various trade policies from an empirical view point and teaches the students how to apply trade analysis in a policy environment. The use of the gravity equation will be examined as well as other methods of analyzing trade flows and impediments to trade such as tariffs and transportation costs. The course will emphasize the difficulties in obtaining data and deciding on the appropriate estimation method. 1 Credit

EF8934 Global Institutions and the International Economy
This course is divided into two parts. The first part investigates various explanations of why institutions exist and examines the challenges of creating international institutions that enforce agreed upon rules governing economic relations among nations. The second part of the course looks at the structure of existing international institutions, such as the IMF, the World Bank and the WTO. Case studies will be presented to analyze the impact of policies of these institutions on the national economies. 1 Credit

EF8935 The Law and Regulation of International Trade and Investment
This course introduces the student to the law and regulation of international trade and investment. The course will begin with an introduction and overview of the history and characteristics of the WTO trading system. The similarity and differences to NAFTA will be reviewed. Students will then examine the regulation of trade in goods and services, as well as current international regulatory issues relating to the environment, labour, immigration, culture and ethics. Government procurement and intellectual property rules will be examined. International investment rules and dispute settlement will be studied as well as international competition policy and its relationship to AD and CVD rules. The course will conclude with an examination of the dispute settlement regimes of NAFTA and the WTO. 1 Credit

EF8936 International Public Economics
Globalization and the ongoing integration of world markets have serious implications for the nature and impact of domestic fiscal policies. The design of taxation policies in modern economies requires that policymakers carefully consider the international ramifications of their decisions. This course examines some important issues in international taxation. Topics to be covered include the effects of fiscal policy in an open economy relative to a closed economy, optimal income taxation in an open economy, taxes and portfolio choice, tax harmonization and tax coordination, and the impact of taxation on the activities of multinational corporations. 1 Credit

EF8937 International Labour Economics
This course examines theoretical and empirical issues regarding international labour economics. While goods and capital markets across countries are integrating rapidly, labour markets are integrating at a much slower pace, especially between developing and developed countries. Nevertheless labour markets are deeply affected by the integration in the other markets. The relationship between labour markets dynamics and the integration in capital and goods markets will be the focus of the course. Topics to be covered include regional labour market differences, the interaction between international trade, capital flows and labor markets, the importance of human capital formation for development, and international migration. 1 Credit

EF8938 Microeconom Issues: Industry, Dev and Intl Econ
The purpose of this course is to provide a microeconomic analysis to some important issues of the current global economy. The topics we intend to cover are taken from a broad spectrum, ranging from current industry practices (e.g., outsourcing) to institutions in developing countries (e.g., Grameen Bank-a highly successful rural micro-credit program in Bangladesh).1 The approach will be of a theoretical nature, applying tools of general microeconomic theory to some of the major issues of the international economy. Although we shall often provide illustrations using case studies, the emphasis will be on microeconomic analysis rather than descriptive accounts. As the course will discuss the micro-foundations of institutions as well as industry practices that have important trade policy implications, it will complement the existing courses on institutions and trade (e.g., International Trade under Imperfect Competition, Global Institutions and the International Economy). 1 Credit

EF8939 Nonparametric Econometrics
This course provides an introduction to nonparametric methods used in econometrics. Nonparametric methods are statistical techniques which do not require the researchers to specify a functional form for the function being estimated (e.g. probability density function, regression function, etc). The primary goal of the course is to enable students to intelligently apply these methods in analyzing real-world economic issues. 1 Credit

EF8940 Environment and Economic Growth
This course will examine environmental issues in the context of economic growth, development, and international trade. Developing countries desire economic growth to increase the standard of living of their citizens. However, economic activity can often lead to environmental degradation, which if unchecked can cause a decline in the quality of life even as

material standards of living increase. We will examine the links between the environment and development by analyzing specific environmental and resource issues (e.g., air and water pollution, international trade in pollution, climate change, and use of renewable and non-renewable resources). 1 Credit

EF8941 Topics in International Economic Development
This course investigates the evolution of the international economy from the industrial revolution to the present. The development of international trade and institutions figures prominently in the analysis. Although there is early emphasis on Europe and North America, we also investigate developments in Japan and other currently developing… 1 Credit

JOURNALISM

CURRICULUM

Master of Journalism

First Offered Fall 2007

DEGREE REQUIREMENTS		*Credits*
Major Project		
JN8101	The City: Reporting, Writing	2
JN8102	Internship	2
JN8103	Rsrch Methods for Journalists	1
JN8104	Urb Poli and Soc for Journlsts	1
JN8105	Journ Prac: Critical Approach	1
JN8106	The History of News	1
JN8107	Law and Ethics for Journalists	1
JN8108	Journalism Workshop	1
JN8109	Project Development	1
Two Credits from Journalism Electives		2
Two Credits from Advanced Journalism Electives		2
Two Credits from Advanced Specialized Electives		2
One Credit from Communication & Design Electives		1
ELECTIVES		
Journalism		
JN8201	Broadcast Journalism	1
JN8202	Online Journalism, New Media	1
JN8203	Magazine and Feature Writing	1
Advanced Journalism		
JN8301	Advanced Newspaper Journalism	2
JN8302	Advanced Broadcast Journalism	2
JN8303	Advanced Magazine Journalism	2
JN8304	Advanced Online Journalism	2
Advanced Specializations		
JN8401	Television Documentary	2
JN8402	Adv Rsrch Mthds: Invst Techniq	1
JN8403	Business Journalism	1
JN8404	International Journalism	1
JN8405	Health and Science Journalism	1
DM8301	Adv Topics in Hist of Docmtry	1
IS8922	Changing Multicult Mosaic: GTA	1
Communication & Design		
CD8310	Topics in Cross-Cultural Comm	1
CD8320	Media Lang: Forms and Apprches	1
CD8330	Audiences and the Public	1

COURSE LISTING

Major Project
This is a “Milestone.” Pass/Fail

JN8101 The City: Reporting, Writing
Using the city as a laboratory, students will learn the fundamental skills of journalism by carrying out demanding, practical reporting and writing assignments in various urban locations and settings. Students will learn how to generate and assess

story ideas; how to research, observe, interview and otherwise gather information; and how to write for publication, bearing in mind the requirements of clarity, thoroughness, balance, and accuracy. 2 Credits

JN8102 Internship
Each student will be placed as an intern in a professional newsroom. On completing the internship, each student will be required to write a substantial paper of theoretical and practical reflection on his or her experience, focusing on what has been learned about the possibilities of introducing new journalistic forms and approaches into professional newsrooms. 2 Credits

JN8103 Rsrch Methods for Journalists
This course will focus specifically on research methods required for journalism. Students will learn advanced library and bibliographic skills, allowing them to inform themselves quickly about unfamiliar subjects and to identify the most reputable researchers and studies; how to conduct, interpret and assess public-opinion surveys and use other statistical material; the systematic use of electronic databases; specialized techniques such as title searches and corporate searches; methods of interviewing; and how to approach a research problem from multiple directions. 1 Credit

JN 8104 Urb Poli and Soc for Journalists
Students in this course will gain a solid base of knowledge about urban affairs, broadly defined, that will help them produce insightful coverage of different aspects of urban society (including business and the arts). The course will involve lectures by experts in such areas as municipal politics, citizens' movements, cultural scenes, and multiculturalism, as well as critiques and analysis of the students' practical reporting assignments by professional journalists working in this field. 1 Credit

JN8105 Journ Prac: Critical Approach
Journalism is recognized as central to the practice of liberal democracy, but is also widely criticized from a variety of perspectives for not living up to its promise. In this course, students will study the major contemporary analyses of journalism. A major goal will be to examine critically the journalistic practices which the students are in the process of learning and to identify ways in which they could be improved. 1 Credit

JN8106 The History of News
This course will study the evolution of journalism from 1600 to the present, with a particular (but not exclusive) emphasis on developments in Canada. It will examine the various forms that news took at different periods and in different places; how news influenced culture and was influenced by it, as well as by changing technology, business organization, and markets; how different audiences used and responded to news; and how the producers of news understood their work in relation to their society, their audiences, their employers and their peers. 1 Credit

JN8107 Law and Ethics for Journalists
An understanding of journalistic ethics and the law of libel and contempt is essential for a professional journalist. This course will cover the major theories of journalistic ethics and will consider numerous case studies. As well, students will gain a solid understanding of Canadian law concerning libel and contempt of court, the treatment of young offenders in news stories and other guidelines for covering crime and courts. 1 Credit

JN8108 Journalism Workshop
In this course, students will explore and develop innovative journalistic forms and produce publishable work in them. Most journalistic organizations regularly seek new ways of reaching and serving their audiences, and representatives of these organizations will be frequent guest speakers. Students working in all media will take the course together. The goal is to introduce students to new ideas and approaches which they can introduce into professional news organizations after graduation. 1 Credit

JN8109 Project Development
This is an independent reading course, supervised by a member of the program faculty. In it, students will carry out research for the proposed Major Project, both in the subject area and the appropriate journalistic form. The course will culminate in the writing of a critical annotated bibliography and a preliminary proposal for the Major Project. 1 Credit

JN8201 Broadcast Journalism
In this course, students will learn to produce journalistic work for television. The focus will be on the particular requirements of gathering and presenting information for broadcast. The form of television news will be studied and analyzed, and students will learn to prepare and present their own reports, leading to the presentation of 15-minute news broadcasts. Detailed group and individual critiques of student work will be a key method of learning. 1 Credit

JN8202 Online Journalism, New Media
In this course, students will learn to produce journalistic work for new media (online journalism). The focus will be on the particular requirements of gathering and presenting information for publication on the Internet. The forms of online journalism (including blogs) will be studied and analyzed, and students will learn to prepare and present their own journalistic web pages and websites. Detailed group and individual critiques of student work will be a key method of learning. 1 Credit

JN8203 Magazine and Feature Writing
In this course, students will learn to write long-form articles for magazines and newspapers. Examples of award-winning articles will be studied and analyzed, and students will learn to produce their own long-form work. Methods of interviewing

and different approaches to narrative structure will be among the topics covered. Detailed group and individual critiques of written work will be a key method of learning. 1 Credit

JN8301 Advanced Newspaper Journalism
This is the central professional course in the program's second year. In it, students will use everything they have learned so far, both practical and academic, to produce a weekly newspaper, *The Ryersonian*. The focus will be on producing highly polished work and on meeting high standards of newsworthiness and thoroughness. Through detailed group and individual critiques, students will reach professional standards of achievement. Leading newspaper journalists will be invited seminar guests and will take part in critiques. Antirequisite: JRN903. 2 Credits

JN8302 Advanced Magazine Journalism
This is the central professional course in the program's second year. In it, students will use everything they have learned so far, both practical and academic, to produce an issue of the *Ryerson Review of Journalism*, an award-winning magazine. The focus will be on producing highly polished work. Through detailed group and individual critiques, students will reach professional standards of achievement. Leading magazine writers and editors will be invited seminar guests and will take part in critiques. Antirequisite: JRN950. 2 Credits

JN8303 Advanced Broadcast Journalism
This is the central professional course in the program's second year. In it, students will use everything they have learned so far, both practical and academic, to produce a twice-weekly television news broadcast. The focus will be on producing highly polished work and on meeting high standards of newsworthiness and thoroughness. Through detailed group and individual critiques, students will reach professional standards of achievement. Leading broadcast journalists will be invited seminar guests and will take part in critiques. Antirequisite: JRN902. 2 Credits

JN8304 Advanced Online Journalism
This is the central professional course in the program's second year. In it, students will use everything they have learned so far, both practical and academic, to produce a journalistic website accompanying either *The Ryersonian*, the *Ryerson Review of Journalism*, or the television-news broadcasts. The focus will be on producing highly polished work and on meeting high standards of newsworthiness and thoroughness. Through detailed group and individual critiques, students will reach professional standards of achievement. Leading online journalists will be invited seminar guests and will take part in critiques. Antirequisite: JRN905. 2 Credits

JN88401 Television Documentary
This is a laboratory course in the production of television documentaries. Particular emphasis will be placed on the relationship between the audiovisual and written elements of a documentary. Students will form production teams to plan, write, shoot, and edit documentaries. A significant amount of work will be done outside of class time. Antirequisite: JRN800. 2 Credits

JN8402 Adv Rsrch Mthds: Invst Techniq
In this course, students will learn the theory and various techniques of investigative journalism. The emphasis will be on how investigative journalism serves the profession's civic mandate; how to identify appropriate subjects for investigative approaches; how to gather and analyze relevant data systematically and rigourously; and how to circumvent common obstacles. Antirequisite: JRN802. 1 Credit

JN8403 Business Journalism
This course will prepare students to work as business journalists. Topics covered will include basic economic and financial concepts, Canadian business structure and organization, specific techniques for locating and interpreting financial information and different approaches to business coverage. Toronto is Canada's financial capital, and students will have opportunities to discuss the field with guest speakers from the financial press and the business community. 1 Credit

JN8404 International Journalism
This course will give students an in-depth background in international journalism. It will have a combined practical and academic focus. Topics covered will include the international political and economic system, globalization, and the role of news media in international affairs. Case studies will allow students to develop their knowledge of particular areas of the world or specific international issues. The practical and cultural challenges of working internationally in journalism will be emphasized. 1 Credit

JN8405 Health and Science Journalism
This course will give students an in-depth background in journalism dealing with health and science, focusing on the challenges and possibilities of presenting scientific and medical information to a popular audience in a responsible and insightful way. Students will be taught how to assess and interpret statistics and how to locate expert opinion on different subjects. Critical approaches to health and science will also be covered. 1 Credit

MANAGEMENT OF TECHNOLOGY AND INNOVATION

CURRICULUM
This Curriculum applies to students who entered the program in Fall 2007
For students who began the program in Fall 2006, please refer to the 2006/2007 Calendar

Master of Management Science

DEGREE REQUIREMENTS		*Credits*
Master's Thesis		
MT8103	Applied Research Methods I	1
MT8104	Applied Research Methods II	1
MT8212	Innovation and Org Theroyeory	1
MT8213	Technology and Org Strategy	1
MT8214	Diversity, Skills, Leadership	1
MT8215	Finance, Technology Valuation	1
MT8216	Global Markets and Tech Trends	1

Master of Business Administration

DEGREE REQUIREMENTS		*Credits*
MT8205	Adv Project Management I	.5
MT8208	Entrepreneurial Thinking	.5
MT8212	Innovation and Org Theory	1
MT8213	Technology and Org Strategy	1
MT8214	Diversity, Skills and Leadrshp	1
MT8215	Finance and Tech Valuation	1
MT8216	Global Markets and Tech Trends	1
MT8217	Ethics and Corporate Soc Resp	.5
MT8218	Prod Devel, Commercialization	.5
AND one of the following Options:		
PRACTICUM / INTERNSHIP Option		
	MT8061 Practicum/Internship	3
	Two credits from one Specialization	2
PROJECT Option:		
	MT8806 Applied Management Project	1
	Three credits from one Specialization	3
	One credit from any Specialization or General Elective List	1
	total	12

SPECIALIZATIONS		*Credits*
Information Systems Management		
MT8209	Human Factors in Tech Design	.5
MT8210	Adv Technology Integration	.5
MT8304	Governance of IT	.5
MT8305	Network Management I	.5
MT8306	Network Management II	.5
MT8307	Strategic Risk Management	.5
MT8308	Systems Analysis and Design I	.5
MT8309	Systems Analysis and Design II	.5
MT8310	Special Topics Info Sys Mgmt	1
MT8311	Adv Tech Integ and Proc Design	1
MT8312	Collaboration and Decision Tech	1
Mt8313	Data and Knowledge Management	1

MT8314	Human Factors in Tech Design	1
MT8315	Dir Readings Info Sys Mgmt I	1
MT8316	Dir Readings Info Sys Mgmt II	.5

Media Management

MT8403	Compet Strategy for Media I	.5
MT8406	Managing Creativity in Orgs	.5
MT8408	Adv Media, Communication Tech	
MT8409	Lgl/Policy Issues in Media Ind	1
MT8410	Compet Strategy Media Ind II	.5
MT8411	Media, Consumers and Markets	1
MT8412	Core Issue: Media Management	1
MT8413	Media Entrepeneurship	.5
MT8414	Dir Readings Media Mgmt I	1
MT8415	Dir Readings Media Mgmt II	.5
MT8416	Special Topics Media Mgmt	1

Supply Chain Management 1

MT8509	Special Topics Supp Chain Mgmt	1
MT8510	Adv Supply Chain Mgmt Tech	1
MT8511	Implementing ERP Systems	1
MT8512	Logistics and Inventory Mgmt	1
MT8513	Intro Operations Research	1
MT8514	Dir Readings Supp Chn Mgmt I	1
MT8515	Dir Readings Supp Chn Mgmt II	.5

GENERAL ELECTIVES

MT8103	Applied Research Methods I	1
MT8104	Applied Research Methods II	1
MT8206	Adv Project Management II	.5
MT8317	Information Architec Theory	1
MT8318	Wireless, Mobile Communication	1
MT8319	Telecommunication Applications	1
MT8320	Strategic Issues Telecom, IT	1
MT8321	Personal Data Privacy	1
MT8322	Data Warehousing Methods	1
MT8323	Customer Relations Mgmt IT	1
MT8324	Info Sys Security and Control	1
MT8325	Info and Comm Tech Mkts	1
MT8326	Adv Re-engineering Methods	1
MT8417	TV Distribution	1
MT8418	Legal Bus Aspects of Media	1
MT8419	Economics of Media	1
MT8420	Legal Issues in Media	1
MT8421	Media Business Studies	1
MT8422	Advertising in Elec Media	1
MT8423	TV Marketing Promotion	1
MT8424	Production Management	1
MT8516	Purchase/Supply Management	1
MT8517	Principles of Transportation	1
MT8518	Studies Global Supply Chn Mgmt	1

MT8519	Logistics Management I	1
MT8520	Logistics Management II	1
MT8521	Operations Management	1
MT8802	Strategic Tech Portfolio Mgmt	.5
MT8803	Leadership in a PMO Context	.5
MT8807	Managing Knowledge and IP	1
MT8808	Consulting Skills	1

COURSE LISTING

Master's Thesis
This is a "Milestone". Pass/Fail

MT8103 Applied Research Methods I
Students are introduced to quantitative and qualitative research techniques, with particular emphasis on their application to the management of technology, to technology forecasting and technology implementation. Concepts and models for technological forecasting and competitive intelligence are also introduced. Antirequisite MT8101, MT8102. 1 Credit

MT8104 Applied Research Methods II
This course is a continuation of MT8103. In this course, students will refine their research question, develop expertise in the specific methodology to be used for their thesis research, and will develop a research proposal. 1 Credit

MT8205 Adv Project Management I
Focuses on both the science of project management and the art of managing projects, and provides a comprehensive, integrative understanding of the project management process with particular emphasis on it application to technology and IT projects. 0.5 Credit

MT8206 Adv Project Management II
This is an advanced theory elective that will focus on emerging theory in the field with particular reference to the emerging work in areas like capability maturity models, emerging theory around project risk management and mitigation and the newest aspects of complexity and chaos theory applied to the management of large, enterprise-wide projects. 0.5 Credit

MT8208 Entrepreneurial Thinking
This module introduces students to entrepreneurial thinking. Case studies will be used to demonstrate how entrepreneurs foster innovation in the development of successful businesses or in fostering innovation within existing businesses. Principles of entrepreneurship will be outlined, and students will learn how such principles can be applied within organizations (intrapreneurship), to identify new opportunities, initiatives and innovations for organizational benefit.
0.5 Credit

MT8209 Human Factors in Tech Design
User-centred theory and approaches to understanding and designing technologies will be introduced. Emphasis will be placed on the effective application of these approaches in a development and management of technology context to suit all users including those with disabilities. Students must apply the theoretical constructs to a practical design or development project. 0.5 Credit

MT8210 Adv Technology Integration
This module allows students to further develop their technological competence, with a focus on understanding the key technologies widely adopted across enterprises and beyond. The module adopts a problem-based approach to enable students to comprehend, and respond to, the challenges that arise in integrating multiple technologies within the enterprise and across inter-organizational networks. 0.5 Credit

MT8212 Innovation and Org Theory
This course prepares students to manage in turbulent, high technology environments. Students are introduced to theories of innovation, and learn how various ways of organizing and managing people and work can foster or stifle innovation. Students will apply models of innovation and diffusion to analyze industry trends and identify and assess strategic options for individual firms operating in environments of rapid technological change. Antirequisites MT8201 and MT8203. 1 Credit

MT8213 Technology and Org Strategy
This course examines how strategic leaders transform and position their organizations to exploit technological change for competitive advantage. It provides an understanding of the issues surrounding the formulation and implementation of technology-based strategies, and explores frameworks for managing in a technology-based economy. Antirequisite MT8202. 1 Credit

MT8214 Diversity, Skills and Leadrshp
This course develops competencies in managing a global workforce. Specific topics include the behavioural impact of cultural differences, alternative approaches to organizational structure, cross cultural communication challenges, management of diverse groups, leadership and employee motivation techniques for global managers, and conflict

resolution across cultures. Students will assess their own managerial and leadership competencies and develop a personal plan for skill development. Antirequisite MT8204. 1 Credit

MT8215 Finance and Tech Valuation
Students learn how to interpret financial information to inform managerial decisions within the organization. The course covers concepts related to technology valuation, building business cases, and examining R&D productivity. Particular attention will be focused on risk management, and the course will use current cases as a basis for discussion. Antirequisite MT8207. 1 Credit

MT8216 Global Markets and Tech Trends
This course explores emerging issues (technologies, trends, geopolitical policies etc.) with an emphasis on their potential impact on global enterprise practices. The course also focuses on developing planning models to incorporate environmental scanning and technology forecasting as components of effective strategic planning models. Antirequisites MT8211. 1 Credit

