Sustainability related course calendar: Listed below are sustainability courses and courses that include sustainability from Dalhousie University's 2019/2020 academic timetable, following the
in STARS 2.2. Sustainability-focused courses are courses in which the primary and explicit focus is on sustainability as an integrated concept having social, economic, and environmental dimensi
include sustainability have a primary focus other than sustainability but incorporate a unit or module about sustainability, or weave sustainability content into the course. The courses listed bel
from the 2019/2020 academic timetable, which lists all courses being offered in the current academic year for undergraduate and graduate students.

Course Title	Department	Faculty	SDG