MT8217 Ethics and Corporate Soc Resp
This module will address the social, legal and ethical issues of innovation and technology deployment. Specific topics will include the development of business practices that meet business objectives and the ethical and social requirements of organizational stakeholders, socially responsible innovation, and the relationship between technology and social values. Case studies and debates will be used extensively to illustrate core concepts and ethical dilemmas. Antirequisite MT8204. 0.5 Credit

MT8218 Product Devel, Commercialization
Building on concepts related to the strategic management of innovation, this module focuses on development and commercialization of new products and processes. Using case studies, students will learn how to identify market opportunities, assess product and process potential, and develop commercialization strategies. Prerequisite MT8212 (Innovation and Organization Theory) 0.5 Credit

MT8304 Governance of IT
This module examines the role of IT governance (CIO, CKO. CTO) in achieving organizational objectives. It explores the responsibilities of senior IT managers, and examines how senior level managerial decision making enables alignment of business and IT strategic goals. The importance of IT governance in monitoring performance and accountability is also considered. 0.5 Credit

MT8305 Network Management I
Module 1 develops the managerial level of technical knowledge and terminology for data, voice, image, and video communications and computer networks necessary to effectively communicate with technical, operational and management people in telecommunications. Module 2 focuses on the application of data communications concepts to situations encountered in industry, with emphasis given to understanding how the organizational context shapes network requirements. 0.5 Credit

MT8306 Network Management II
A continuation of MT8305. 0.5 Credit

MT8307 Strategic Risk Management
The module focuses on identifying and understanding general technology risks within organizations. Risk management processes are outlined. Through case discussions, students determine specific approaches to managing strategic and organizational risks. They also consider security related risk identification and risk management. 0.5 Credit

MT8308 Systems Analysis and Design I
These modules instruct students in the principles of systems analysis and design. Topics include the systems development life cycle; analysis and design techniques; information systems planning and project identification and selection, requirements collection and structuring, process modeling, data modeling, design of interface and data management, system implementation and operation, system maintenance, and change management implications of systems. Students will apply current methods and tools (e.g. rapid application development, prototyping, and visual development) to develop real solutions to support or improve organizational processes. 0.5 Credit

MT8309 Systems Analysis and Design II
A continuation of MT8308. 0.5 Credit

MT8310 Special Topics Info Sys Mgmt
Special topics courses in Information Systems Management may be offered in response to students' needs and interests. 1 Credit

MT8311 Adv Tech Integ and Proc Design
This course allows students to further develop their technological competence, with a focus on understanding the key technologies widely adopted across enterprises and beyond. The course develops an understanding of business process design, and adopts a problem-based approach to enable students to comprehend, and respond to, the challenges that arise in integrating multiple technologies within the enterprise and across inter-organizational networks. Antirequisite MT8210. 1 Credit

MT8312 Collaboration and Decision Tech
This course provides an overview of the development and usage of decision support systems (DSS), data mining and collaboration technologies. Students will learn how database technologies support managerial decision making, and will understand the role of the data warehouse in supporting DSS and data mining applications. Antirequisite MT8301.
1 Credit

MT8313 Data and Knowledge Mgmt
This course covers the basic principles and practices of knowledge management, the technology to support knowledge sharing and the issues in designing and implementing a value-based knowledge management system in an organization. Topics include: understanding today's knowledge economy and knowledge workers; enabling knowledge creation; knowledge maintenance: accuracy, currency, accessibility; developing a knowledge management strategy; information policies, measuring value, change management and human factors in implementing a knowledge management system.
Antirequisites MT8302, MT8303. 1 Credit

MT8314 Human Factors in Tech Design
User-centred theory and approaches to understanding and designing technologies will be introduced. Emphasis will be placed on the effective application of these approaches in a development and management of technology context to suit all users including those with disabilities. Students must apply the theoretical constructs to a practical design or development project. Antirequisite MT8209. 1 Credit

MT8315 Dir Readings Info Sys Mgmt I
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to Information Systems Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisites MT8901, MT8316. 1 Credit

MT8316 Dir Readings Info Sys Mgmt II
The directed readings module is intended to permit the student to explore a coherent body of literature in an area of study related to Information Systems Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisite: MT8315
0.5 Credit

MT8317 Info Arch Theory
This is an advanced foundational course in information architecture theory, focusing on application of theories to systems design projects involving database or knowledge management systems. This course explores theoretical perspectives on information architecture principles by demonstrating the application and development of an information architecture required to support an overall IT and Business Strategy. This course utilizes an experiential learning design and will provide students the opportunity design an information architecture model for a complex system. Antirequisite ITM613.
1 Credit

MT8318 Wireless/Mob Comm
This course explores concepts and applications of wireless technologies and systems, and mobile and wireless communications within a business environment. It provides an understanding of complex wireless and mobile systems by exploring individual components used to build these systems. These include network management, integration of wireless and wireline networks, system support for mobility, computing system architectures for wireless nodes, and user interfaces appropriate for handheld portable devices**.** Antirequisite ITM704. 1 Credit

MT8319 Telecommunication Apps
This course illustrates through the analysis of special cases and projects how telecommunications can meet specific business needs. These projects may include selecting wireless, e-commerce, voice processing, multimedia and teleconferencing. Emphasis is placed on developing problem-solving skills, learning to evaluate different products, and applying system development methodologies to a range of technologies designed to meet varying needs. The course also explores implementation issues for selected technologies. Antirequisite ITM705. 1 Credit

MT8320 Strategic Issues Telecom, IT
In this course, topics addressed will vary to reflect the current market environment, but the focus will remain constant - immediate issues and emerging trends of interest to telecommunications managers. The course assumes a basic understanding of the technology and will draw heavily on practitioners in industry for its direction. In one year, for example, regulatory issues may be highlighted; in another, technology may be predominate. Antirequisite ITM715. 1Credit

MT8321 Personal Data Privacy
The purpose of this course is to identify personal data privacy issues involved in information technology management and examine a full spectrum of possible as well as feasible solutions (technological and business) to safeguard personal data privacy. This course will explore the principles of data privacy, the threats to privacy, international and national policy, particularly privacy enhancing technologies as they apply to the management of information systems and eBusiness. Antirequisite ITM725. 1 Credit

MT8322 Data Warehousing Methods
This course explores fundamental principles that underlie the wide spectrum of activities and processes associated with discovering useful knowledge from aggregate data in a business setting. The course structure is based upon three major technologies that enable the transformation of data into knowledge: data warehousing, OLAP, and data mining. The

emphasis of the course will be on the application, implementation and integration of the technologies with the business process and strategic goals of the enterprise. Antirequisite ITM729. 1Credit

MT8323 Customer Relations Mgmt IT
This course addresses the growing need of business for experts to help them with the development and implementation of systems at improving customer service and satisfaction with a particular focus on enterprise-wide customer relationship management systems. Students will become familiar with the technical aspects of customer relationship management and business aspects of customer relationship management. Students will develop knowledge in defining business requirements for customer acquisition and retention, identifying, implementing and managing IT enabled solutions. Antirequisite ITM730. 1Credit

MT8324 Info Sys Security and Control
This course considers the technical, operational and managerial issues of computer and network security in an operational environment. Industry best practices relating to computer security including schemes for breaking security, and techniques for detecting and preventing security violations are the core focus of this course. Additional material on the development of appropriate safeguards, the study of different types of security systems and the development of appropriate security for the perceived risk are also introduced. Antirequisite ITm420. 1 Credit

MT8325 Info and Comm Tech Mkts
This course is designed for individuals who are interested in acquiring a broad perspective on marketing or policy issues. It explores the current market environment, trends, and major players, including their strategies and prospects. Industry experts, consultants, and suppliers provide input to course development**.** Antirequisite ITM515. 1 Credit

MT8326 Adv Re-engineering Methods
This course introduces concepts and techniques of managing organizational change involving the implementation of information technology, and provides an overview of key change management issues involving IT in organizations. Various approaches for managing conflict and processes for facilitating optimum IT adoption and use will be presented. Planning, innovation, and implementation strategy formulation will be addressed through case studies examining prototypes of IT change management problems**.** Antirequisite ITM601. 1Credit

MT8403 Competitive Strategy for Media
This is a competitive strategy module with a focus on media firms and dynamics of strategy in the media industries. The module combines resource-based and competence-based approaches to strategy and examines determinants of performance in media firms. It introduces multiple case studies to illustrate industry dynamics, innovation and resources, strategic architecture, intangible factors, performance metrics in media firms. 0.5 Credit

MT8406 Managing Creativity in Orgs
Creative individuals and the creative process are at the heart of media production. This module examines the management of creativity in terms of processes, structures, incentives, and practices that enable the manager to successfully lead creative people. Topics include brainstorming, team building, performance measurement and feedback techniques, relationship building, communication, and motivation. 0.5 Credit

MT8408 Adv Media, Comm unication Tech
This course surveys contemporary and emerging communication technologies such as Next Generation Network Technologies, Multimedia and Internet Systems and Services, Broadband Satellite Technologies, Wideband Wireless Communication Technology and Services, and Advanced Intelligent Network Technology and Services, and explores their applications implications for communication and cultural practices. The module encompasses theoretical and applied perspectives. 1 Credit

MT8409 Lgl/Policy Issues in Media Ind
Around the world, rapid changes in the media and communications industries are affecting the legal, regulatory, and policy frameworks within which these industries operate. Business leaders need to understand how competition, ownership, content, contracts, privacy, intellectual property rights, liability, trade, and taxation issues affect their firms. This course provides an overview of these issues in Canada and internationally. Exclusion MT8420. 1 Credit

MT8410 Compet Strategy Media Ind II
This module builds on MT8403. Using international and Canadian case studies, it illustrates industry dynamics, innovation and resources, strategic architecture, intangible factors, performance metrics in media firms. Prerequisite: MT8403. Antirequisite MT8213. 0.5 Credit

MT8411 Media, Consumers and Markets
This course examines product and service innovation in media industries and investigates trends in consumption of media products and services. It introduces students to ways of understanding consumer behaviour with respect to media products and services. The course examines methods and models that treat consumers as customers, users, and audience members. 1 Credit

MT8412 Core Issues Media Management
This course provides a comprehensive overview of management issues in diversified media firms. It covers the media value chain, content strategies, supply chain management in media industries, marketing to customers and audiences, advertising strategies, corporate strategy, the impacts of digital media, and HR management in creative firms. 1 Credit

MT8413 Media Entrepreneurship
Self-employment is not unusual in the media industries, but it is relatively new for media professionals to seek to engage in growth-oriented media ventures. In this module students gain a familiarity with entrepreneurship issues in media industries. Students identify and develop an entrepreneurial opportunity for a media venture, and prepare for the development of this venture through the production of a business plan. Prerequisite MT8208. 0.5 Credit

MT8414 Dir Readings Media Mgmt I
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to Media Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisite MT8415. 1 Credit

MT8415 Dir Readings Media Mgmt II
The directed readings module is intended to permit the student to explore a coherent body of literature in an area of study related to Media Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisite MT8414. 0.5 Credit

MT8416 Special Topics Media Mgmt
Special topics courses in Media Management may be offered in response to students' needs and interests. Topics may include international or intercultural media management, media industry analysis, new venture management in the media industry, and financing media ventures. 1 Credit

MT8417 TV Distribution
The distributor is essentially the producer's sales person of a program. This course will explore the essential responsibilities of television distributors and their relationship to the producer and investors of programming. Students will learn how and where programs are sold, revenue expectations from various genre and territories, and how to successfully market and promote programming. International markets, contracting, selling, merchandising and administrative details will be reviewed. Antirequisite BDC911. 1 Credit

MT8418 Legal Bus Aspects of Media
Students will learn about the legalities on Internet regulation, website design, information collection, privacy protection, copyright and trademarks on the Internet, trade secrets, and how to determine which country's laws apply when conducting business on the Internet over national borders. They will also learn what to insist on and what to avoid in contracts, and will learn about on-line payment systems and electronic signatures. Antirequisite BDC912. 1 Credit

MT8419 Economics of Media
As the broadcasting and new media industries evolve, old forms of management may give way to new structures. This course will explore trends in entrepreneurship, employment, types of "work" and different management styles in a world of mergers, consolidation and networks. Within different models, the financiers and economic models that support the industry will be reviewed. Antirequisite BDC914. 1Credit

MT8420 Legal Issues in Media
This course will provide students with a general familiarity and understanding of the concepts and legal process inherent in the business of broadcasting and communications. Topics to be covered include copyright, contracts, clearance of program rights, legal issues relating to the Internet and multimedia. Issues in entertainment law and sports law will also be reviewed, as will government regulation of the broadcasting and multimedia industries. Antirequisite BDC915, MT8408. 1 Credit

MT8421 Media Business Studies
This course will cover general business practices including marketing, finance, accounting, statutes and regulations particularly applicable to the successful operation of small media businesses. A case study approach will be used.
Antirequisite FPN536. 1 Credit

MT8422 Advertising in Elec Media
Students will follow a commercial production from inception to completion. Aspects of advertising to be reviewed include: competitive bidding by agencies; budgeting for commercial production; relationships with production houses; CRTC regulations and broadcaster advertisement codes; and the role of various personnel involved in the bidding, pre-production, production and post-production stages of a commercial. Effectiveness and persuasiveness of commercial content will be explored. Antirequisite BDC901. 1 Credit

MT8423 TV Marketing Promotion
This course will demonstrate how to successfully market television programs, channels and networks to an intended target audience. Students will be introduced to the foundation of knowledge and procedures associated with effective marketing and promotion techniques. Specific areas of discussion include; brand identity, strategies and tactics for on-air promotion and campaigns, off-air advertising, publicity, use of the Internet and promotional partnerships. Antirequisite BDC906. 1 Credit

MT8424 Production Mgmt
This course will provide an overview of the role of the production manager in film and television. Students will become acquainted with the sophisticated administrative procedures and planning necessary for a successful production. Activities in the four stages of production will be reviewed: development; pre-production; production; post and wrap. Topics include:

script breakdown, scheduling, budgeting, industrial relations, facilities and suppliers, location management, accounting, talent and crew unions, contracts, reporting mechanisms and relevant forms and paperwork. Antirequisite BDC910.
1 Credit

MT8509 Special Topics Supp Chain Mgmt
Special topics courses in Supply Chain Management may be offered in response to students' needs and interests.
1 Credit

MT8510 Adv Supply Chain Mgmt Tech
Topics include purchasing/supply chain functions, production, distribution and logistics systems, financial considerations, outsourcing and partnership options, competitive bidding and negotiation, contracts, client service and satisfaction issues, etc. Emerging models of buyer-supplier networks and electronic markets will be discussed in terms of the range of key technologies used to support processes within e-enabled corporations. (This course may use the SAP system to demonstrate aspects of integrated IT supply chain management systems.) 1 Credit.

MT8511 Implementing ERP systems
Enterprise Systems (ERPs) have proven to be critically important technologies for enabling process improvement and information coordination in organizations and supply chains. Successful ERP implementation requires a broad understanding of business processes, ERP functionality, and project management techniques. Students will gain experience analyzing business processes and designing improved ERP-supported workflows. Students will be exposed to a variety of ERP, business intelligence, and project management tools and techniques. 1 Credit

MT8512 Logistics and Inventory Mgmt
The course will address advanced supply chain management issues including the following topics: facility location, design of distribution networks, demand forecasting, inventory management, aggregate planning, transportation decision-making, use of IT, sourcing, and pricing. The course will emphasize the use of analytical methods and will also incorporate risk management in business logistics. 1 Credit

MT8513 Intro to Operations Research
This course provides an overview of the basic principles of Operations Research with special emphasis on the paradigms associated with linear programming and queuing theory. These include generic modelling; mathematical modelling; the 'max', 'min', and 'mixed case' simplex algorithms; sensitivity analysis; duality; 'assignment', 'transportation' and 'transhipment' models; and basic principles and models associated with queuing or 'waiting-line' problems. These subjects will be studied from both theoretical and practical perspectives. The class requires background in probability theory and linear algebra as well as some skills in computer programming. 1 Credit

MT8514 Dir Readings Supp Chn Mgmt I
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to Supply Chain Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisite MT8515. 1 Credit

MT8515 Dir Readings Supp Chn Mgmt II
The directed readings module is intended to permit the student to explore a coherent body of literature in an area of study related to Supply Chain Management. Working with a faculty supervisor, the student will develop an initial bibliography to focus the study, and will complete a research paper on the selected topic of interest. Antirequisite MT8514. 0.5 Credit

MT8516 Purchase/Supply Management
A seminar designed to discuss all activities required to bring materials, parts, and sub-assemblies into and through the enterprise at the lowest possible overall costs with end-user quality requirements. Weekly case assignments integrate the subject matter with the supply management functions. Topics include: the challenge of purchasing and supply management, effective organization, techniques of buying, computerization, Electronic Data Interchange, the web, quality including I.S.O. 9000/14000 standards, specifications and standardization, inventory management, supplier selection, price determination. Antirequisite MGT701. 1 Credit

MT8517 Principles of Transportation
This course examines the field of Traffic and Transportation management in order to provide a professional level of competency for students who wish to pursue careers in Purchasing and Materials Management and/or professional transportation management. Course topics include: transportation regulation and deregulation, transportation economics, buying transportation services, truck transportation, rail transportation, air, marine and pipeline, computers in transportation, customs and excise, dangerous goods, packaging, damage prevention, and carrier claims. Antirequisite MGT803. 1 Credit

MT8518 Studies Gbl Supp Chn Mgmt
This course will expose the student to many of the topics currently dominating the study of global supply management. Subjects will include: locating potential suppliers; the importance of cultural and communication skills; legal practices; currency factors; logistics; supplier payment, channel payment, and more. Students will be expected to present reports on various topics using both primary and secondary research techniques. Antirequisites MGT804, MB8707. 1 Credit

MT8519 Logistics Management I
The goals of this course are to develop an understanding of the logistics process, and to acquire analytical skills in monitoring the ability to provide end customer satisfaction and financial effectiveness. The core competencies in this

course start with study of decision strategies in warehousing and inventory management. The course continues with a study of order processing and decision support systems. The course concludes with a look at global logistics and the strategic logistics plan. Antirequisite RMG903. 1 Credit

MT8520 Logistics Management II
This course explores the application of analytical diagnostic tools to the logistics sphere with a view to optimizing end customer satisfaction and financial effectiveness through optimal use of the supply chain system. Topics include: activity based costing, productivity, total quality management (TQM) and JIT systems, utilization, and performance measures to improve effectiveness and efficiency. The core competencies in this course start with a study of channels of distribution and transportation. Prerequisite MT8519, Antirequisite RMG904. 1 Credit.

MT8521 Operations Management
This course examines production and operations management that relate to the creation of goods and services through the transformation of inputs into outputs. It will provide an overview of production and operations management, which includes productivity, competitiveness and strategy, quality management; product and service design; process selection; design of work systems; learning curves; inventory management, maintenance and reliability and project management. Antirequisite MGT401. 1Credit

MT8802 Strategic Tech Portfolio Mgmt
This module reviews models for establishing technology priorities and managing multiple projects with an emphasis on the portfolio management process. 0.5 Credit

MT8803 Leadership in a PMO Context
Providing project or program leadership is different than providing project support and coaching to other project managers as part of a centralized Project Management Office (PMO). Explore the differences between direct and indirect leadership and the issues involved in creating and managing internal project management centres of excellence. Explore the definitions of established approaches to setting up and managing a PMO and understand best practices that work effectively to encourage the sharing and application of new knowledge in organizations. 0.5 Credit

MT8806 Applied Management Project
Students will work directly with a faculty member in the program on a specific research question related to their area of specialization. Students will produce a research paper that applies theories of management and innovation to the topic of interest, demonstrating their ability to integrate management practice and theory. 1 Credit

MT8807 Managing Knowledge and IP
Intellectual capital has been defined as any asset that cannot be measured but is used by a company to its advantage. Knowledge, collective expertise, goodwill, brand value and patents usually are absent from conventional financial statements but are critical to organizational success. This course focuses on ways of assessing, organizing, sharing, protecting and leveraging intellectual property (IP) and strategies for knowledge using established knowledge management techniques. 1 Credit

MT8808 Consulting Skills
This course examines consulting industry, consulting firms and consulting process models as they apply to various types of IT consulting engagements, as well as the distinctions between IT consulting practice and general management consulting. Students will study real life consulting projects with practitioners in order to explore consulting skills, roles, skills and services and how they apply to IT projects. This course will be relevant to students who anticipate being external or internal consultants. Antirequisite ITM724. 1 Credit

MT8901 Directed Readings
The directed readings course is intended to permit the student to survey a coherent body of literature in an area of study related to the student's field of study. 1 Credit

MT8061 Practicum/Internship
This major research project is normally tied to a work placement or contract with an organization. These projects usually focus on the application of theory to practice and the analysis of a particular market, organizational or management issue. Where appropriate these projects can be undertaken in small groups. A proposal for this project must be approved in advance. An oral defense may be part of the requirements. 3 Credits

MASTER OF BUSINESS ADMINISTRATION

CURRICULUM

This Curriculum applies to students who entered the program in Fall 2007
For students who began the program in Fall 2006, please refer to the 2006/2007 Calendar

Master of Business Administration

DEGREE REQUIREMENTS

Foundation Courses*		Credits
MB8001	Intl Bus Issues and Functions	1
MB8002	Quan Mthds and Info Sys	1
MB8003	Marketing in an Intl Environ	1
MB8004	Acctng in an Intl Environ	1
MB8005	Intl Finance for Mgrs	1
MB8006	Economics in an Intl Environ	1

* Students with an undergraduate degree in business may apply for advanced standing in the Foundation courses.

Core Program		
MB8103	Strategy in Intl Bus Environ	1
MB8104	Acctg and Finc for Todays Mgrs	1
MB8105	Wrld Lgstcs and Spply Chn Mgmt	1
MB8106	Diversity in HR Mgmt	1
MB8107	Adv Intl Mktng	1
MB8108	Reg Gov and Soc Resp Mgmt	1
Two credits from one Specialization		2
Two credits from any Specialization or Elective List		2
AND one of the following options:		
	Master's Thesis	
	Master's Research Project	
	International Exchange	
	Language and Cultural Training	

SPECIALIZATIONS

International Business

MB8201	Intl Strategic Mgmt Challenges	1
MB8202	Intl Environ Fincl Dcsn-Mkg	1
MB8203	Intl Trade in Goods and Servs	1
MB8204	Intl Negs, Contrg and Rsk Mgmt	1
MB8205	Intl Econ and Social Dev	1
MB8206	Internatztn of Retailing	1

Human Resources Management

MB8301	Strategic HR Mgmt	1
MB8302	Comp and Labour Mrkts	1
MB8303	Comparative Emplymt Relations	1
MB8304	Organizational Change	1
MB8305	Organizational Dsgn and Theory	1
MB8306	Special Topics in HR	1

Marketing

MB8401	Marketing Management	1
MB8402	Brand Management	1
MB8403	Competitive and Mrkt Analysis	1
MB8404	Managing Customer Relations	1

MB8405	Mktg in Theory and Practice	1
MB8407	Special Topics in Marketing	1
Retail and Commercial Development		
MB8501	Geo-demographics	1
MB8502	Retail and Commercial Dev	1
MB8503	Business Geomatics	1
MB8504	Rtl Location and Dev Strats	1
MB8505	Lgl Asps of Rtl and Comm Dev	1
MB8506	Real Estate Finance	1

GENERAL ELECTIVES

CC8842	Public Affairs Media	1
CC8942	Cross-Cult and Internat Commun	1
MB8601	Intro Project Management	0.5
MT8205	Adv Project Management I	0.5
MT8206	Adv Project Management II	0.5
MT8208	Entre/Intrapreneurship Innovtn	0.5
MT8411	Media, Consumers and Markets	1
MT8510	Adv Supply Chain Technology	1
MT8511	Implementing ERP Systems	1
MT8803	Leadership in a PMO Context	0.5

RESTRICTED ELECTIVES (*Approval of the Program Director Required)*

MB8701	Advanced International Accting	1
MB8702	Ethics in Finance	1
MB8703	Corporate Financial Analysis	1
MB8704	Legal Aspects of Int Business	1
MB8705	Issues in Information Tech Law	1
MB8706	Ethical Leadership	1
MB8707	Studies in Gbl Supp Chn Mgmt	1
MB8708	Project Management	1
MB8709	Org Theory and Design	1
MB8710	Compensation Management	1
MB8711	Negotiation and Conflict	1
MB8712	Industry Analysis	1
MB8713	Marketing Management II	1
MB8714	Bus Forecasting Techniques	1
MB8715	Decision Models for Managers	1
MB8716	Ret Operation I: HR Challenges	1
MB8717	Ret Operation II: Prod Issues	1
MB8718	Design, Commerce and Culture	1
MB8719	International Retailing	1
MB8720	Issues and Innov Retailing II	1

COURSE LISTING

Master's Thesis
This option is appropriate for students considering a career in Academia or research. Students choosing this option must take the research methods elective, and produce a formal proposal for approval. Original research can be undertaken at one of the Faculty's centres or institutes. Standard thesis format is required and there will be an oral defense. This is a "Milestone". Pass/Fail

Master's Research Project
This major research project is normally tied to a work placement or contract with an organization. These projects usually focus on the application of theory to practice and the analysis of a particular market, organizational or management issue. Where appropriate, these projects can be undertaken in small groups. A proposal for this project must be approved in advance. An oral defense may be part of the requirements. This is a "Milestone". Pass/Fail

International Exchange
Students choosing this option must have advanced approval. Two approved graduate courses are taken in an approved university. Students may undertake research under the direction a faculty member on an approved topic and are required to produce a reflective paper that incorporates theory and practice (eg. Cross-cultural comparisons, case studies, organizational analyses). This is a "Milestone". Pass/Fail

Language and Cultural Training
Language training must be approved in advance and may focus on either improving existing fluency or developing fluency in a second language. Students take a minimum of a two credit course and produce a project paper based on a literature review and data collection in the second language. This is a "Milestone". Pass/Fail

MB8001 Intl Bus Issues and Functions
This integrated course provides the knowledge and cultural sensitivity to manage effectively in the International environment. Topics include national cultures, geographic regions, international institutions, regional integration agreements, world economics, political history and ethical norms, as well as business fundamentals including strategic planning, management functions and inter-relationships. Current issues such as corporate social responsibility, accountability and transparency, security concerns, terrorism and privacy protection are introduced. 1 Credit

MB8002 Quan Mthds and Info Sys
This course equips students with basic tools needed to support business decision making as well as an understanding of the ways in which information technology can more broadly support business goals. Students learn to apply computer-based tools to statistical analysis of business problems. In addition, students develop a broader understanding of the role of information technology to support analysis, management and strategy in business organizations. 1 Credit

MB8003 Marketing in an Intl Environ
This course demonstrates the role of marketing, its relationship to and integration with other business functions, and how it creates value for customers, marketers and society. Fundamental marketing concepts, such as environmental, consumer and competitor analysis, targeting, positioning, segmenting and the four Ps, and their application to global marketing challenges and opportunities are reviewed, with special attention to issues encountered in marketing across cultures. 1 Credit

MB8004 Acctng in an Intl Environ
Topics include the role of GAAP, balance sheet, income statements and cash flow statements, the concepts of retained earnings, depreciation, receivables, inventory, amortization, deferred taxes and goodwill. It examines accounting models to improve managerial decision making including the Cost-Volume Profit model, Activity Based Costing, Economic Value Added, transfer pricing, overhead allocation and Balanced Scorecard. Strategic issues such as organizational learning, control systems and open-book management are examined with a global perspective. 1 Credit

MB8005 Intl Finance for Mgrs
This course provides the necessary principles of finance for the manager of an enterprise in the global environment. This course examines from a global perspective, shareholder wealth maximization, the analysis and interpretation of financial statements, ratio analysis, the time value of money, discounted cash flow analysis, valuation of different financial assets, value of equity, interest rate analysis, the value of debt, and bond valuation. 1 Credit

MB8006 Economics in an Intl Environ
This course develops the fundamental tools of economic analysis that are essential for understanding global markets and making managerial decisions. The economic relationships between growth and inflation are examined as well as credit, interest rates, and government fiscal and monetary policy. International input and product markets, foreign direct investment, multinationals, mergers and acquisitions, as well as the market determination of exchange rates and interest rates are considered. 1 Credit

MB8103 Strategy in Intl Bus Environ
This course develops pragmatic and dynamic perspectives on functional level, business level, and corporate strategies through the analysis of the internal and external environment. Strategic analytical theories and processes are examined using current business cases in a range of industries. The focus is on creating competitive advantages through strategic control and governance, diversification, effective foreign market entry, creating a learning organization, and fostering innovation and entrepreneurship, all while responding ethically. 1 Credit

MB8104 Acctg and Finc for Todays Mgrs
Building on the foundation in Accounting and Finance, this course further develops an understanding of the challenges for sound financial planning and management in a global environment. Students learn the risk return characteristics of various international financial markets and financial instruments. Topics include financial instrument valuation (stocks, bonds and derivative securities), going public decisions, initial and seasonal equity offerings, joint venture, venture capital firms and international entry decisions. 1 Credit

MB8105 Wrld Lgstcs and Spply Chn Mgmt
This course provides students with the knowledge of supply chain and operational management necessary for effective managerial decision making. Problem solving topics include leveraging corporate resources on a worldwide basis to deliver goods and services to particular markets, aligning rapidly evolving information and communication technologies to corporate operating plans, and working effectively within the constraints imposed by a variety of host governments and business cultures. 1 Credit

MB8106 Diversity in HR Mgmt
This course develops competencies in managing a global workforce. Specific topics include the behavioural impact of cultural differences, alternative approaches to organizational structure, cross cultural communication challenges, management of diverse groups, leadership and employee motivation techniques for global managers, conflict resolution across cultures, approaches to ethics and social responsibility in different cultures, global recruitment, selection and employee repatriation issues. 1 Credit

MB8107 Adv Intl Mktng
This course examines the processes used by marketers to produce, communicate and deliver value to customers, shareholders and society. It focuses on the management of relationships across the spectrum of marketing interactions that benefit the organization, its stakeholders and the community in which it operates. The course provides insight into marketing actions and their impact on customers, markets, firm value and community development including socio-economic well being and sustainability. 1 Credit

MB8108 Reg Gov and Soc Resp Mgmt
This course focuses on social responsibility and ethical management with a global perspective. Students learn the importance of law as a facilitator in developing successful strategies by examining international intellectual property protection; legal implications of business entry including foreign investment and outsourcing; comparative legal standards for corporate governance; privacy, transborder data flow; and corruption. Underpinning these discussions is a comparison of legal systems and an understanding of multilateral trade agreements including the WTO. Antirequisites: MB8101 and MB8102. 1 Credit

MB8201 Intl Strategic Mgmt Challenges
This course discusses seminal strategic theory debates. Traditional strategy courses emphasize strategy as a linear process, focusing on the strengths and weaknesses, opportunities and threats that an organization faces, then establishing alternatives with normative assumptions and idealizing radical change. This course challenges the assumptions that strategy is neither sequential, nor conducive to long-term planning. Topics include the “Porter perspective”, and how it can be challenged by some of the world’s best, and conflicting, strategic writers. 1 Credit

MB8202 Intl Environ Fincl Dcsn-Mkg
This course examines corporate financial issues from a more in-depth managerial and strategic perspective including internationally diversified portfolios and asset allocation decision making, financial instrument valuation, going public as well as multinational fund transfers; identifying and measuring and managing foreign exchange and interest rate risk; multinational tax planning; hedging instruments, including forward contracts, options and swaps. 1 Credit

MB8203 Intl Trade in Goods and Servs
This course examines the importance of the global expansion of trade in goods and services to the Canadian economy. Topics include entrepreneurial to global product development, global and multi market perspectives of branding, competitors, alliances and supply chain integration, the role of representatives, agents and sales offices in foreign markets, the importance of e-marketing, the language of international trade, documentation, insurance and international transport. 1 Credit

MB8204 Intl Negs, Contrg and Rsk Mgmt
This course addresses the importance of recognizing and managing risk exposure in the global environment. It examines risk issues including political or economic instability, non-performance of contract, corporate and industrial espionage, security, emergency and disaster planning, global health threats, environmental risk auditing, cyber risk management, risk exposure of expatriates, payment and collection, trade barriers and specific contractual requirements and safeguards and international dispute settlement. 1 Credit

MB8205 Intl Econ and Social Dev
This course addresses the complex problems of international organizations including private companies, government agencies and non-governmental organizations. It examines issues including trade, investment, foreign aid, social investment, international debt, technology transfer, poverty, environment, social development and sustainable development, the roles of international and regional organizations, government policy and domestic and foreign corporations. 1 Credit

MB8206 Internatztn of Retailing
This course examines the challenges and opportunities that exist in world wide retailing. Using spatial analysis, students examine the growth of retail concentration and the reach of world wide retailers and compare retailing across international borders. Students are exposed to fast turnaround global supply chain and logistics systems. Topics include geographic, global, city and company perspectives, and necessary approaches to logistics including accessing, assessing and interpretation of market data. 1 Credit

MB8301 Strategic HR Mgmt
This course offers a framework for strategic human resources management that prepares line managers and HR professionals to align the goals and strategy of the organization with its people management strategies – the most critical sources of sustainable competitive advantages. Topics include the strategic management of human capital, the transformational impact of emerging markets and quantifying the impact of HR on business performance. 1 Credit

MB8302 Comp and Labour Mrkts
Compensation comprises an average of 70% of the total costs of an organization. This course focuses on the processes, issues and techniques for understanding the labour markets and establishing compensation and reward programs within a framework of productivity, equity and economics limitations. Issues include legislation, principles of equity and fairness, job analysis, job evaluation, compensation surveys, benefits and incentives, and international comparisons. 1 Credit

MB8303 Comparative Emplymt Relations
This course provides an understanding of the range of issues pertinent to different industrial relations and employment systems using Canada as a base-line for comparison. It is designed to provide a general background in the subject with particular emphasis on the role of the state, employers, trade unions and workers in a variety of settings and covers a range of topics including collective bargaining, negotiations, grievance and arbitration. 1 Credit

MB8304 Organizational Change
This course provides an overview of the theory and practice of organizational change focusing on the tension between the organization's need for stability and the pressures for change. It focuses on the stages of the change process concentrating on the importance of altering individual attitudes and behaviours, group relationships, and organizational cultures necessary for effective and sustained change. 1 Credit

MB8305 Organizational Dsgn and Theory
This course provides a basic understanding of organizations as entities in the broader social system, what makes them work and how they can be altered to meet the challenges of a changing world. Current perspectives in organizational theory and design are explored with an emphasis on how organizations are affected by their environments, how they are designed and structured, and why they are effective or ineffective in achieving their goals. 1 Credit

MB8306 Special Topics in HR
This course provides students with the opportunity to pursue advanced studies on issues and themes of immediate and current significance in the fields of Human Resources Management. It allows students to access leading-edge research and to explore new and emerging models of practice. The particular theme, topic and structure of the course vary in response to changes and trends in the field, availability of specialists and student interest. 1 Credit

MB8401 Marketing Management
This course uses an integrated approach to marketing management using economic, quantitative and behavioural concepts to understand analysis, planning, implementation and control of marketing decisions. The course develops the marketing principles by which products and services are designed to meet customer needs, priced, promoted, and distributed to the end user. The focus is on applying these marketing principles to customers, both internal and external. Topics are discussed with an international lens and a strong sense of social responsibilities. 1 Credit

MB8402 Brand Management
A brand name, and its associated brand equity, is one of the most valuable assets of any firm. The course is designed to increase student understanding of the important issues in planning, implementing and evaluating brand strategies; to provide relevant theories, models and tools for the making of brand decisions, and to enable students to apply these principles to real life cases. 1 Credit

MB8403 Competitive and Mrkt Analysis
This course provides a comprehensive framework, for analyzing the competitive scope of an industry, the industry itself, and the market space that a company occupies within an industry. The course provides students with the necessary analytical tools to evaluate the environment within which a company operates, and an opportunity to apply these analytical skills in a practical situation. The course centres on developing the platform on which a company builds a marketing strategy. 1 Credit

MB8404 Managing Customer Relations
Central to the concept of marketing is marketing behaviour. The course deals with consumer behaviour, information processing, consumer decision making and "consumption" in the broadest sense of the word. Special attention is paid to psychological, psychosocial, sociological and cultural influences on consumer choice, decision processes and context effects that influence consumer behaviour. The fundamental question driving this course is "Who consumes what and why, and what can we do once we know?" 1 Credit

MB8405 Mktg in Theory and Practice

This seminar course reviews writings on contemporary marketing thought, strategy and practice with particular attention to the macro impact of marketing in society. The course is an introduction to the most recent academic thinking in the field of marketing as it applies to current marketing discourse and behaviour. The topics include marketing history, theory, strategy, organization, and tactics in terms of the traditional 4-P's. 1 Credit

MB8407 Special Topics in Marketing
This course uses the latest research and best practice models for an in-depth study of current issues, themes and trends in marketing management. The particular theme, topic and structure of the course vary in response to changes and trends in the field, the availability of specialists and student interest. Antirequisite: MB8406. 1 Credit

MB8501 Geo-demographics
This course examines the conceptual, methodological and practical issues associated with the application of mulitvariate spatial techniques to market area analysis and geo-segmentation. Topics include data sources; geo-demographic market segmentation in theory and practice; marketing projects and future directions in data, technology and applications. 1 Credit

MB8502 Retail and Commercial Dev
This course examines retail and commercial development from the perspective of both North American and international markets. Topics include understanding the retail/commercial structure; the dynamics of retail developments; the future role of downtowns, the challenges of the shopping centre format, the emergence of big box/power centre development and mixed use developments and emerging, high growth economies (e.g., Eastern Europe, China, India, the Middle East and South America). 1 Credit

MB8503 Business Geomatics
This course provides a working knowledge of GIS (Geographic Information Systems); the use of spatially referenced information, and applications of various geo-visualization methodologies to both the planning and management of major retail/commercial developments. The student is trained in the use of GIS software programs (MapInfo; ArcGIS); and given access to the relational databases and spatial information available from the Centre for the Study of Commercial Activity. 1 Credit

MB8504 Rtl Location and Dev Strats
This course examines retail and commercial development from a variety of perspectives. Topics include the principles of store location research; understanding the drivers of the retail economy; creating a retail location database; developing sales forecasting models for the corporation; measuring market saturation and store cannibalization; selecting the appropriate location strategy; closing the deal and portfolio management. 1 Credit

MB8505 Lgl Asps of Rtl and Comm Dev
This course examines the legal implications of retail and commercial property development. Real Property tenure, forms of ownership, creditors' rights, landlord, tenant rights are constrained at law, and may vary from jurisdiction to jurisdiction. Knowledge of this interrelationship are essential for dealing with retail and commercial development issues. This course focuses on the complexity of the real estate field and the tools and techniques necessary to properly structure retail and commercial real estate transactions. 1 Credit

MB8506 Real Estate Finance
This course explores the foundations of real estate mathematics, capitalization rates; property appraisal process and issues related to real property assessment. It also focuses on specific types of real estate development, understanding the pro forma, the effect of leases on value, the role of pension funds and real estate investment trusts and private equity markets in the Canadian real estate industry, and the relation between land value and land use. 1 Credit

MB8601 Intro Project Management
This course provides an understanding of the tools and techniques for project management. Project management utilises specific techniques in human resource, quality and risk management to achieve client objectives within those boundaries. Concepts introduced in this course provide a useful foundation for students who wish to either further their education in this particular area in order to participate in projects, or those who may wish to consider this as a career option. 0.5 Credit

MB8701 Advanced International Accting
This course will involve an in depth comparison between the practices recommended in Canada for each section of the financial statements and those of a selected foreign country. Students will explore the impact of reporting of an international subsidiary on a Canadian parent company. Students will be contacted prior to the start of the course to select the country they wish to review, however, the number of students assigned to each country will be limited. Antirequisite ACC808. 1 Credit

MB8702 Ethics in Finance
This course introduces students to the practices and codes of conduct involved in finance. The course covers ethical issues and the roles of the corporate financial manager, stakeholders and other participants in the investment industry. Readings and regulations from both academia and practice will be used to illustrate theory. Cases and speakers will be employed to bring a real world perspective to the classroom. Antirequisite FIN800. 1 Credit

MB8703 Corporate Financial Analysis
This course looks at the question of how a financial institution controls and hedges itself against all of the various risks that it faces. The course looks at liquidity management, deposit insurance, capital adequacy, credit risk management, loan

securitization, interest rate forwards, futures, swaps, caps, floors and collars and how banks use these derivative products to manipulate its exposure to various types of risk. Antirequisite FIN801. 1 Credit

MB8704 Legal Aspects of Int Business
This course explores legal considerations relevant to entrepreneurs engaged in import or export as well as legal principles applicable to multinational corporations. Topics include: bilateral and multilateral trade agreements including the GATT, the EC and the Canada-U.S. FTA; legal aspects of international sales of goods and financing international sales of goods; forms of business organization abroad; licensing and franchising; international protection of intellectual property; comparative anti-trust legislation; conflict of laws and international settlement of disputes. Antirequisite IBS800. 1 Credit

MB8705 Issues in Information Tech Law
This course focuses on emerging legal problems associated with the growth of information technology in Canada and internationally. It focuses on legal protection of electronic information and technology through patents, copyright, trademarks and trade secrets, and upon contractual issues (electronic signatures, verification, written contracts, and security of information) in the procurement of products and services, focusing on Internet and other e-commerce conduits. Other topics include data protection and privacy, regulation of the Internet, harmonization of law globally, computer crime, and remedies. Antirequisite LAW723. 1 Credit

MB8706 Ethical Leadership
This course examines the vital role that ethics plays at all leadership levels within a company. Students will discover the importance of instilling ethical values as a key to long term success. Exposure to thought-provoking cases and literature will heighten student awareness of the need to develop strong ethical leadership in dealing with customers, the community, employees, peers and the government. Antirequisite MGT802. 1 Credit

MB8707 Studies in Gbl Supp Chn Mgmt
This course will expose the student to many of the topics currently dominating the study of global supply management. Subjects may include: locating potential suppliers; the importance of cultural and communication skills; legal practices; currency factors; logistics; supplier payment, channel payment, and more. Students will be expected to write and present papers on various topics using both primary and secondary research techniques. Antirequisites MGT804 and MT8518.
1 Credit

MB8708 Project Management
This course focuses on how projects contribute to the strategic goals of the organization. The linkages for integration include the process of selection of projects that best support organizational strategy and all the technical and managerial processes to complete those projects. The goals for prospective project managers are to clearly understand the role of project in their organizations and to master project management tools/techniques and interpersonal skills necessary to orchestrate projects to completion. Antirequisite MGT806. 1 Credit

MB8709 Org Theory and Design
The course includes such topics as: organization environment; organic and mechanistic structures; the open system concept; impact of technology; global organization structures and contemporary approaches; management of innovation and change; organizational culture and ethical values; organizational politics, etc. This course aims to provide students with an in-depth understanding of organizational structure and design in relationship to these issues. Antirequisite MHR841. 1 Credit

MB8710 Compensation Management
This course provides theoretical and practical understanding in the development and administration of compensation systems. It examines the concepts and processes of rewarding employees, and focuses on major items of the compensation program, such as (1) Job Evaluation, (2) Compensation Survey, (3) Benefits and Services, (4) Work Incentives and (5) Performance Appraisal. Discussion of topical issues of Compensation Management such as Compensation for Managerial, Professional and Exempt Employees, Information Systems, Government Guidelines and Regulations. Antirequisite MHR749. 1 Credit

MB8711 Negotiation and Conflict
The primary objective of this course is to help students develop the sophistication to analyze bargaining and conflict relationships and to learn (through class discussion, bargaining simulations and self assessment) about their own individual bargaining style. The course explores the process of collective bargaining as it is currently practiced by organizations and their unions, as well as the major concepts and theories of the psychology of bargaining and negotiation that this process embraces. Antirequisite MHR721. 1 Credit

MB8712 Industry Analysis
This course presents a comprehensive framework for analyzing a company's industry. It provides analytical techniques to forecast industry trends, to understand the markets and competitive environment, and to understand the forces that will impact on its future success. An industry analysis is the underpinning for developing a successful strategy, and it provides clarity for the company's position within an industry. Antirequisite MKT731. 1 Credit

MB8713 Marketing Management II
This course provides students with the opportunity to develop an integrated marketing plan for a real company. Students meet with their client company at the beginning of the term to gather background information, then they present the strategic elements of their plan. At the end of the term, they present their complete set of strategic and tactical marketing

recommendations. Library and field research is required to supplement background information supplied about the company. Antirequisite MKT802. 1 Credit

MB8714 Bus Forecasting Techniques
This course deals with the application, usefulness and limitations of some of the more important and widely used time series forecasting techniques, including Box-Jenkins. A forecasting project will provide the student with insight into the practical problems of forecasting such as data acquisition, model selection and the analysis and interpretation of results. Analysis will be completed using the appropriate software and platforms. Antirequisite QMS703. 1 Credit

MB8715 Decision Models for Managers
This is a practical course dealing with the application of Management Science to business decision problems. Emphasis is placed on the study of mathematical models of common business situations and the related mathematical solutions. Topics include Queuing Theory, Markov chains, and Simulation. Practical application of these topics in the areas of marketing, production and finance are stressed. Analysis will be done using appropriate software and platforms. Antirequisite QMS751. 1 Credit

MB8716 Ret Operation I: HR Challenges
This course will focus on the challenges related to managing cross-cultural human resources in conjunction with store operations strategies, in a large or small retail organization. Topics will include: teamwork, customer service issues and strategies; policies and procedures and their impact on motivation, creativity and corporate culture; franchisee/franchiser relations; best practices from both North American and international perspectives; effective communication of store operations needs within the organization**.** Antirequisite RMG900. 1 Credit

MB8717 Ret Operation II: Prod Issues
This course focuses on planning and maximizing the performance of the store operations function for both small and large retailers to profitably meet target consumers' needs. Topics will include: retail metrics, in-store marketing and merchandising, determining and meeting the needs of the local consumer, shortage control, personnel scheduling and cost control, financial planning and analysis of single-unit and multi-unit retail operations, productivity analysis, impact of shopping centre management needs on the store operations function**.** Antirequisite RMG901. 1 Credit

MB8718 Design, Commerce and Culture
This course provides an in-depth reflective understanding of the human designed environment, from a retail perspective. Concentrating on the main historic movements of the twentieth century, the course will address the ways in which the products of a culture are seen as representations of its cultural identity and value system. Changing social and cultural patterns, developing technology, and the economic climate will be explored. Ethical and environmental implications of the retail environment will be discussed. Antirequisite RMG905. 1 Credit

MB8719 International Retailing
This course will examine the trend towards international retailing. A number of themes will be examined. These will include: the growth of international retail organizations; the internationalization of the Canadian retail economy; Canadian retailer experience in the U.S. - lessons and prospects; methods of appraising international retail market opportunities. Students will be expected to develop an appreciation of one particular international market in the course through the development of a case. Antirequisite RMG906. 1 Credit

MB8720 Issues and Innov Retailing II
This seminar course will examine the spectrum of strategic responses of Canadian retail organizations as they move in a competitive environment towards the 21st century. An in-depth investigation and analysis of key innovations in retailing from North American and global environments will be conducted. Ethical entrepreneurship within the framework of a competitive retail economy will be explored. Topics covered each year promote reflective thinking and will vary according to the most current issues and innovations. Antirequisite RMG908. 1 Credit

MECHANICAL ENGINEERING

CURRICULUM

Master of Applied Science

DEGREE REQUIREMENTS

Master's Thesis

Five Elective credits

Master of Engineering

DEGREE REQUIREMENTS

Master's Project*

Eight Elective credits

*students may apply to substitute 2 courses for the project.

Doctor of Philosophy

DEGREE REQUIREMENTS

Candidacy Examination

Dissertation

Four Elective credits

Electives		*Credits*
ME8100	Adv Experimental Stress Anal	1
ME8101	Advanced Engineering Design	1
ME8102	Advanced Fluid Mechanics	1
ME8103	Advanced Human Factors	1
ME8104	Advanced Heat Transmission I	1
ME8105	Advanced Heat Transmission II	1
ME8106	Advanced Mechanics of Solids	1
ME8107	AI for Mechanical Engineers	1
ME8109	Casting & Solidifn of Material	1
ME8110	Chaotic Motion	1
ME8111	Corrosion Engineering	1
ME8112	Comp Fluid Dyn & Heat Transfer	1
ME8113	Design for Assembly & Manufac	1
ME8114	Energy Management	1
ME8115	Finite Element Methods in Engr	1
ME8117	Fracture Mechanics	1
ME8118	Info Sys Analysis & Design	1
ME8119	Intro to Composite Materials	1
ME8120	Intro to Operations Research	1
ME8122	Mech Behav of Engr Materials	1
ME8123	Mechanical Vibrations	1
ME8124	Multiple Particip/Obj Dec Making	1
ME8125	Neuro-Fuzzy Systems	1
ME8126	Nonlinear Vibrations	1
ME8127	Optimization Models	1
ME8128	Prob Models in Operation Rsrch	1
ME8130	Robot Mechanics	1
ME8131	Simulation of Industrial Sys	1
ME8132	Sequencing and Scheduling	1
ME8134	Turbulence in Real Fluids	1

ME8135	Directed Studies: Mechanical Engr	1
ME8136	Adv Fatigue Fracture Analysis	1
ME8137	Advanced Systems Control	1
ME8138	Computational Dynamics	1
ME8139	Prob Stats & Stochiastic Proc	1
ME8140	Simulation Theory/Methodology	1
ME8141	Transport Phenomena in Porous Media	1

COURSE LISTING

Master's Thesis
The student is required to conduct advanced research on a topic related to one (or more) of the following specialty areas: thermofluids, manufacturing, materials, solid mechanics, and industrial engineering. The topic is chosen in consultation with the student's thesis supervisor, the student presents the research plan in writing, and the research is carried out under the direction of the supervisor. The student must submit the completed research in a thesis format to an examination committee and make an oral presentation of the thesis to this committee, which will assess the thesis. Through the thesis, the student is expected to furnish evidence of competence in research and a sound understanding of the specialty area associated with the research. This is a "Milestone." Pass/Fail

Master's Project
The student is required to conduct an applied advanced research project involving one (or more) of the following specialty areas: thermofluids, manufacturing, materials, solid mechanics, and industrial engineering. The student presents the project plan in writing, and the project is carried out under the guidance of the supervisor. The student must submit the completed project in the form of a technical report to an examination committee and make an oral presentation of the report to this committee, which will assess the report. This is a "Milestone." Pass/Fail

Candidacy Examination
This is a "Milestone." Pass/Fail

Dissertation
The student is required to conduct advanced research on a topic related to one (or more) of the following specialty areas: thermofluids, manufacturing, materials, solid mechanics, and industrial engineering. The topic is chosen in consultation with the student's supervisor, the student presents the research plan in writing, and the research is carried out under the direction of the supervisor and monitored by a supervisory committee. The student must submit the completed research in dissertation format to Program and School of Graduate Studies examination committees and make oral presentations to these committees, which will make an assessment. Through the dissertation, the student is expected to furnish evidence of competence in research and a sound understanding of the chosen specialty area(s). The research must lead to an original contribution of knowledge in the specialty area(s). Pre-requisite: Candidacy Examination. This is a "Milestone." Pass/Fail

ME8100 Advanced Experimental Stress Analysis
Theory and applications of methods in experimental mechanics for measuring static and dynamic deformation of 2-D and 3-D models and bending of plates and shells. Techniques of electric resistance strain gage, photoelasticity, moire, holographic interferometry, laser speckle interferometry, moire interferometry, caustics, optical correlation by computer vision. Applications to problems in fracture mechanics, composite mechanics, interface mechanics and micromechanics. 1 Credit

ME8101 Advanced Engineering Design
An undergraduate education necessarily concentrates on analysis. This class focuses on synthesis. Creativity is the engine of design and analysis is the feedback governing design. Through the media of case studies, laboratory exercises, instruction, and practice, this class studies the process of design; the business of translating societal needs into real, manufacturable objects. Lecture topics will include: the hierarchical, iterative nature of design; aids to creativity; the appropriate use of analysis; the transformation from functional space to physical space; prototype design; consumer durable versus capital equipment design; and special lectures on microprocessors in machinery, optimization, and CAD/CAM. 1 Credit

ME8102 Advanced Fluid Mechanics
A general review of principles, concepts and methods in fluid dynamics will be conducted. Advanced treatment with mathematical techniques for solving specific classes of fluid-flow problems will be introduced, including: surveys of governing equations and basis theories; two and three-dimensional potential flows; surface waves; boundary-layer theory; and, shock-wave phenomenon. Antirequisite AE8102. 1 Credit

ME8103 Advanced Human Factors
Human anatomical, physiological and psychological capabilities and limitations are considered for systematic analysis, identification and evaluation of human-machine-environment systems in order to design consumer products, equipment, tools and the workstation. Application of ergonomics principles and data compiled at the human-machine interface in industrial and other occupational settings are emphasized. 1 Credit

ME8104 Advanced Heat Transmission I
An advanced study of the transmission of heat by conduction and convection. Derivation and application of the equations governing steady and unsteady conduction heat transfer, transient conduction, and numerical solutions are examined with selected topics. Governing equations for forced and natural convection; dimensional analysis and similarity transforms are applied. Antirequisite AE8104. 1 Credit

ME8105 Advanced Heat Transmission II
An advanced study of the transmission of heat by radiation. Topics covered include: physical properties of radiation, thermal radiation laws, characteristics of real and ideal systems, geometric shape factors, grey and non-grey system analysis, energy transfer in absorbing media and luminous gases, solar radiation. Antirequisite AE8105. 1 Credit

ME8106 Advanced Mechanics of Solids
The class provides an introduction to the general equations of the theory of elasticity of an anisotropic solid. Elastic equilibrium and boundary value problem formulations are considered. The theories of thermoelasticity, viscoelasticity and plasticity are introduced. The class also provides an introduction to modelling of inhomogeneous composite solids, the effective moduli theory, and the elasticity of composite laminates. The fundamentals of fracture mechanics and applications to mechanical design are considered. Antirequisite AE8106. 1 Credit

ME8107 AI for Mechanical Engineers
Introduction, Logical Foundations of AI (Conceptualization, Predicate Calculus, Semantics, Inference Procedures, Provability, Logical Implications, Resolution, True-False Questions, Fill-in-Blank Questions, Soundness and Completeness, Resolution Strategies, and Induction), Search Techniques, Heuristic Search, Rule-Based Expert Systems (Design, Problem Selection, Organization, and Uncertainty Measures), Introduction to Artificial Neural Networks, Introduction to Fuzzy Logic. Selected problems from the Mechanical Engineering field will be presented and students will be requested to develop inference engines and small expert systems for these problems. 1 Credit

ME8108 Aircraft Turbine Engines
Fluid mechanics, thermodynamics, and solid mechanics of aircraft turbine engines. Two-dimensional and three-dimensional flow theories of compressors and turbines. Unsteady flow and noise production in turbomachinery and in complete engines. Operational limitations and instabilities. Stress and associated temperature limits and influence of blade cooling techniques on turbines. 1 Credit

ME8109 Casting and Solidification of Materials
Melt Interactions. Fluid Dynamics, Mould Dynamics and Solidification Dynamics. Solidification Shrinkage. Near-net-shape Processes. Linear Contraction and Casting Accuracy. Structure, Defects and Properties of the Finished Casting. Cast Studies in Mathematical Modelling and Solidification Processing. 1 Credit

ME8110 Chaotic Motion
This class introduces the concepts of chaotic dynamics and provides the methods for identifying chaotic motions in nonlinear dynamic systems. It covers the following topics: fundamental concepts of chaos, review of analytical and numerical methods in nonlinear oscillation, chaotic motions observed in various physical systems, methods of identifying chaotic motions in experimental measurements and computer simulations, Poincare map, logistic map, bifurcation diagram, fractal dimension and Lyapunov exponent. 1 Credit

ME8111 Corrosion Engineering
Applications of thermodynamics and kinetics to engineering aspects of corrosion and corrosion control; introduction to forms and mechanisms of corrosion theory; applications of cathodic protection, anodic protection, corrosion inhibitors, coatings and materials selection for corrosion control and design. 1 Credit

ME8112 Computat. Fluid Dynamics & Heat Transfer
The finite difference discretization method is applied to the solution of the partial differential equations arising from the mathematical modelling of fluid flow, heat transfer and combustion processes. The equations can be parabolic, elliptic or hyperbolic. Items like convergence, stability, consistency, numerical diffusion and turbulence modelling will also be presented. Antirequisite AE8112. 1 Credit

ME8113 Design for Assembly & Manufacturing
Principles of Automated Design, Principles of DFA (Design for Assembly), Projects on DFA, Principles of DFD (Design for Disassembly), Principles of DFM (Design for Manufacturability). Issues of Concurrent Design, Automated Design. 1 Credit

ME8114 Energy Management
The purpose of this class is to introduce the concepts and techniques of energy management and conservation. The subjects that will be discussed are energy supply and demand, energy pricing, scope of the energy problem and approaches to provide solutions; energy auditing; improving energy utilization in space conditioning and steam, hot water and compressed air systems; energy savings opportunities in refrigeration and cooling systems; insulation; and electrical energy conservation. An inter-disciplinary approach will be employed in this class to provide a wider understanding of the subject. 1 Credit

ME8115 Finite Element Method in Engineering

This class presents formulation and implementation of the Finite Element Method (FEM) in engineering applications. The theory of variational and weighted residual methods is introduced. Different types of elements used in FEM for discretization of PDEs, such as linear, quadratic, isoparametric and hybrid elements are covered. The numerical methods selected for spatial integration, solution of linear algebraic equations, evaluation of eigenvalues are addressed. Antirequisite AE8115. 1 Credit

ME8116 Flight Dynamics and Control of Aircraft.
Various analyses and tools for designing a controllable aircraft. Six-degree-of-freedom flight simulation models. Classical and modem control system techniques. Adaptive control. Digital control. Pilot-in-the-loop considerations. 1 Credit

ME8117 Fracture Mechanics
This course introduces the principles and applications of engineering fracture mechanics. The emphasis is on topics that have found practical application, including: fracture and crack growth, Griffith energy criteria, applications of linear elastic fracture mechanics (LEFM), crack tip stress fields and plastic zones, calculation of stress intensity factors, fatigue cracking, elastic-plastic fracture and the J-integral, introduction to mixed-mode and interfacial fracture. 1 Credit

ME8118 Information Systems Analysis and Design
The foundations that underlie the development of information systems are presented. The concepts, strategies, techniques, and tools for identifying and specifying information systems requirements and for developing designs are covered. A major analysis and design project is required. 1 Credit

ME8119 Introduction to Composite Materials
Intended as a first course in polymer-based fiber-reinforced composite materials. Quasi-isotropic random reinforcement, orthotropic, anisotropic and sandwich construction. Classical laminate theory: lamina/laminate stress, buckling and vibration analysis. Hydrothermal, radiation and service effects on performance. Impact, delamination and fatigue failure. Overview of basic manufacturing methods and usage in the aerospace industry. Antirequisite AE8119. 1 Credit

ME8120 Introduction to Operations Research
This class is a graduate level introduction to the fundamental ideas of operations research. The class focuses on mathematical modelling in deterministic and non-deterministic settings. The class covers topics in the theory and application of mathematical optimization, network analysis, decision theory, inventory theory, and stochastic processes including queuing processes. The class requires background in probability theory and linear algebra as well as some skills in computer programming. 1 Credit

ME8121 High Speed Aerodynamics
Planar and conical shock waves. Expansion and shock wave interference, shock tubes. Method of characteristics. Supersonic nozzle design. Airfoil theory in high subsonic, supersonic and hypersonic flows. Conical flows. Yawed, delta and polygonal wings; rolling and pitching rotations. Wing-body systems. Elements of transonic flows. 1 Credit

ME8122 Mechanical Behaviour of Eng. Materials
The physical and mechanical metallurgy of material behaviour; failure by yielding (Von-mises and Tresca criteria); ductile and brittle fracture; fracture mechanics and design; strong solids; strengthening mechanisms; strength-structure relationships; dislocation mechanics; application of theory to fatigue, creep and creep-fatigue interactions. 1 Credit

ME8123 Mechanical Vibrations
Free and forced vibrations of elastic bodies, such as beams, plates, and shells are examined. Response due to shock and random loading is introduced. Vibration measuring instrumentation is described and several laboratory experiments are carried out. Industrial applications are studied including vibration of machinery, ships, and the response of humans to whole body vibration. 1 Credit

ME8124 Multiple Participant/Objective Dec. Making
This course consists of two major components: multiple objective decision making and multiple participant decision making. Both compensatory and non-compensatory methods for multiple objective decision making are covered. For tackling multiple participant decision making problems, the graph model for conflict resolution is presented. 1 Credit

ME8125 Neuro-Fuzzy Systems
Introduction, Neural Networks, Fuzzy Systems, Modelling Neuro-Fuzzy Systems, Cooperative Neuro-Fuzzy Systems, Hybrid Neuro-Fuzzy Systems. Generic Fuzzy Perception, Neuro-Fuzzy Control, Neuro-Fuzzy Classification, Neuro-Fuzzy Function Approximation, Using Neuro-Fuzzy Systems. 1 Credit

ME8126 Nonlinear Vibrations
This course provides students with the theoretical background to study: the dynamic behaviour and responses of SDOF or MDOF nonlinear systems in both time domain and phase plane, limiting circles, free and forced vibration of a Duffing oscillator using various analytical methods, self-excited vibration, stability of a nonlinear system, perturbation method and application to multiple degrees of freedom (MDOF) systems. 1 Credit

ME8127 Optimization Models
This course is intended to give a broad treatment of the subject of practical optimization. Emphasis will be given to understanding the motivations and scope of various optimization techniques for constrained and unconstrained problems. Linear, nonlinear and combinatorial optimization problems with roughly equal emphasis on model formulation and solution

techniques. Modelling emphasis is primarily on deterministic formulation of real world applications. Selected solution techniques for each type of problem will be discussed. 1 Credit

ME8128 Prob. Models in Operations Research
This course presents the formulation and analysis of probabilistic models in operations research. Topics to be covered include Poisson processes, renewal processes, Markov chains, queuing theory, Markovian decision processes, and time series analysis. Application areas include reliability, traffic flows, production, and inventory. 1 Credit

ME8129 Rocket Propulsion
Theory, analysis and design of rocket propulsion systems. Emphasis on liquid and solid propellant systems with an introduction to advanced propulsion concepts. Review of nozzle and fluid flow relationships. 1 Credit

ME8130 Robot Mechanics
This class provides a brief introduction to the field of Robotics, a brief review of selected topics from linear algebra, and an introduction to theoretical kinematics. The main part of the class includes such topics as: robot geometry; velocity Jacobians; derivation of equations of motion; force, manipulability, inertia and compliance analysis; position and force control; optimization of kinematic redundancy; multirobot coordination; robot calibration; performance testing and characterization. The class also provides an introduction to space robots, smart structures, and walking machines. 1 Credit

ME8131 Simulation of Industrial Systems
Computer simulation of industrial systems, design of discrete simulation models, and the generation of random variables are all covered by this class. Also included is the design of simulation languages such as GPSS, SIMSCRIPT, SINWLA and SLAM. Network models, using the SLAM language, and applications of simulation models in decision making situations arising in production, distribution and economic systems are studied. 1 Credit

ME8132 Sequencing and Scheduling
The class is concerned with the analysis of the following sequencing problems: single-machine, parallel, identical and different machines, general jobshop and special cases of the jobshop and flowshop under various objective functions and assumptions. Models and algorithms for the basic sequencing problem are formulated. 1 Credit

ME8133 Space Mechanics
Motion in outer space poses complex engineering problems, the solution of which require a thorough knowledge and understanding of the pertinent principles of mechanics and techniques of analysis. The class provides an introduction to such topics as astromechanics, satellite orbits, rotating structures with varying configuration and mass, optimization of spacecraft motion, launch dynamics, microgravity, space robotics, large displacement low frequency vibrations, ground-based and in-orbit testing. 1 Credit

ME8134 Turbulence in Real Fluids
The first part of this class deals in some detail with the theory of measurements and the analysis of random data. Statistically based functions such as turbulence intensities, correlation functions, energy spectra, are examined in relation to fluid processes. The second phase of this class examines the present level of knowledge of turbulence of fluids in rigid and visco-elastic ducts, without and with superimposed pressure gradients. Properties of real fluids are stressed and considerable emphasis is laid upon experimental results, applying the methods of measurement and analysis outlined above. Two and three-dimensional anemometry techniques are examined and applied. 1 Credit

ME8135 Directed Studies in Mechanical Eng.
This class is available to graduate students enrolled in a Master's Degree Program in Mechanical Engineering, who wish to gain knowledge in a specific area for which no graduate level classes are offered. Students are assigned an advisor and are required to present a formal report, or take a formal examination, at the end of the class. Registration approval is required from the Chair of the Department of Mechanical Engineering. 1 Credit

ME8136 Advanced Fatigue Fracture Analysis
This course is designed to cover specific areas: practical and analytical aspects of fatigue failure and fracture mechanics of engineering components and structures subjected to various fatigue fracture loading conditions. Topics covered include: fundamental concepts of fracture mechanics and fatigue behaviour of materials, structural damage assessment, fracture design and failure analysis for monotonic and cyclic loaded components, the stress intensity factor and J integral for monotonic and cyclic loading, fatigue and fracture data statistical analysis, practical case studies and applications, fatigue crack initiation, crack growth rate, and fatigue life prediction of both un-notched and notched engineering components subjected to the uniaxial and multiaxial fatigue loading conditions. 1 Credit

ME8137 Advanced Systems Control.
Overview of classical controls and introduction to modern control theory. Control system modeling and analysis in state space. System controllability and observability. Pole placement control design. State observers. Introduction to nonlinear control systems. Fundamentals of Lyapunov theory. Lyapunov's direct method. System linearization. Adaptive control. Antirequisite AE8137. 1 Credit

ME8138 Computational Dynamics
The objective of this course is to study the basic modeling and computational methods for rigid and flexible multi-body systems. Computational dynamics provides a fundamental tool for analyzing and computing the motion and force for large complex mechanical systems, such as robots, mechanisms, machines, and automobiles. Applications of

computational dynamics include analysis, design and control. Analysis is to study system behaviors for given inputs through modeling and simulation. Design is to determine the prescribed functions through synthesis and optimization. Control is to control mechanical systems based on the dynamic model. Antirequisite AE8138. 1 Credit

ME8139 Mech. Engineering: Probability, Stats. & Stochastic Processes
This course is an introduction to stochastic processes and probabilistic models. Statistical interference techniques are also discussed. Topics covered include: probability and random variables, Bernoulli, Binomial, Markov, Poisson, Wiener and Gaussian models, stationarity and cyclostationarity, spectra of various signals, linear mean-square estimation, representation of random signals and Karhunen-Loeve expansion, Markov chains and processes, parameter estimation, mean variance, confidence intervals, Bayesian models, hypothesis testing. (Antirequisite EN8910) 1 Credit

ME8140 Simulation Theory & Methodology
This course introduces simulation as a problem solving tool. Mathematical foundations: random variate generation, parameter estimation, confidence interval, simulation algorithm, Monte-Carlo simulation techniques and simulation languages. Examples: computers and protocols, urban traffic, harbours and airport capacity planning, manufacturing capacity planning, inventory systems.
(Antirequisite EN8912) 1 Credit

ME8141 Transport Phenomena in Porous Media
This course is designed to provide students with advanced knowledge of porous media phenomena. The following topics will be covered: the mechanics of fluid flow through porous media; heat and mass transfer in porous media; forced and natural convection; convection with change of phase; a porous medium approach for the thermal analysis of heat transfer devices; thermodiffusion in porous media; transport phenomena in petroleum reservoirs; the role of transport phenomena in biomedical engineering. 1 Credit

MEDIA PRODUCTION

CURRICULUM

Master of Arts

First Offered Fall 2007

DEGREE REQUIREMENTS		*Credits*
MP8100	Project/MRP Development	1
MP8101	Research Methods	1
MP8102	Media Production 1	1
MP8103	Media Production II	1
Two Credits from Media Production Electives		2
One Credit from Communication & Design Electives		1
One Credit from Interdisciplinary Electives		1
One of the Following Options:		
	Professional Project	
	Major Research Paper	

ELECTIVES

Media Production

MP8904	Advanced Media Management	1
MP8905	The Business of Music	1
MP8907	Television Programming	1
MD8908	Bus Aspects, Independ Prod I	1
MP8909	Bus Aspects, Independ Prod II	1
MP8910	Production Management	1
MP8914	Economics of Media	1
MP8915	Legal Issues in Media	1
MP8920	Media Restoration, Content Mgt	1
MP8921	Advanced Audio Theory	1
MP8941	Dramatic Writing	1
MP8945	Writing for Factual Programs	1
MP8961	2-D and Object Animation	1
MP8962	3-D Animation	1
MP8964	Digital Virtual Environments	1
MP8972	Television Technical Producing	1
MP8979	Radio Production	1
MP8980	Art Direction	1
MP8982	Video Compositing, Special Eff	1
MP8988	Television Editing Specialty	1

Communication & Design

CD8310	Topics in Cross-Cultural Comm	1
CD8320	Media Lang: Forms and Apprches	1
CD8330	Audiences and the Public	1

Interdisciplinary

CC8921	Visual Culture	1
CC8925	Reading Television	1
CC8950	Current Issues: Telecommun	1
CC8976	Digital and Interact Entertainmt	1
DM8301	Adv Topics in Hist. of Docmtry	1
DM8303	Hist, Historiography: Vis Arts	1
DM8304	Dig Med: Theoretical Frmewrk	1
DM8305	Dbs, Arcs, Virt Exprnce of Art	1

DM8306	Studies in Culture, Perception	1
JN8105	Journ Prac: Critical Approach	1
JN8106	The History of News	1

COURSE LISTING

Professional Project, Major Research Paper
Students will engage in a series of production activities, most notably formatting and disseminating their work for audience consumption. Continuing their collaboration with a faculty supervisor, production teams, industry, and public partners, students apply advanced theoretical, aesthetic and practical production skills and/or applied research methods and methodologies. It is expected that students will develop the ability to successfully resolve complex theoretical and aesthetic challenges within a professional production environment and/or develop sophisticated reports, articulating and potentially disseminating the outcomes of their research. These are "Milestones." Pass/Fail

MP8100 Project/MRP Development
In this course students begin preparation of a professional production or research project under the direction of faculty members. Students are encouraged to develop projects in coordination with academic researchers as well as industry partners. Building on knowledge gained in the media production courses, this major assignment challenges students to participate in independent, advanced-level applied and/or theoretical research that has potential application in the media industries or contributes to broader public media discourse. Pass/Fail. 1 Credit

MP8101 Research Methods
Students will learn advanced library/bibliographic skills to inform themselves quickly about unfamiliar subjects and to identify the most reputable researchers and studies; how to conduct, interpret and assess public-opinion surveys and how to use other statistical material including ratings; the systematic use of electronic databases; methods of interviewing; and how to approach a research problem from multiple directions. The course will emphasize strategies for assessing applied and academic information and applying research to creative and business media issues. 1 Credit

MP8102 Media Production I
Lectures/seminars will include modules in aesthetic design, storytelling and communications, emerging technologies and media policy and economics. The elements that are essential for creative practitioners and/or business managers to develop innovative and excellent media material will be explored. In studio sessions, students will select from a series of hands-on media production sessions on a variety of audio, video and new media equipment and complete finished media modules under the supervision of faculty, media experts and technical staff. 1 Credit

MP8103 Media Production II
This advanced seminar will present case studies from expert media practitioners on a variety of topics including sound, images, new script forms, documentary production, dramatic and comedic shows, pitching production ideas, funding, managing broadcast networks, performing, marketing media products, human resources issues, developing research projects etc. In studio sessions, students will select from a series of hands-on seminars on a variety of pieces of media equipment and research "next generation" technological solutions important to the delivery of their professional project.
1 Credit

MP8904 Advanced Media Management
In this course, students will learn about organizational behaviour. Topics will include theories of employee motivation, individual behaviour, interpersonal and organizational communication, perception and personality in organizations, work attitudes and values, team dynamics and effectiveness, organizational power and politics, conflict and negotiation, leadership, and stress management. Antirequisite: BDC904. 1 Credit

MP8905 The Business of Music
This course will explore how the music industry is organized, and how music is used in radio, television, film, and advertising. Topics include A&R, marketing, promotion, sales, artist relations, new media, business affairs, finance/royalties, manufacturing, distribution, contracts, and getting a record and video made. It will also explore the roles of artists, managers, songwriters, unions, publishers, producers, and engineers. Antirequisite: BDC905. 1 Credit

MP8907 Television Programming
This course will examine the programming strategies of television networks, local stations, specialty and pay TV services and international cable and satellite channels. Students will learn how program scheduling, content acquisition and production decisions are affected by everything from market forces and budgets to interactive TV and new media and technologies. Students will also analyse the impact of U.S. signals, international syndication, co-production, advertising and barter. Antirequisite: BDC907. 1 Credit

MP8908 Bus Aspects, Independ Prod I
This course explores the role of the independent producer and the business and legal activities and materials necessary to produce independent production. Students learn about relationships with broadcasters and funding agencies, as well as program proposal preparation, creating business plans and effective pitching techniques. Students become acquainted with all aspects of the business side of producing as creative ideas proceed to be: acquired, developed, budgeted, pitched, licensed by broadcasters, financed, produced, posted, marketed, and distributed. Antirequisite: BDC908.
1 Credit

MP8909 Bus Aspects, Independ Prod II
This course builds on the business skills developed in MP8908. Students form small production companies, determine specific roles and develop a professional-standard business plan and strategy for an independent production. The proposal will be competitively pitched to a panel of broadcasters, funding agency representatives and producers. Antirequisite: BDC909. Prerequisite: MP8908. 1 Credit

MP8910 Production Management
This course will provide an overview of the role of the production manager in film and television. Students will become acquainted with the sophisticated administrative procedures and planning necessary for a successful production. Activities in the four stages of production will be reviewed: development, pre-production, production, post and wrap. Topics will include: script breakdown, scheduling, budgeting, industrial relations, facilities and suppliers, location management, accounting, talent and crew unions, contracts, reporting mechanisms and relevant forms and paperwork. Antirequisite: BDC910. 1 Credit

MP8914 Economics of Media
As the broadcasting and new media industries evolve, old forms of management may give way to new structures. This course will explore trends in entrepreneurship, employment, types of "work" and different management styles in a world of mergers, consolidation and networks. Within different models, the financiers and economic models that support the industry will be reviewed. Antirequisite: BDC914. 1 Credit

MP8915 Legal Issues in Media
This course will provide students with a general familiarity and understanding of the concepts and legal process inherent in the business of broadcasting and communications. Topics to be covered include copyright, contracts, clearance of program rights, legal issues relating to the Internet and multimedia. Issues in entertainment law and sports law will also be reviewed, as will government regulation of the broadcasting and multimedia industries. Antirequisite BDC915. 1 Credit

MP8920 Media Restoration, Content Mgt
Students will examine contemporary practice in media archival systems used in the audio, video and film sectors, both analog and digital. Students will also be exposed to digital preservation and restoration tools used for sound recordings and moving image media. Modern practice in digital content management and metadata systems will be explored, as well as the associated commercial, legal, ethical and aesthetic issues related to repurposing media. Antirequisite: BDC920.
1 Credit

MP8921 Advanced Audio Theory
This course is an exploration of Audio Theory for advanced applications. The course will cover modern audio practice as it applies to sound recording studios, live sound and sound reinforcement systems, acoustics and room and studio design, electronic and digital circuits and systems, computer applications in audio as well as Digital Signal Processing and compression systems and technology. Antirequisite: BDC921. 1 Credit

MP8941 Dramatic Writing
This course will provide an advanced study of dramatic theory and the opportunity to further develop students' abilities as story tellers. A series of advanced lectures, readings and workshops will build on the theoretical foundations and course work completed by students in BDC940. Students will develop an original concept for either a half-hour or one-hour television series, and create a Writer's Bible and sample script for their projects. Antirequisite: BDC941. 1 Credit

MP8945 Writing for Factual Programs
In this course students will learn writing styles related to news, current affairs, science, business and other fact based programming. Through lectures, guest speakers, in class workshops and extensive writing and re-writing practice, students will develop an understanding of the structures and formats specific to fact based writing. Students will work both alone and with a writing partner to research, develop and write a number of current, fact based scripts. Antirequisite: BDC945. 1 Credit

MP8961 2-D and Object Animation
This course is an introduction to the world of 2-D animation and stop-frame object animation. It will include discussion of the history and aesthetic aspects of animation and also allow students to produce their own pieces. Equipment and software for simple animated projects will be introduced, and film, video, new media and interactive forms of delivery will be discussed. Antirequisite: BDC961. 1 Credit

MP8962 3-D Animation
This production oriented course will allow students to work with computer software to develop 3-D models and animated stories, starting from the concept, and moving to storyboard, and finally a fully-rendered production. Students will be exposed to a wide variety of software and technology and will study the role of 3-D animation in the advertising, TV and movie business. Antirequisite: BDC962. 1 Credit

MP8964 Digital Virtual Environments
This production-oriented course will allow work with motion capture devices, blue screen technology and software to create virtual characters and worlds. Students will study models of virtual and performance based visual production, and will create motion capture data as well as work with stock material to create finished visual projects. Antirequisite: BDC964. 1 Credit

MP8972 Television Technical Producing
An advanced course in television technical producing, this course is a continuation of technical production knowledge obtained in first year "context" courses and second year Production craft courses in television (both studio and EFP). Students will explore large live-event coverage (sports, elections, music specials, awards shows), and tours will be arranged to some technical production facilities in the Toronto area. The course is completed with a live teleproduction at the end of the semester. Antirequisite: BDC972. 1 Credit

MP8979 Radio Production
The course will explore commercial and public radio programming and production. Radio advertising and formats will be explored. Students will have the opportunity to practice their skills in these areas by planning and producing content that reflects various formats and target demographics. Antirequisite: BDC979. 1 Credit

MP8980 Art Direction
The fabrication of reality for the screen is up to the Art Director, who created the on-screen environment that meets the director's aesthetic while being aware of the needs of the camera and lighting, and completes the whole by being responsible for all of a production's graphical elements. This course introduces students to both the theory and practice of art direction through guided exercises and work on student productions. Antirequisite: BDC980. 1 Credit

MP8982 Video Compositing, Special Eff
A large number of images that appear on our TV screens are treated with special effects prior to completion. Students will work with a range of basic image treatment software and will acquire skills on more sophisticated systems both on and off campus. They will learn the why and when for such effects treatments as special effects decisions can involve ethical elements. Antirequisite: BDC982. 1 Credit

MP8988 Television Editing Specialty
This course examines the impact of trade and the WTO framework in shaping the culture and communications policy environment for governments and communities. It is designed as a research seminar to enable students to examine the way the WTO is shaping and influencing cultural and communications policy. Antirequisite: BDC988. 1 Credit

MOLECULAR SCIENCE

CURRICULUM

Master of Science

First Offered Fall 2006

DEGREE REQUIREMENTS

Master's Thesis

MS8201 Master's Seminar 1

MS8202 Master's Seminar 2

Three credits from elective list

ELECTIVES		*Credits*
ES 8909	Environmental Biotechnology	1
MS8101	Adv Analytical Chemistry	1
MS8102	Adv Microscopy and Imaging	1
MS8103	Genomics and Proteomics	1
MS8104	Interfacial Phenomena	1
MS8105	Molecular Recognition	1
MS8106	Materials Science	1
MS8107	Molecular Virology	1

COURSE LISTING

Master's Thesis
This is a laboratory-based research project. Students are required to conduct research, submit their completed research in a thesis format to an examination committee, and make an oral presentation and defence of the research thesis and results to this committee. Through the thesis, students are expected to demonstrate competence in oral and written communication, experimental design and scientific thought processes, as well as a sound understanding of the specialty area associated with the research. The Master's Thesis is a "Milestone." Pass/Fail.

MS8201 Master's Seminar 1
This seminar course features presentations by guest speakers and students in the program. Each student is required to present a seminar on a topic not directly related to the student's thesis research. All program students are required to attend and to actively participate in all seminars provided in this course. Pass/Fail

MS8202 Master's Seminar 2
This seminar course features presentations by guest speakers and students in the program. Each student is required to present a seminar on his/her thesis research including background, proposal and results. All program students are required to attend and to actively participate in all seminars provided in this course. Pass/Fail

MS8101 Adv Analytical Chemistry
This course focuses on the principles and applications of modern methodologies for identifying and qualifying molecular species. The contents will be divided into two sections, 1) sample collection, storage and preparation, and, 2) modern analytical techniques (e.g. atomic and molecular spectrometry, mass spectrometry). Applications of these methods and techniques in chemical, biochemical (including protein analysis), clinical, environmental (including water, air and soil), food and pharmaceutical analysis will be discussed, using case studies. 1 Credit

MS8102 Adv Microscopy and Imaging
This course will provide students with an understanding of modern microscopic methods in chemistry and biology. Emphasis will be on theory and application of confocal microscopy, atomic force microscopy (AFM), confocal Raman microscopy and ultrasound-based approaches. All topics will be discussed in the context of scientific research based on recent publications. 1 Credit

MS8103 Genomics and Proteomics
An introduction to genomics and proteomics; relationship between structure and function of a gene; tools used in discovering and identifying sequences in a particular genome; an overview of protein structure and function, tools for structural determination, analysis of protein-protein interactions, introduction to the high throughput identification and quantification of protein expression; review of the Human Genome project; application of genomics and proteomics to drug design. Graduate students will require additional evaluation to the undergraduate requirements and may give a seminar or lecture. Exclusion BLG800. 1 Credit

MS8104 Interfacial Phenomena

This course introduces fundamental concepts of interface science in relation to biological and chemical systems. Topics may include artificial assemblies of biomolecules (e.g. lipics, proteins, polysaccharides) that perform novel functions, self-assembled monolayers, nanoparticles, stucture and physiochemical properties of membranes, electrical properties of interfaces, physiochemistry of microbial adhesion, the structure of water adjacent to interfaces. Selected experimental methods will also be discussed. 1 Credit

MS8105 Molecular Recognition
This course provides a selective introduction to topics in molecular recognition from a chemical and biological perspective. Model systems are used to understand fundamental principles of molecular recognition and these concepts are then used to examine topics as diverse as antibody-antigen interactions, adhesin-receptor recognition, drug-ligand interactions and macromolecular interactions in gene expression and signal transduction. Investigating techniques including molecular graphics and modeling, NMR, mass spectrometry, X-ray crystallography and circular dichroism will be discussed. 1 Credit

MS8106 Materials Science
This course focuses on the relationship between the synthesis, properties and function of specialty materials with extended structures. Topics may include important conducting materials such as charge-transfer salts, semiconductors, superconductors, and organic and inorganic polymers; optoelectric materials; zeolites and nonporous structures, supramolecular assemblies such as liquid crystals and piezoelectric thin films. Biological topics may include artificial bone, synthetic blood, bio-polymers for drug delivery. Graduate students may be required to give a seminar or lecture. 1 Credit.

MS8107 Molecular Virology
An overview of virology, with emphasis on the contribution virology has made to molecular biology will be presented. Detailed analysis will be done of molecular structure/function relationships of specific viruses with impact on societal issues. Included will be viruses causing the AIDS, common cold, influenza, hepatitis, SARS, herpes and adenovirus infections, and others. Molecular pathogen-host interactions will be examined and current and/or potential therapeutic targets and uses will identified. 1 Credit

NURSING

CURRICULUM

Master of Nursing

First Offered Fall 2005

DEGREE REQUIREMENTS		**Credits**
MN8901	Quantitative Research Methods	1
MN8902	Qualitative Research Methods	1
MN8903	Nature & Devel of Nurs Knowlge	1
MN8904	Seminar: Prof Nursing Advmt	1
MN8905	Practicum: Prof Nursing Advmt	1
AND one of the following options:		
	THESIS Option (available by permission only)	
MN8000	Master's Thesis	
One course from either Field I Or Field II		1
	COURSE Option	
Students must complete the requirements for either Field I or Field II		2
Three elective credits		3
Field I - Leadership in Health Care Policy and Education		
MN8920	Health Policy: Comparatv Anal	1
MN8921	Leadership in Education	1
Field II - Health and Illness of Individuals and Communities		
MN8910	Health & Illness: Theoretc Pers	1
MN8911	Population Hlth & Hlth Promtn	1
Electives		
MN8930	Advanced Nursing Ethics	1
MN8931	Divers & Glbztn: Urban Hlth	1
MN8932	Nursing Informatics	1
MN8933	Selected Topics in Nursing	1

COURSE LISTING

MN8000 Thesis
Pass/Fail

MN8901 Quantitative Research Methods
Students will have the opportunity to explore and critique a variety of quantitative research methods utilized in the development of nursing science. They will study the different research designs, sampling strategies, data collection methods and statistical analyzes utilized when undertaking quantitative research studies. They will also discuss and critique research arising from a variety of practice settings that are conducive to quantitative methodologies. Frameworks and approaches to research utilization and evidence based practice will be discussed and students will explore strategies for translating results of quantitative research studies into practice settings. 1 Credit

MN8902 Qualitative Research Methods
This course will provide students with the opportunity to explore and critique a variety of qualitative research methods and approaches. Students will explore how the philosophical underpinnings of various research approaches inform the construction of research questions, selection of methods, and strategies for data analysis. Examples of qualitative research conducted in a variety of practice settings will be discussed and critiqued. Students will learn how qualitative and quantitative research methods can be used as either separate or complementary approaches in research design. 1 Credit

MN8903 Nature & Development of Nursing Knowledge
The students will explore the evolution of nursing theory and its accompanying philosophical foundations to understand the inter-relationship between theory, practice and research. In addition, they will examine the development and nature of

nursing's scientific body of knowledge and the art of nursing. Students will be able to critically analyze a variety of nursing theories related to their use for nursing practice and research. Through the process of theory analysis and evaluation they will examine selected nursing conceptual models/theories from the totality and simultaneity paradigms, and examine the value of theoretical pluralism. 1 Credit

MN8904 Seminar in Professional Nursing Advancement
Students will analyze theoretical perspectives related to the advancement of professional nursing practice from a variety of philosophical and critical standpoints. Using case studies and examples from their practica, students will examine and synthesize linkages between theory, research, advanced practice, and their field of study. Students will explore and critique the multiple domains of professional nursing at an advanced level, including clinical practice, leadership, policy, education, and research. Co-requisite: MN8905. 1 Credit

MN8905 Practicum in Professional Nursing Advancement
Students will focus on the synthesis and application of knowledge at an advanced level within their chosen field of study. They will be expected to successfully apply knowledge gained from practice, theory and research into their advanced role during their practicum experience. Students will promote change and demonstrate innovation by extending the boundaries of nursing practice (e.g. contribute to knowledge development and the advancement of the profession).
Co-requisite: MN8904. Pass/Fail

MN8910 Health & Illness: Theoretical Perspectives
Students will examine broad conceptualizations of health and illness to provide a foundation for critical analysis of specific conceptual models (such as health beliefs, loss, quality of life, and recovery) relevant to the experience of individuals and families across a variety of illness groups. This will enable students to develop an advanced understanding of current theoretical perspectives and research related to biopsychosocial and cultural determinants of health and illness. Students will also examine models of psychosocial intervention applicable to their professional practice that support health for individuals and families. 1 Credit

MN8911 Population Health & Health Promotion
Drawing upon critical theory, the social determinants of health, and social justice frameworks, students will engage in an analysis of major primary health care, health promotion, and population health initiatives locally, nationally, and globally. Links to social, cultural, environmental, political, and economic contexts that impact on health, equity, and health disparities will be analyzed critically. Evidence-based research and ethical considerations central to community health and advanced community health nursing practice will be examined. Emphasis throughout will be placed on upstream, participatory, and collaborative approaches to the development of healthy public policy locally and globally. 1 Credit

MN8920 Health Policy: A Comparative Analysis
This course will provide students with the opportunity to examine the development of health policy in Canada. Public policy analysis will be introduced in a way that provides an overview of techniques and issues that are applicable to an understanding of how health care policy evolves. Students will use these techniques to critically analyze current issues and trends in Canada's health care system as well as other selected countries. The action of key interest groups who influence public policies which ultimately shape health priorities and goals will be examined with a particular focus on the role of the nursing profession, other professions and consumers. 1 Credit

MN8921 Leadership in Education
Students will examine the role of the advanced practice nurse in influencing the development and advancement of education in diverse professional practice environments. Students will develop advanced skills in the creation of a supportive learning/teaching environment respectful of the diversity of learners. Students will apply relevant theories and research to critique various approaches used in health education and health promotion. Students will examine strategies that facilitate the professional advancement of the educator in providing educational leadership within a variety of practice settings including, but not limited to, the community, hospitals and universities. 1 Credit

MN8930 Advanced Nursing Ethics
Students will examine ethical theory in health care and nursing, such as; Kantianism, virtue ethics, communitarianism, feminist bioethics, narrative ethics, principlism and casuistry. To demonstrate their understanding of theory and methods to conduct ethical analyzes, students will develop case studies arising from practice. Utilizing these case studies, students will be facilitators of their colleagues' learning through active and dynamic discussions and debates of key ethical issues relevant to advanced nursing practice. Students will be expected to synthesize the broader ethical concepts such as research ethics, organizational ethics and priority setting throughout these discussions and assignments. 1 Credit

MN8931 Diversity & Globalization: Urban Health
Using critical social theory as a framework, students will explore how urban health is impacted by factors related to diversity and globalization. Students will critically examine the intersections of the broad social determinants of health as influencing the experiences of individuals, families, and communities within urban environments. Students will investigate the impact of the health care system design and the various roles of health professionals on current urban health issues. Students will identify and critique a range of frameworks and strategies that can be utilized by advanced practice nurses in the community to engage individuals, families, and population groups in promoting urban health. 1 Credit

MN8932 Nursing Informatics
Students will explore the integration of nursing, health information and computer sciences. Issues, challenges, opportunities and evaluations of the management and communication of: 1) data; 2) information; and 3) knowledge in a variety of practice settings (including clinical, education, research and administration) will be examined and critiqued by

students. Students will also critically examine the social, legal and ethical impact of informatics within nursing and the health care system. 1 Credit

MN8933 Selected Topics in Nursing
Students will study a topic of current interest selected by the Nursing faculty which may vary from year to year. This course consists of lectures, seminars, and readings covering the latest advances and research in nursing and health care such as: death and dying; and, therapeutic communication. The course descriptions for the selected topics will be announced prior to scheduling of the course. 1 Credit

NUTRITION COMMUNICATION

CURRICULUM

Master of Health Science

DEGREE REQUIREMENTS

First Offered Fall 2007		*Credits*
NC8101	Epidem – Nutr Rsrch/Interpretn	1
NC8102	Nutrition and Health Behaviour	1
NC8103	Soc Dimensions of Nutr Comm	1
NC8104	Graduate Seminar	1
Three credits from Elective list		3
AND one of the following Options:		3

RESEARCH PAPER Option:

Major Research Paper/Project

PROFESSIONAL Option:

NC8001 Practicum

COURSE Option:

Three additional credits from Elective list

Electives

CC8020	Social Theory & Comm Process	2
CC8982	The Body and the Culture of Modernity	1
CD8310	Topics in Cross-Cultural Comm	1
CD8320	Media Lang: Forms and Apprchs	1
CD8330	Audiences and the Public	1
IS8922	Changing Multicult Mosaic: GTA	1
MN8910	Health & Illness: Theoretc Pers	1
MN8911	Population Hlth & Hlth Promtn	1
MN8920	Health Policy: Comparatv Anal	1
MT8411	Media Consumers and Mkts	1
NC8201	Food and Nutrition Policy	1
NC8202	Interpersonal Nutrition Commun	1
NC8203	Adv Approaches Health Research	1
NC8204	Risk/Benefit Analysis	1
NC8205	Self-Directed Studies	1

COURSE LISTING

Major Research Paper/Project
The major research paper/project is an opportunity for students to investigate independently a particular issue or application in nutrition communication. It may be a development/testing of a nutrition communication technique or a multi-media product; an analytic project, such as a comprehensive literature review, policy or secondary data analysis. Students are required to develop a project plan for approval early in the Winter term and submit their final report at the end of the Spring/Summer term. This is a “Milestone”. Pass/Fail

NC8001 Practicum
Students spend 3 hours/week in an in-class seminar and eight weeks (4 full days/week) in a professional practice setting working with individuals/groups OR within a Nutrition Communication-related organization. They are required to undertake a specific project in consultation with the Practicum Supervisor and Faculty Supervisor and develop a written report. Students initially prepare a set of goals and objectives (Learning Agreement) and at term conclusion submit and share a reflexive analysis of their experience. 3 credits

NC8101 Epidemiology for Nutrition Research and Interpretation
This course provides a survey of the most frequently used elements of biostatistics (odds ratios, relative risk, meta analysis, etc.), demography, informatics, methodology (study design elements), and epidemiology (classical as well as clinical) used to establish nutrition practice and policy. Emphasis is placed on tools used to convey information about

dietary risk, risk management. This course provides opportunity for students to critically evaluate and interpret epidemiologic reports in nutrition literature for methodological and analytical soundness. 1 Credit

NC8102 Nutrition and Health Behaviour
Using an interdisciplinary framework, current theories and concepts of health, nutrition, health behaviour and behavioural change in individuals, practitioners, and organizations will be explored. An understanding of the social psychological processes that may facilitate or impede health maintenance in individuals and populations will be developed. Behavioural change practice and research will be critically examined within a systemic, ethical and personal context. 1 Credit

NC8103 Social Dimensions of Nutrition Communication
This course introduces the social dimensions of communication by first establishing the contexts within which nutrition communications occur through discussions of subjectivity, diversity, and media constructed messages. Next, we examine the evolution of nutrition communications related to the changing roles of “experts” and “audiences”, the dynamics of communication theory, and the influences of technology on the communication process and experience. We conclude by recognizing social justice issues inherent in nutrition communication. 1 Credit

NC8104 Graduate Seminar
This year-long course provides students and faculty a scholarly forum to discuss various issues including key nutrition campaigns, their potential to change population health; nutrition research underlying “stories of the day” and how they have been communicated to the public; ongoing faculty and student research interests; issues related to professional practice, etc. Each week during the Fall and Winter terms, a student, faculty or guest-speaker provides assigned readings to the group and a formal presentation followed by informal discussions and evaluation. Pass/Fail. 1 Credit

NC8201 Food and Nutrition Policy
This course provides an overview of contemporary food and nutrition policy issues and debates. It discusses criteria for effective policy and the role of institutions and stakeholders in the policy development process. Students will develop an analytic framework for evaluating policy decision-making, outcomes and impacts. 1 Credit

NC8202 Interpersonal Nutrition Communication
Using various interactive techniques and theoretic frameworks, this course provides opportunities to enhance interpersonal communication skills. Specifically, the narrative medicine model is studied, practiced and appraised as applicable to interpersonal health and nutrition practice. Students engage in self-reflective practices to connect experiential and theoretical applications. Health, illness and nutrition communication are acknowledged as occurring in a range of contexts and readings will be drawn from various disciplines to elaborate on these contexts. 1 Credit

NC8203 Advanced Approaches to Health Research
This course examines transdisciplinarity as a framework for contemporary health research and practice. Methodological challenges and benefits arising from epistemological traditions and competing agendas will be analyzed from discipline-specific and transdisciplinary perspectives. Issues such as food choice and access, body weight, and disease prevention will be examined with an emphasis on communicating meaningful outcomes. The evolution, politics, and future of the urban health movement will be explored through the perspectives of leading Canadian scholars. 1 Credit

NC8204 Risk/Benefit Analysis: Assessment, Perception & Communication
This course focuses on risk analysis, assessment and communication in nutrition and food. Students will discuss the risks and benefits of themes in public health with implications in Canada and internationally, such as the use of food additives; links between diet and chronic diseases; foodborne illnesses and environmental contaminants. Students will examine risk assessment methodologies; risk perception by individuals, groups and the public-at-large; communication strategies and methodologies used by stakeholders: industry, government, and nutrition/food professionals. 1 Credit

NC8205 Directed Studies
Students arranges to work with an individual faculty member on a course designed to pursue readings in a specific area that is relevant to nutrition communication. 1 Credit

PHOTOGRAPHIC PRESERVATION AND COLLECTIONS MANAGEMENT

CURRICULUM

Master of Arts

DEGREE REQUIREMENTS		Credits
PP8000	Professional Practice Project	
PP8010	Internship	2
PP8100	History of Photography I	1
PP8101	History of Photog Materials	1
PP8102	Research Methods	1
PP8103	Photographic Collections	1
PP8104	19th Cent Photo Mater/Proc	1
PP8105	Chem of Photogr Deterioration	1
PP8106	20th Cent Photo Materials & Proc	1
PP8107	Digital Appl for Collectn Mgmt	1
PP8108	History of Photography II	1
PP8109	Photographic Preservation	1
PP8110	Cataloguing & Registrn Methods	1
PP8111	Exhibition and Publication	1
One elective credit		

ELECTIVES		
PP8200	19th Cent Photo Pres	1
PP8201	20th Cent Photo Pres	1
PP8202	New Media Photo Pres	1
PP8203	Albums & Books Phot Pres	1
PP8204	Negatives Photo Pres	1
PP8205	France Workshop	1

COURSE LISTING

PP8000 Professional Practice Thesis/Project
The thesis/project provides students with the opportunity to explore, in considerable detail, an issue or problem dealing with an aspect of photographic preservation or collection management, and whose resolution requires successful integration of theoretical, historical, and practical thinking. The project can be presented either as a written report or in another form (such as an interactive digital production), which would permit students to address and report on advanced work in non-traditional ways. Regardless of form, the project must be accompanied by a paper, which documents the work involved, situates it within the appropriate intellectual context, and indicates
its contribution to the field. This is a “Milestone.” Pass/Fail

PP8010 Internship
The internship allows the student to participate in the current activities or long-term plans of an institution. The internship is normally a minimum of eight and a maximum of twelve consecutive weeks in length, spent in placement at the host institution. Students are strongly encouraged to undertake the placement in the summer after the second term. The institutional supervisor and the intern will establish start and end dates. As staff members, interns are expected to work regular staff hours so that they will be integrated into the daily work environment of the institution. 2 Credits. Pass/Fail

PP8100 History of Photography I
This course provides a survey of the medium's history from early experiments to present. It provides an overview of photography's development and its impact on society as both a cultural and sociological phenomenon. It also familiarizes students with existing histories of photography, and addresses some of the problems of defining a visual history through photographic collections. Photographic theory is introduced to provide a critical context for discussion of these issues. 1 Credit

PP8101 History of Photographic Materials
Conceived as a parallel to History of Photography I, this course provides a technical and social history of photographic materials from 1839 to present. It describes various materials and techniques used in photography so that their composition, date of origin, and social context can be understood and used in defining approaches to photographic

preservation. Laboratory sessions are used to provide students with the ability to identify and date major photographic processes and formats. 1 Credit

PP8102 Research Methods
This course complements material presented in previous courses and provides theoretical and methodological foundations for conducting graduate research in the history, preservation, and conservation of photographs. The course addresses research design, bibliographic construction, cataloguing and archival methods, content and process analysis, textual analysis, historiography, and documentary research. 1 Credit

PP8103 Photographic Collections
This course is concerned with photographic collections as specialized repositories of historical knowledge and cultural value. It identifies different types of public and private photographic collections as reflections of governmental, commercial, cultural, and societal needs, and describes their histories, purposes, intellectual organization, and physical management. The course includes the history of the preservation movement and explains the relationship of preservation to conservation both historically and today. 1 Credit

PP8104 Photographic Materials and Processes: The Nineteenth Century
This course provides detailed investigation of the history and practice of major nineteenth century photographic negative and positive processes, including photogenic drawings, calotypes, cased images (daguerreotypes, ambrotypes, and tintypes), wet-plate collodion negatives, and albumen prints through lectures, practical demonstrations, darkroom and studio experimentation, and relevant historical literature. 1 Credit

PP8105 Chemistry of Photographic Deterioration
In conjunction with two courses on nineteenth and twentieth centuries processes (5 and 6 above), and as an outgrowth of History of Photographic Materials (4 above), this course surveys environmental factors and underlying chemical mechanisms that cause both black and white and colour photographs to stain, fade, or otherwise deteriorate while in storage or on exhibition. Laboratory sessions are used to illustrate the effects of deterioration through exposure to heat, light, humidity, and pollutants. The course provides a fundamental basis for decisions concerning storage conditions, remedial measures, and long-term preservation planning. 1 Credit

PP8106 Photographic Materials and Processes: The Twentieth Century
This course provides detailed investigation of the history and practice of major twentieth century photographic negative and positive processes, including platinum prints, gum bichromate prints, gelatin silver negatives and prints, and colour negatives and prints through lectures, practical demonstrations, darkroom and studio experimentation, and relevant historical literature. 1 Credit

PP8107 Digital Applications for Collection Management
This course is closely allied to the Cataloguing and Registration Methods course (11 below), designed to provide students with specific digital technologies currently in use in most museums. Image capturing, database entry/management, and issues surrounding search engines are explored in detail. Through a series of hands-on assignments, students become familiar with computer hardware and software applications in the above-mentioned areas. 1 Credit

PP8108 History of Photography II
Using the collection of George Eastman House as its basis, this seminar provides the forum for students to investigate specific historical, cultural, or artistic issues arising out the history of photography. This course allows students to gain a greater understanding of history of the medium through detailed examination and interpretation of original materials. Issues of museum collecting and curating are also explored throughout the course. 1 Credit

PP8109 Photographic Preservation
This course provides an overview of the history of philosophy, ethics, concerns, and methods of preservation. It covers materials, tools, sources of supply, and methods of providing protection for photographs through proper mounting, housing, and stabilization procedures. It also covers the purposes and procedures for compiling standard condition reports, and conducting preservation surveys. Students will also be introduced to conservation procedures in order to facilitate their interaction with conservators and their practices. 1 Credit

PP8110 Cataloguing and Registration Methods
This course provides an overview of the purpose and function of collection registration and cataloguing. It includes an overview of the function of registration and cataloguing staff, developing cataloguing systems, role and usage of computer technology, collection management procedures, shipping and receiving, insurance and conditions reports. Digital applications are also discussed. 1 Credit

PP8111 Exhibition and Publication of Photographs
This course is designed to provide students with an overview of issues and policies related to the exhibition and publication of photographs. It covers preservation issues involved in preparing, installing, monitoring, and circulating photographic exhibitions, as well as copyright and reproduction issues. Digital applications and issues are also discussed. 1 Credit

PP8200 Topics in Photographic Preservation: Nineteenth Century Materials
Seminar devoted to an issue or aspect of the care and preservation of nineteenth century photographic materials. 1 Credit

PP8201 Topics in Photographic Preservation: Twentieth Century Materials
Seminar devoted to an issue or aspect of the care and preservation of twentieth century photographic materials. 1 Credit

PP8202 Topics in Photographic Preservation: New Media
Seminar devoted to an issue or aspect of the care and preservation of new photographic digital image materials. 1 Credit

PP8203 Topics in Photographic Preservation: Photographic Albums and Books
Seminar devoted to the history and structure of bound books, and their materials and technology (including the photograph album). Factors in deterioration, analysis of condition, need for intervention; treatment proposals, stabilization, and repair are covered. Methods of display, handling, and storage are also covered. 1 Credit

PP8204 Topics in Photographic Preservation: Negatives
Seminar devoted to an issue or aspect of the care and preservation of photographic negatives. 1 Credit

PP8205 France Workshop
Through 12 days of on-site lectures by, and consultations with, curators of the most distinguished photographic collections, archives, and conservation laboratories in Paris, the course provides students with special access to a broad range of French state and municipal photographic collections and preservation practices. Ryerson has developed strong working relationships with a number of the most important curators and conservationists in Paris including those at the Louvre, the Musée d'Orsay, the Bibliothèque Nationale, and the Musée Carnavalet among others. They allow students behind-the-scenes access to their collections, work spaces, and storage vaults that are unavailable to the general public. An extra fee of approximately CDN $4,185 (subject to change) is levied for this course and the course will be offered subject to enrollment. 1 Credit

PSYCHOLOGY

CURRICULUM

Master of Arts

First Offered Fall 2007

DEGREE REQUIREMENTS		Credits
Psychological Science Field		
Thesis		
PS8101	Stats and Research Design I	1
PS8102	Stats and Research Design II	1
PS8201	Appl, Translational Rsrch Meth	1
PS8202	Practicum in Psych Science I	1
Three Psychology electives		3
Clinical Psychology Field		
Thesis		
PS8101	Stats and Research Design I	1
PS8102	Stats and Research Design II	1
PS8301	Psychopathology	1
PS8302	Intro Psychological Assessment	1
PS8303	Systems of Psychotherapy	1
PS8304	Treatment of Psych Disorders	1
PS8305	Cognitive and Behavioural Therapy	1
PS8306	Practicum in Clinical Psych I	1
PS8307	Practicum in Clinical Psych II	1
Two Psychology electives, one from each of two foundation areas		2

Doctor of Philosophy

DEGREE REQUIREMENTS		Credits
Psychological Science Field		
Comprehensive Requirement		
Dissertation		
PS9201	Psych Sci Professional Issues	1
PS9202	Practicum in Psych Science II	1
Three Psychology electives		3
Clinical Psychology Field		
Comprehensive Requirement		
Dissertation		
Internship in Clinical Psych		
PS9301	Clin Psych Profess Issues I	1
PS9302	Clin Psych Profess Issues II	1
PS9303	Practicum Clinical Psych III	1
Four Psychology electives, one from each of the two foundation areas not covered at the Master's level		

Electives

Psychological Science		
PS8501	Adv Seminar in Cognition	1

PS8502	Adv Seminar in Devel Psych	1
PS8503	Adv Seminar in Health Psych	1
PS8504	Adv Seminar in Social Psych	1
PS8505	Advances in Health Psych	1
PS8506	Percept and Cognitv Ergonomics	1
PS8507	Cognitive Neuroscience	1
PS8508	Critical Perspectives in Psych	1
PS8509	Culture and Identity	1
PS8510	Early Development	1
PS8511	Gender and Health	1
PS8512	Learning, Plasticity, Memory	1
PS8513	Multivariate Statistical Anal	1
PS8514	Perception and Cognition	1
PS8515	Psychology of Aging	1
PS8516	Psychology and Law	1
PS8517	Psychometric Theory, Research	1
PS8518	Research Design in Child Devel	1
PS8519	Social Cognition	1
PS8520	Socio-Cognitive Development	1
PS8521	Urban Psychology	1
PS8522	Directed Readings: Psych Sci	1

Clinical Psychology

PS8701	Adv Seminar in Clinical Psych	1
PS8702	Advances in Health Psych	1
PS8703	Anxiety Disorders	1
PS8704	Behav Disorders in Children	1
PS8705	Clinical Neuropsychology	1
PS8706	Clinical Psychopharmacology	1
PS8707	Cognition and Psychopathology	1
PS8708	Eating Disorders	1
PS8709	Directed Readings: Clin Psych	1

Foundational Areas

Biological Bases of Behaviour

Cognitive-Affective Bases of Behaviour

Social Bases of Behaviour

Individual Behaviour

Historical and Scientific Foundations of General Psychology

COURSES

Internship in Clinical Psychology
Supervised internship in a community setting approved by the Director of Clinical Training. This internship is required of all students in the clinical psychology Ph.D. program and must be taken over the course of a full year. Prerequisites: Completion of all course requirements in the clinical psychology doctoral program, and approval of the Director of Clinical Training. This is a "Milestone." Pass/Fail

Master's Thesis
Independent research leading to an acceptable master's thesis. This is a "Milestone." Pass/Fail

Comprehensive Requirement
Students will be required to complete projects designed to provide breadth in their training. This is a "Milestone." Pass/Fail

Doctoral Thesis

Independent research leading to an acceptable doctoral dissertation. This is a “Milestone.” Pass/Fail

PS8101 Statistics and Research Design I
This course provides an overview of basic statistical concepts, applications of these concepts, and an introduction to experimental design and psychology. Topics to be covered include probability theory, significance testing, correlational and regression methods, and an introduction to computerized statistical analysis. This course is required of all graduate students in psychology during the first semester of their first-year, and it is the first part of a required two-course sequence on this topic. Prerequisites: Undergraduate course(s) in psychology statistics or equivalent, and graduate status.
1 Credit

PS8102 Statistics and Research Design II
This course provides instruction in advanced methods in regression and multiple regression, as well as instruction in advanced analysis of variance techniques, general linear models, analysis of categorical data, use of non-parametric statistics, and structural equation modeling. This course is required of all graduate students in psychology during the second semester of their first-year, and is the second part of a required two-course sequence on this topic. Prerequisites: Statistics and Research Design I, and graduate status. 1 Credit

PS8201 Applied and Translational Research Methods
An introduction to applied and translational research methods. In the first half of the course, discussions will include how to balance good science with specific real-world objectives and how to translate laboratory findings into real-world solutions. In the second half of the course, students engage in directed readings that will prepare them for their Practicum placements (e.g., Cognitive Ergonomics, Program Evaluation). 1 Credit

PS8202 Practicum in Psychological Science I
This practicum is designed to provide students with an immersion in either the methods of psychological research or the teaching of psychology. Students with a research focus in this practicum will be exposed a broad range of research perspectives, including opportunities to become familiar with various research skills and instruments in labs and research areas outside of the student's core research area of interest. Students with a teaching focus will receive training in the science of teaching with closely supervised pedagogical training in planning, preparing and delivering an undergraduate course in Psychology. This course is required for all MA students in the Psychological Science Field. Pass/Fail. 1 Credit

PS8301 Psychopathology
An overview of issues related to diagnostic features, epidemiology, developmental factors, etiology, and descriptive psychopathology for a wide range of psychological disorders, including anxiety disorders, mood disorders, somatoform disorders, psychotic disorders, eating disorders, personality disorders, sexual and gender identity disorders, substance use disorders, cognitive disorders, and others. This course is required of all first-year master’s students in clinical psychology. 1 Credit

PS8302 Introduction to Psychological Assessment
An overview of theory and research on psychological assessment. Approaches covered include diagnostic assessment and interviewing, behavioural assessment, objective and projective personality assessment, intellectual assessment, and neuropsychological assessment. In addition, issues related to psychometric methods, test construction, and measurement are reviewed. This course is required of all first-year graduate students in clinical psychology. 1 Credit

PS8303 Systems of Psychotherapy
An overview of theory and research related to psychotherapy and behaviour change. Includes a review of the major schools of psychotherapy, including cognitive and behavioural therapies, interpersonal psychotherapy, psychodynamic psychotherapy, experiential and humanistic psychotherapies, couples and family therapies, and group therapy. In addition, non-specific aspects of psychotherapy will be discussed, including the therapeutic relationship, client factors, and therapist factors that contribute to outcome. This course is required of all first-year graduate students in clinical psychology. 1 Credit

PS8304 Treatment of Psychological Disorders
An overview of theory and practice of evidence-based, psychological and biological treatments for a wide range of psychological disorders, including anxiety disorders, mood disorders, somatoform disorders, psychotic disorders, eating disorders, personality disorders, sexual and gender identity disorders, substance use disorders, cognitive disorders, and others. This course is required of all second-year graduate students in clinical psychology. 1 Credit

PS8305 Cognitive and Behavioural Therapy
An in-depth course on theory and practice of cognitive and behavioural therapies. Topics covered include exposure-based treatments, cognitive strategies, relaxation-based strategies, mindfulness and acceptance-based strategies, and techniques for enhancing motivation. This course is required of all graduate students in clinical psychology field, during the second or third year of training. Prerequisite: Completion of either Systems of Psychotherapy or Treatment of Psychological Disorders. 1 Credit

PS8306 Practicum in Clinical Psychology I
Practicum training in clinical assessment, psychological testing, and psychological intervention under the close supervision of one or more registered clinical psychologists in a community setting. This course is required of all graduate students in the clinical psychology MA program and is normally taken in the summer following the first year. The minimum duration is 350 hours. Students are encouraged to apply for practicum placements in the Fall of the first year from an

approved list of supervisors and sites. Prerequisites: Completion of Introduction to Psychological Assessment and Systems of Psychotherapy. Pass/Fail. 1 Credit

PS8307 Practicum in Clinical Psychology II
Practicum training in clinical assessment and intervention under the close supervision of one or more registered clinical psychologists in a community setting. This course is required of all graduate students in the clinical psychology MA program and is normally taken during the summer following the first year of training, or during the second year of training. The minimum duration is 350 hours. Students are encouraged to apply for practicum placements in the Fall of the second year from an approved list of supervisors and sites. Prerequisites: Completion of Practicum in Clinical Psychology I. Pass/Fail. 1 Credit

PS8308 Directed Readings in Clinical Psychology
This course involves meetings between a student and a faculty member to discuss readings related to a topic of mutual interest. 1 Credit

PS8501 Advanced Seminar in Cognition
This course will be offered from time to time, with the specific topic varying from year to year depending on the instructor and student interests (e.g., eye-witness memory, cognitive aging, thinking and reasoning, etc.). 1 Credit

PS8502 Advanced Seminar in Developmental Psychology
This course will be offered from time to time, with the specific topic varying from year to year depending on the instructor and student interests (e.g., perceptual-motor development; theory of mind; youth at risk; life-span development, etc.).
1 Credit

PS8503 Advanced Seminar in Health Psychology
This course will be offered from time to time, with the specific topic varying from year to year depending on the instructor and student interests (e.g., psychology and cancer; nutrition and body image; psychology and HIV; psychology of pain, etc.). 1 Credit

PS8504 Advanced Seminar in Social Psychology
This course will be offered from time to time, with the specific topic varying from year to year depending on the instructor and student interests (e.g., forensic psychology; social comparison; psychology of persuasion, etc.). 1 Credit

PS8505 Advances in Health Psychology
Based on the biopsychosocial model, this course explores the psychological issues that interact with the promotion of health, the prevention of disease, and adjustment to chronic illness. Possible topics will include stress and coping, psychoneuroimmunology, patient-practitioner interaction, psychosocial management of stress-related physical illnesses (including chronic pain), and lifestyle behavior change. 1 Credit

PS8506 Perceptual and Cognitive Ergonomics
An overview of research in the emerging field of cognitive ergonomics. Includes a survey of successful cognitive ergonomic interventions and research methods for assessing the fit between human perceptual-cognitive abilities and the demands of a machine, task, or environment. 1 Credit

PS8507 Cognitive Neuroscience
An overview of the use of neuroimaging in the investigation of complex human cognitive abilities. Content will include 1) a brief review of neuroanatomy, 2) an introduction to the fundamentals, experimental design strategies, and advantages and limitations of current brain imaging techniques (e.g., MRI, PET, ERP, TMS), 3) critical reviews of findings and theories on the relations between the brain, various domains of cognition, and behaviour in current neuroimaging literature. For illustrative purposes, some emphasis will be placed on the use of fMRI to understand normal and abnormal mnemonic processes. 1 Credit

PS8508 Critical Perspectives in Psychology
The focus is on critically evaluating the ways in which psychology as a discipline not only discovers but also shapes and produces knowledge about human behaviour, cognition and emotion. Critical psychologists are centrally interested in the socio-political implications and applications of psychological theory and practice. Drawing on a variety of conceptual frameworks, including feminist theory, post-structuralism, cultural studies, and contemporary psychoanalysis, this course will provide an overview of the wide range of epistemological, methodological and empirical innovations in the study of behaviour and experience. 1 Credit

PS8509 Culture and Identity
The course serves as an introduction to the interrelated concepts of culture and identity, especially as they intersect in multicultural settings, such as Canada, or pluralistic settings, such as the United States. It is intended to foster appreciation of the impact of cultural influences on who we understand ourselves to be. Issues of race, ethnicity, indigenous heritage, power, gender, sexual orientation, and disability are explored in order to better understand psychological processes. The course is also intended to introduce these issues to clinical psychology students in order to facilitate their training as professionals able to work with diverse populations. 1 Credit

PS8510 Early Development
This course examines primary research from the period of prenatal development to early childhood and adolescence. The core content and themes, drawn from both basic developmental science and clinical psychology, will vary with each offering of the course to reflect contemporary issues in the field encompassing such topics as: basic processes such as perceptual-motor intelligence; caregiver-infant relationships; language acquisition and literacy; social-cognition and the social-cultural context of early development. The course will focus strongly on the diverse research methods associated with working with infants, children, and parents. 1 Credit

PS8511 Gender and Health
An overview of the relationship between biological, psychological, and socio-cultural determinants of health and illness, including health behaviours, the health care system, and health policy formation. Gender will be examined as both a biological (e.g., hormonal) and socio-cultural variable in relation to a range of specific topics, including: stress, psychoimmunology, cardiovascular disease, cancer, pain, and disability. 1 Credit

PS8512 Learning, Plasticity, and Memory
A survey of various aspects regarding the acquisition, retention, and retrieval of memories. Critical discussions will cover principles and mechanisms of learning, cognitive and neural organization of memory, memory processes, and forms of cognitive and neural plasticity. These domains will be extended to applied areas including mnemonic techniques (e.g., strategies, rehabilitation), disorders of memory (e.g., amnesia), lifespan issues (e.g., development, aging), and the malleability and reconstructive processes of learning and memory (e.g., false memories). 1 Credit

PS8513 Multivariate Statistical Analysis
An introduction to multivariate statistical methods in psychology. Techniques covered include multivariate analysis of variance, multiple regression, factor analysis, cluster analysis, discriminant function analysis, hierarchical modeling, structural equation modeling, and canonical correlation. Prerequisites: Statistics and Research Design I and II. 1 Credit

PS8514 Perception and Cognition
A seminar course designed to generate scientific dialogue about research at the intersections of perception and cognition. Research that looks at perceptually guided action will also be considered. 1 Credit

PS8515 Psychology of Aging
This course will provide students with a theoretical and empirical research framework for understanding psychology of aging. The topics will include a broad range of age-related changes in sensory, perceptual, cognitive, personality, and social cognitive processes, as well as social and cultural aspects of aging. Factors such as brain changes, health, and lifestyle issues will be discussed in term of how they may influence the observed age-related differences in behaviours and attitudes. 1 Credit

PS8516 Psychology and Law
In-depth discussion of the theoretical and practicum issues related to the intersection between psychology and the law. The challenges inherent in combining psychology's empirical approach with the legal system's focus on case-rulings and procedure will be explored through discussions of some key areas of psycho-legal research. Such topics may include the role of the jury, expert and ethical issues, risk assessment, fitness to stand trial, criminal investigation techniques, and the role of memory in the legal realm. 1 Credit

PS8517 Psychometric Theory and Research
This course focuses on measurement theory, scale construction, item response theory, and the interpretation of related issues. Topics covered include psychometric scaling methods, exploratory and confirmatory factor analysis, reliability analysis, test interpretation, measurement of change, and issues pertaining to the analysis of quantitative experimental and nonexperimental data. 1 Credit

PS8518 Research Design in Child Development
Focuses on the unique conceptual, design, and analytic challenges that face researchers working with young children. Specific topics may include the design and meaning of habituation and "looking time" studies with infants, the use of observational techniques with young children, and the pragmatic issues surrounding interviewing and questioning children. For each topic, discussion will begin with research that demonstrates why children must be treated differently from adults in research studies (e.g. how children's understanding of the pragmatics of language differs from adults') and then go on to address how researchers might compensate for those differences. Methodologies designed specifically to gather developmental data, such as longitudinal designs, will also be given emphasis. 1 Credit

PS8519 Social Cognition
This course reviews theory and research relating to ways in which people process social information and make sense of their social world. Topics will include judgment under uncertainty, social attribution, stereotypes and prejudices, interpersonal attraction, social comparison, categories and schemas, the relationship between motivation and cognition, and methods for studying social cognition. 1 Credit

PS8520 Socio-Cognitive Development
Discussion of theories and issues in the social and cognitive development of children, particularly those concerning the interplay between social and cognitive development (so-called socio-cognitive development). Broadly construed, socio-cognitive development describes how children's developing cognitive abilities allow them to better understand their social world (e.g. how children come to understand, predict, and explain the behaviour of other people) and how children's social world influences their cognitive development (e.g. how children imitate and learn from others' testimony). 1 Credit

PS8521 Urban Psychology
This course is a critical survey of community psychology and environmental psychology relevant to the urban condition, such as environmental stress, crowding, intergroup relations, community mental health, program development/evaluation, and community supports for individuals with a range of social problems, including homelessness, substance abuse, and involvement in the criminal justice system. Topics will be examined from a range of theoretical perspectives including evolutionary, interactional and systems. 1 Credit

PS8522 Directed Readings in Psychological Science
This course involves meetings between a student and a faculty member to discuss readings related to a topic of mutual interest. 1 Credit

PS8701 Advanced Seminar in Clinical Psychology
This course will be offered from time to time, with the specific topic varying from year to year depending on the instructor and student interests (e.g., psychotic disorders; personality assessment; interpersonal psychotherapy, etc.). 1 Credit

PS8703 Anxiety Disorders
This course introduces students to issues related to psychopathology, assessment, and treatment of anxiety disorders. Examples of covered topics include epidemiology, theoretical perspectives, etiology, biological factors, psychological factors, and evidence-based treatments. 1 Credit

PS8704 Behavioural Disorders in Children
This course will be an intensive survey of the literature dealing with social, emotional, and behavioural disorders in children and adolescents. Current theory and research and their implications for clinical practice will be examined. In addition, theoretical and methodological advances related to research on risk and protective factors and their influence on issues such as early school dropout, juvenile delinquency, substance abuse, and adolescent suicide, will be critically examined. 1 Credit

PS8705 Clinical Neuropsychology
This course is an overview of current knowledge relevant to clinical neuropsychology and the fundamental principles of neuropsychological assessment. From a single-case study design approach, information from variety of sources, such as observable signs, interviewing, histories and neuropsychological tests will be used to detect and evaluate cerebral dysfunction. Focus will be on the nature of different types of disorders, the symptoms that emerge from brain damage and procedures used to assess these symptoms. Prerequisites: Introduction to Psychological Assessment. 1 Credit

PS8706 Clinical Psychopharmacology
This course focuses on current practices regarding pharmacotherapy for forms of psychopathology. Following review of essential principles of psychopharmacology, the clinical application of major classes of drugs to treat mental illness will be covered (e.g., anxiolytics, antipsychotics, antidepressants, etc.). The mechanisms of action and scientific evidence, along with historical and philosophical backgrounds, supporting use of these drugs will be discussed. The course will also touch on aspects of drug interactions, child/adolescent treatment, and appreciation of the broader role neurochemistry plays in daily thought and behaviour. 1 Credit

PS8707 Cognition and Psychopathology
An overview of issues and findings related to cognitive abilities associated with major forms of mental illness. Four broad areas will be discussed: 1) theory, approach, and main findings regarding use of neuropsychological and cognitive-science paradigms in studying psychological disorders; 2) issues and solutions regarding identification of differential cognitive deficits in psychopathology; 3) the interplay of cognition with psychological symptoms and daily functioning; 4) longitudinal factors (premorbid risk, profiles across time). 1 Credit

PS8708 Eating Disorders
An overview of eating disorders including anorexia nervosa, bulimia nervosa, and eating disorders not otherwise specified. Topics to be covered include: biological bases of disordered eating; historical trends in prevalence of eating pathology; cognitive disturbances associated with eating disorders; and causes, correlates, and outcomes of eating pathology as well as the complexity and controversy surrounding these conceptualizations. 1 Credit

PS9201 Professional Issues and Ethics in Psychological Science
An overview of topics related to professional development, including finding a job or post-doctoral fellowship, grantsmanship, research ethics, professional affiliations and accreditations, and managing a research program. Advantages and disadvantages of career opportunities in both academia and industry will be explored. This course is required in the second year for all doctoral students in psychological science field. 1 Credit

PS9202 Practicum in Psychological Science II
Transcending the conventional boundaries of lab-based psychological research, this external practicum is meant to provide students with an opportunity to engage in applied or translational research that has specific real-world aims. Students are encouraged to apply for practicum placements in the Fall of the second year from an approved list of supervisors and sites, which may include experiences in such areas as cognitive ergonomics and human factors, community and health psychology, psychology and law, and program evaluation. Placements will normally take place over the Winter or Summer term of the second year, and must involve a minimum of 120 hours. Prerequisites: Statistics and Research Design I/II, and Applied and Translational Research Methods. Pass/Fail. 1 Credit

PS9301 Professional Issues in Clinical Psychology I
Discussion of ethical issues in clinical psychology research and practice, jurisprudence and legal issues in clinical psychology, and the role of cultural diversity in psychopathology, assessment, and treatment. Diversity issues that are covered include issues related to cultural diversity, physical disability, and sexual orientation. This course is required first or second year of Ph.D. training. 1 Credit

PS9302 Professional Issues in Clinical Psychology II
An overview of topics related to professional development, including applying for internship, finding a job or postdoctoral fellowship in clinical psychology, becoming registered in the province of Ontario, private practice, clinical supervision, consultation, program development and evaluation, and developing relevant business skills. This course is required first or second year of Ph.D. training. 1 Credit

PS9303 Practicum in Clinical Psychology III
Advanced practicum training in clinical assessment and intervention under the close supervision of one or more registered clinical psychologists in a community setting. This course is required of all graduate students in the clinical psychology Ph.D. program and is normally taken during the first or second year of Ph.D. training, either during the summer or during the school year. The minimum duration is 350 hours. Students are encouraged to apply for practicum placements in the Fall before starting the placement from an approved list of supervisors and sites. Prerequisites: Completion of Practicum in Clinical Psychology I and II. Pass/Fail. 1 Credit

PUBLIC POLICY AND ADMINISTRATION

CURRICULUM

Master of Arts

First Offered Fall 2005

DEGREE REQUIREMENTS		*Credits*
PA8100	Public Admin & Governance	1
PA8101	Approaches, Anal & Challenges	1
PA8102	The State & the Economy	1
PA8103	Research Methods	1
Two elective credits		2
AND one of the following Options:		
	THESIS Option:	
Master's Thesis		
	Major Research Project Option:	
Master's Research Project		
Two elective credits		2
	COURSE Option:	
Four Elective credits		4

ELECTIVES

PA8200	Bureaucracy & Organization	1
PA8201	Citizen Oriented Gov & Globlzn	1
PA8202	Comparative Public Policy	1
PA8203	Comparative Public Admin	1
PA8204	Intergovernmental Relations	1
PA8205	Prov Gov & Politics in Ont	1
PA8206	Urban Governance	1
PA8207	Public Sector Financial Mgmt	1
PA8208	Public Sect Union-Mgmt Relatns	1
PA8209	Public Sect: Chng Boundaries	1
PA8210	Public Serv: Diversity & Equity	1
PA8211	Selected Topics: Public Admin	1
PA8212	Directed Studies: Public Admin	1
PA8213	Field Placement	1

COURSE LISTING

Master's Thesis
In the thesis option, students conduct an advanced examination of a topic in public policy or public administration. Students propose and carry out the research under the direction of a faculty supervisor and a thesis supervisory committee. On completion, the research is submitted in a thesis format to the supervisor and defended by the student before a thesis examining committee. This is a "Milestone." Pass/Fail

Master's Research Project
The research project option is intended for students following a professional career path in public policy or public administration. In the project, students propose and carry out research or applied work related to an issue or problem they are interested in studying. The project is conducted under the direction of a faculty supervisor and a project supervisory committee. The research project is submitted in a written report to the faculty supervisor and is evaluated by a project examining committee. This is a "Milestone." Pass/Fail

PA8100 Public Administration & Governance
This course focuses on the principles, organizational features and decision making processes of Canadian public administration in the broader context of shared governance, public sector reform and globalization. The course covers the relationship between the political and administrative institutions and actors of government; the role of public administration in a diverse democracy; the role of values and ethics in public administration; and the structures and processes of

accountability for governance and public sector management. The course also introduces the enduring and current challenges facing public sector organisations and public administrators in Canada. 1 Credit

PA8101 Approaches, Analysis & Challenges
This course focuses on current challenges in public policy. It situates contemporary Canadian public policy in the environment in which it is lived and developed: first by examining the contemporary context of policy making (its key ideas, institutions and interests); secondly by introducing some of the theoretical and methodological underpinnings and tools of policy analysis and lastly by examining contemporary challenges faced by policy makers and advocates (e.g. policy capacity and autonomy, intergovernmental and democratic challenges, challenges related to scale: global/national/regional/local, and challenges related to diversity) by using a problem-based approach. 1 Credit

PA8102 The State & the Economy
This course examines the changing nature of Canadian public finance and state-economy relations within the context of globalization. Emphasis will be placed on the shifting role of government in the economy, on the challenges of public financing in an era of fiscal crisis and tax restraint, and on the application of economic models in policy formulation. The role of the state within market society in providing public goods, in particular the balance struck between social policy and economic development, will be given special attention with a focus on macro level economic policy analysis. Topics include: the structural context in which state budgeting occurs, the role of federalism and global institutions such as NAFTA and WTO in shaping the limits of Canadian public finance, and new economic models and their impact on public policy. 1 Credit

PA8103 Research Methods
This course provides students with an understanding of the range of research methods applicable to public policy and administration, encourages them to think critically about research methods and approaches, and assists them in developing concrete research strategies. The topics covered include research design, quantitative and qualitative modes of inquiry, measurement, statistical analysis, survey research, content analysis, field research, archival and documentation research, the case study approach, and historical and comparative research. The course examines these various methods and statistical techniques in the context of how they are used in public policy and public administration. 1 Credit

PA8200 Bureaucracy and Organization
This course surveys different theoretical approaches to organization and bureaucracy in advanced industrial societies. While this course surveys the major theoretical contributions to the field of organization theory and covers the classics in the public administration literature, it also examines a number of areas about which traditional approaches have been relatively silent, especially organization theories having to do with race, gender and class. It examines the relationships between the processes of bureaucratization, industrial and economic change and the evolution of democracy. A major focus of the course is on the exercise of power, control and accountability in bureaucratic organizations.
1 Credit

PA8201 Citizen Oriented Governance & Globalization
This course examines contemporary struggles for democratization at a variety of scales in light of the historical struggles and debates of the last half of the 20th century. Topics include: the political economy of welfare states, including the achievements, limits, and struggles for social citizenship and political inclusion; the political economy of “development” and citizenship in the global South; Aboriginal struggles for sovereignty; alternative traditions of governance and the challenge to liberal notions of citizenship; contractions in democracy and citizenship under neoliberalism; emerging institutions and practices of “global governance” and globalized struggles for democratization; the crisis of legitimacy and new experiments in citizen-oriented governance in liberal representative democracies including citizen-centred public sector reforms, e-governance and global movements to include “stakeholders” in policy and public administration. 1 Credit

PA8202 Comparative Public Policy
Comparative public policy is the study of how, why and to what effect different governments pursue particular courses of action or inaction. In the context of globalization, this course discusses some of the major theoretical and methodological approaches in the comparative study of public policy. It focuses on Canada in comparative perspective and examines how different perspectives explain the divergence or convergence of public policy responses to common social, political, economic and environmental issues and the challenges posed by a diverse citizenship. The course examines the changing role of the state in comparative perspective and the factors that account for differences in policy choices among states. 1 Credit

PA8203 Comparative Public Administration
Comparative public administration is the study of how, why and to what effect governments select certain instruments and organizational arrangements to implement policy decisions. These decisions have put public administration at the core of evolving neoliberal definitions of good governance and have resulted in a growing literature on comparative public administration. This course focuses on the varying impact of globalization on developed and developing countries, public sector reform in comparative context, emerging supra-national and global bureaucracies, and the role of international organizations in public administration and public sector reform. 1 Credit

PA8204 Intergovernmental Relations
This course examines the division of political and administrative power and the nature of relations between governments which result from Canadian federalism, including federal-provincial-municipal or "tri-level" relations. Specific topics will include the role of the courts in constitutional interpretations, the instruments of "fiscal federalism” (including equalization payments, conditional grants, tax sharing arrangements and shared cost programs), regional, cultural and linguistic

differences, administrative relationships, the intergovernmental challenge of Aboriginal self-government and the concept of "executive federalism". Finally, an investigation of intergovernmental policy capacity will provide an opportunity for a more intensive examination of the impact of intergovernmental relations on public policy and administration in Canada. 1 Credit

PA8205 Provincial Government & Politics in Ontario
This course examines the recent dramatic changes in Ontario politics. It evaluates both the historical and contemporary development of the government of Ontario, and the economic, social and political features which have shaped the evolution of this province and influenced its governance. The course looks at ideological, economic, social and political factors. Attention is devoted to: the political economy and political culture of Ontario; the determinants and structures of policy making and public administration; public policy fields and processes; the interactions and roles of government institutions including the premier, the cabinet, the legislature and the bureaucracy; the place of interest groups and social movements; mass media; elections; and specific policy issues. A comparative approach to other Canadian provinces will also be employed throughout the course. 1 Credit

PA8206 Urban Governance
Decisions affecting citizens in their daily lives are increasingly being made both at the level of global organizations and at the level of local organizations. Through the lens of contemporary urban policy issues and the Greater Toronto Area, this course examines the phenomenon dubbed “glocalization” and explores the role of urban governance and urban citizenship in addressing a selection of problems facing modern urban areas. The interplay of institutions, interests and ideas in shaping urban policy will be of particular concern. Topics to be examined include: municipal government restructuring, intergovernmental and third-sector relations, municipal finance, urban form, sustainable urban development, civic participation and social inclusion in cities. 1 Credit

PA8207 Public Sector Financial Management
This course examines public sector budgeting: the raising of revenue, the allocation of expenditures and the evaluation of the efficiency and effectiveness of spending. A central theme of the course is the “politics” of the budgetary process. This includes the process of making budgetary decisions within government, the role of public sector organizations and interest groups in the budgetary process, and how government evaluates its direct spending and monies allocated to fund programs and services delivered by hospitals, schools and other public sector institutions through program evaluation, performance management, auditing and public reporting. The course will focus on what the study of public sector budgeting reveals about changes in the scope and nature of government responsibility and the potential for both greater public participation in the budgetary process and improved accountability. 1 Credit

PA8208 Public Sector Union-Management Relations
Public administration is conducted in a highly unionized environment. Public policies and services, therefore, are significantly affected by union-management relations. This course explores current issues and trends in public sector union-management relations. Particular emphasis is placed on the state's dual role as law-maker and employer, and whether this is compatible with labour rights, diversity and equity, and the public interest. Topics explored include: the rise of public sector unionism, current public sector labour relations legislation, employment restructuring in the public service, and public sector union resistance to government policy. Another major theme of the course will involve an analysis of the changing nature of work, focusing on how new information technologies and public sector reform have affected the distribution of power and control in the workplace with a focus on recent organizational changes in the public sector. 1 Credit

PA8209 The Changing Boundaries of the Public Sector
This course offers an in-depth examination of one of the most significant developments in public administration since the advent of the post-war welfare state - the restructuring of relationships between the state, civil society and the market under Alternative Service Delivery (ASD) and public-private partnerships. Informed largely by the insights of the reinventing government perspective within public administration, ASD and partnership models are portrayed as more effective and efficient approaches to the production and delivery of public goods and services. Moreover, as ASD makes claims to a more ‘front-line’ and ‘community-based’ delivery structure, it is characterized as more client-centred and responsive in comparison to traditional public sector organizations. Through a detailed analysis of the issues, questions and problems raised by these changing boundaries, these assumptions will be analyzed and critiqued. Topics covered include: the New Public Management and the role of managerialism in restructuring service delivery; the anatomy of partnership models; partnership and the emerging role of the third sector; partnership and the remaking of social policy governance; managing public private partnerships; and the implications of partnerships for democracy, citizenship, and accountability. 1 Credit

PA8210 Diversity & Equity in the Public Service
Diversity and equity are important features of public policy and are central to the debate about the renewal of the public service in Canada. An increasing concern with human rights, significant demographic developments, and a citizenry conscious of both the democratic deficit and the need for a representative public service workforce, call into question the values and ethos of public service in Canada. The broader public sector has an opportunity now to make up ground in the representation of historically disadvantaged groups in ways that will help to create an exemplary workplace. The imperative to renew and rejuvenate the public service is matched with the reality of a labour market that is increasingly diverse. The Charter of Rights and Freedoms, the Multiculturalism Act, the federal Human Rights Act and provincial Human Rights Codes have embedded in them a core set of rights, values and responsibilities. Part of the challenge in a democratic society like Canada is navigating between competing rights, claims and values. In this course specific emphasis is devoted to the following policy fields: immigration policy, multiculturalism, native self-government, human rights, employment equity, gender relations and language rights. 1 Credit

PA8211 Selected Topics
This course focuses on selected topics in public policy and public administration. The content may vary from year to year. Through an examination of one or more policy areas this course will focus on an analysis of the political, legal, social, economic, and administrative complexities of various public policies and their implementation. 1 Credit

PA8212 Directed Studies
This course is designed for individual students with specialized interests that may not be satisfied through course offerings in a given year. It will normally be a directed reading course under the direct supervision of an assigned faculty member with expertise in the chosen subject field. It is also designed for students wishing to pursue research on a policy or public administration topic where there are no related course offerings in the program. Individual directed study of subject areas in public policy and administration not addressed in the current curriculum will be carried out under the supervision of a faculty member. A program of supervised, advanced study related to the student's area of concentration will be negotiated on an individual basis with the supervising faculty member. The directed study course is normally intended for students in the final semesters of study. 1 Credit

PA8213 Field Placement
Field Placements provide a mechanism for students to earn academic credit for relevant work experience (paid or unpaid), normally outside the university. Field Placements must be related to public policy and administration and to the student's learning objectives in the program. Field Placements offer students the opportunity to link theory with practice, to conduct empirical research, to learn about professional practices in organizations in the field of public policy and administration, and to gain appropriate work experience. Pass/Fail. 1 Credit

SOCIAL WORK

CURRICULUM

Master of Social Work

First Offered Fall 2007

DEGREE REQUIREMENTS

Major Research Paper		
SK8101	Criticl Persp on Marginalizatn	1
SK8102	AOP Respons: Policy, Practice	1
SK8103	Research for Social Change	1
SK8104	Practice Research Seminar	1
SK8105	Field Practicum	1
2 credits from elective list		2

ELECTIVES

SK8201	Critical Appro Commun Work	1
SK8202	Critc Perspec on Child Welfare	1
SK8203	The Settlemnt Experiencs in CA	1
SK8204	AOP in Health	1
SK8205	Critcl Perspecs on Anti-Racism	1
SK8206	AOP: Sexuality and Gender	1
SK8207	Critical Social Policy	1
SK8208	Indigen Knowldge in Social Wrk	1
SK8209	Aboriginal SW Pract and Resrch	1
SK8210	International Social Work	1
SK8211	Directed Studies	1

Note: students may substitute a relevant course from another graduate program in place of one elective, with the permission of the Program Director.

COURSE LISTING

Major Research Paper
The major research paper provides the students the opportunity to engage in original research. The students engage in critical analysis and knowledge development with respect to social work practice. The paper should include sections on research design, methodology and theoretical development. Findings should apply to both social work practice and future graduate research. Students will be supervised by a professor and papers are to be reviewed by a second reader. This is a “Milestone”. Pass/Fail

SK8101 Critical Perspectives on Marginalization
This course explores social marginalization, both as a descriptive concept and as a set of multidimensional explanatory processes. The course aims to produce a complex understanding of the various forms that marginalisation has assumed at different times, and of how marginalization has been expressed in relation to particular groups in society. The aim of the course is to develop an analysis which fosters and encourages practical strategies of social work and political interventions. Corequisite SK8102. 1 Credit

SK8102 Anti-oppression Responses to Marginalization
This course, taken concurrently with SK8010, theorizes historical developments and examines contemporary contexts of globalization. A wide range of anti-oppression social work strategies for responding to marginalisation is explored. The course examines the intricate and layered processes of oppression so that each person takes responsible action. Emphasis will be placed on critical analyses of anti oppression theories and practices. Students will also have opportunities to strengthen their self-reflexivity in terms of their own social location and their previous social work practice. Corequisite SK8101. 1 Credit

SK8103 Advanced Research for Social Change
This course is focussed on advanced research methods so that students are prepared to design and engage in original research. This course provides knowledge and skills to conduct research from a critical and interpretive perspective. Students will also have opportunities to understand the contributory role of research in any anti-oppression response to marginalization and in the development of inclusive practices. 1 Credit

SK8104 Practice Research Seminar
In the seminar and practice, students draw upon experience, theory and research in order to advance social work thought and/or develop theory focused practice responses. The seminar engages students in research that advances the knowledge base of anti oppression practice. The professor leads the seminar focused on applied research and theory. Knowledge development is guided by principles of promoting equity and social justice. 1 Credit

SK8105 Field Practicum
Students focus on the synthesis and application of advance anti- oppression social work practice knowledge. The student is expected to apply knowledge gained from practice, theory and research in their advanced practice role within practicum. Students are placed in field placement settings to experience and learn about advanced practice. Student field placements are congruent with the mission of the school and the field of study of the graduate program. 2 Credits

SK8201 Critical Approaches to Advanced Community Work
This course provides students with a critical understanding of different models and trends of community work in Canada. The course critically analyzes issues that impact marginalized communities in the current political context of social work practice. Through discussions with practitioners and academics, students learn about strategies for building counter power of communities to achieve social change. 1 Credit

SK8202 Critcal Perspectives on Child Welfare
This course critically explores the different aspects that have influenced the relationship between the State and the family through the child welfare systems in Canada. Particular attention will be placed into the overrepresentation of marginalized populations such as racialized, aboriginal, and single mothers within the child welfare system. Discourses of risk, motherhood, and other elements that are relevant to social work interventions will be discussed. Alternative child welfare practices will be also explored. 1 Credit

SK8203 The Settlement Experience in Canada
This course examines the experience of immigrants who have settled in Canada, their integration into Canadian society, and their social processes of marginalisation and exclusion in those experiences. This course considers the lived experiences of immigrants and the practical interventions that may interact with, reproduce or challenge processes of social exclusion. Equitable and anti-oppression approaches to service provision and community development with refugees and immigrants, including social movement and immigrant-based services are explored in-depth. 1 Credit

SK8204 Advanced Anti-Oppression Practice in Health
This course critically explores frameworks used to understand health and its determinants, and to link these to clinical, community, and policy arenas of social work practice. This course examines the different ways that health is conceptualized and implications of each for social work's role. 1 Credit

SK8205 Critcal Perspectives on Anti-Racism
This course examines the critical anti-racism perspective as a necessary tool to challenge and dismantle oppressive social relations. The interconnections between social work research, policy, and practice from a critical anti-racism perspective is explored for the purpose of discovering avenues of social change possibilities that challenge the current status quo. 1 Credit

SK8206 Advanced Anti-Oppression Practice in Sexuality and Gender Variance
This course explores current theories and research concerning sexual diversity and gender variance. The focus is on critical examination of the role of social movements, queer and TS/TG theories, community organizations, and social work practices. Students develop advanced skills in critically reflecting upon various social work practices. 1 Credit

SK8207 Critical Social Policy
This course explores historical and current social policy formation within the framework of critical analyses of processes of marginalization, resistance, and state intervention. In addition to gaining a strong grounding in critical social policy literature, students also have opportunities to learn techniques for policy research, policy analysis and program development. 1 Credit

SK8208 Indigenous Knowledge in Social Work
This course explores Indigenous and marginalized knowledge forms in a global context in relation to the area of social work and its implications for social justice and transformative change. It includes a critique of what constitutes "valid" knowledge, helping practices and research methodologies. Questions regarding power, difference, identity, representation and spirituality is emphasized. 1 Credit

SK8209 Regenerating Aboriginal Social Work Practices and Research
This course provides an overview of Aboriginal approaches to social work practices and research. The course draws upon contemporary Aboriginal social work literature to critically reflect on the nature of Aboriginal approaches. The worldview, helping practices and contextual considerations of Aboriginal persons will be considered. 1 Credit

SK8210 International Social Work
The course focusses upon the impact of globalization, post-colonialism and financial policies adopted by international organizations on the process of development in the countries of the 'South.' The course will critically analyze the social work response to these developments and explore the roles and scope of social work in addressing issues such as poverty, gender inequality and transnational relations. 1 Credit

SK8211 Directed Studies
Students arranges to work with an individual faculty member on a course designed to pursue readings in a specific area that is relevant to social work and/or anti-oppressive practice work with marginalized persons and communities. 1 Credit

SPATIAL ANALYSIS

CURRICULUM

Master of Spatial Analysis

DEGREE REQUIREMENTS		*Credits*
Research Paper		
SA8902	Database Mgmt and Spat Tech	1
SA8903	Anal Methods and Spatial Data	1
SA8904	GIS Project Mgmt Applications	1
SA8905	Digital Cartography	1
*SA8991	Practicum	1
Two elective credits		
ELECTIVES		
SA8901	Spat Databases/Models/Struc	1
SA8906	Spec Topics: Spatial Analysis	1
SA8907	Health in Urban Environments	1
Business/Commercial Stream		
SA8911	Geodemographics	1
SA8912	Spatial Tech. in Strat Planning	1
Physical/Landscape Stream		
SA8921	Spatial Anal of Land Resources	1
SA8922	Remote Sensing and Spatl Data	1
SA8923	Land/Geographic Info Systems	1
SA8924	Sedimentation/Fluvial Geomorph	1
SA8925	Advanced Hydrology & Water Quality	1

* The Practicum (SA8991) will be waived for part-time students who are in program-related employment.

COURSE LISTING

All “SA” courses have University of Toronto course numbers indicated in brackets following the Ryerson University codes.

Research Paper (MSA1100)
The research paper requires the student to investigate independently a particular issue or application in his/her field of interest. The research paper may emanate from class work, from work associated with research funding, and/or the practicum experience. Pass/Fail.

SA8901 (MSA9010) Spatial Databases, Models and Structures
This course focuses on the statistical nature of geographical databases; their information content, reliability, usability and closeness to (what we think to be) true. Lecture and seminar formats are used with significant amount of reading and discussion. Familiarity with basic statistics, GIS and S-PLUS (or some other statistical software) is a definite advantage, because each student will complete several small assignments and a research project. 1 Credit

SA8902 (MSA9020) Database Mgt./Spatial Technologies
This course examines Geographic Information Science (GIScience) concepts and practice in real-world applications. Geospatial analysis, database management, statistical analysis, and data integration are the major course themes. Arc/Info (including GRID) and ArcView will be the principal Geographic Information System (GIS) software packages that are utilized. There will also be some emphasis on the PCI Geomatics software products. The integration of GIS functionality in the WWW will also be investigated. 1 Credit

SA8903 (MSA9030) Analytical Methods and Spatial Data
This course uses a case study approach to explore the use of various types of spatial statistical analysis. It involves the application and critical assessment of the use of selected univariate and multivariate modelling approaches in the analysis of spatial distributed data. 1 Credit

SA8904 (MSA9040) GIS Project Management Applications
This course involves team case study analysis of the strategic and operational use of various digital technologies in selected workplace situations, including an exploration of the sociological implications and concerns of such technologies.

The format of the course will involve site evaluations, corporate presentations, student case assessments, seminars and lectures. The first half of the course will focus on the current and potential use of GIS and related spatial technologies in three distinct corporate environments – a financial institution, a fast-food retailer, and a major media corporation). The second part of the course will examine selected conceptual and theoretical issues that relate to the application of GIS in both the private and public sector environments. 1 Credit

SA8905 (MSA9050) Digital Cartography
The design and production of maps using GIS/cartographic software and graphics/publishing software. The lecture portion of the course focuses on questions of map perception and map use, principles and elements of cartographic design, different types of data representation and the graphic choices controlling their success, and the production and reproduction of maps in various media. Concurrent with the lectures a series of 2-hour labs give students hands-on experience with the software and hardware in the department GIS lab. ArcInfo and Arcview are used for map production and Coreldraw is used to refine graphic output. Antirequisite: GGR1913H (University of Toronto). 1 Credit

SA8907 (JPG1421) Health in Urban Environments
This course explores ways of theorizing, evaluating, and improving health in urban areas. Through readings, group discussion, and individual and group inquiry, students will examine the key mechanisms by which urban environments (broadly defined) impact on the people
living in them, and how - and to what extent - urban residents can in turn alter their environments to facilitate health. While this course is grounded in the practice-oriented discourses of urban planning and health promotion, a critical awareness of, and debate about, the strengths and limitations of various approaches to promoting and maintaining the health of urban residents in both developed and developing countries will be encouraged. 1 Credit

SA8911 (MSA9110) Geodemographics
This course surveys practical, conceptual, and methodological issues associated with the application of spatial techniques to marketing and segmentation. Stress is given to the use of a range of socioeconomic and demographic data variables. Methods include a variety of multivariate techniques for market definition and segmentation, focusing on the application of cluster analysis. The course also addresses the management issues associated with the use of geodemographics and associated spatial analysis within the commercial environment. 1 Credit

SA8912 (MSA9120) Spatial Tech. in Strategic Planning
The course examines the application of spatial technologies, particularly GIS, to strategic planning issues that affect the commercial sector of the economy. The focus is on analysis of retail and service activities from the perspective of both the private and public sector policy makers. Specific issues include: spatial impact analyses, use of GIS as a corporate management system, retail and services network planning, and location-allocation modeling. The course will adopt a variety of presentation formats including lectures, seminars and site visits to retail/commercial companies that use spatial technologies in a corporate planning context. 1 Credit

SA8921 (MSA9210) Spatial Analysis of Land Resources
Simple approaches to modelling the energy transfer and evaporation from individual types of surfaces are explored, and comparisons with field data are made. The problem of transfer between adjacent surfaces is also examined to introduce the multiple surface problem in environmental modelling. Although use of existing models will be made, it is helpful to know a computer language. Antirequisite: GGR1921H (University of Toronto) 1 Credit

SA8922 (MSA9220) Remote Sensing and Spatial Data
Advanced image processing, theory and applications of spatial resolution effects on classification monitoring and interpretation of landscapes. From field spectrometric data to simulated images. Antirequisite: GGR1911H (University of Toronto) 1 Credit

SA8923 (MSA9230) Land/Geographic Information Systems
The course concentrates on using geographical information systems (GIS) technology for environmental spatial problem solving. The Geographical Resources Analysis Software System (GRASS) is used extensively. Hands-on assignments are the emphasis in this course. In addition to essential fundamental concepts of GIS, topics that will be covered include spatial interpolation, logic of spatial analysis, line-of-sight analysis, cartographic modeling, landscape analysis, route selection, and site selection. 1 Credit

SA8924 (MSA9212) Sedimentation and Fluvial Geomorphology
Elements of drainage basin morphology and hydrology, classification of rivers, stream patterns, and hydraulic geometry. Elements of open channel flow, sediment transport, channel change mechanisms and human impacts on river development. 1 Credit

SA8925 (MSA9214) Advanced Hydrology and Water Quality
This course will take a hydraulic perspective in examining the landscape controls on surface water quality. We will consider how the study of surface water and ground water hydrology leads to an understanding of stream water chemistry through the examination of hydrological flowpaths and the chemical interaction of water and the matrix/matrices through which it flows. An advanced understanding of hydrological processes will be emphasized. Pertinent field and laboratory techniques will be introduced. 1 Credit

SA8991 (MSA4444) Practicum
The practicum is designed to be an unpaid field placement to provide students with an understanding of the types of problems, policies, and issues that are (or should be) addressed utilizing spatial analysis in specific public or private

sector situations. The placement will be arranged by the Program Director in discussion with the student. While students may present suggestions for placements to the Program Director, they cannot arrange their practicum independently. Pass/Fail. 1 Credit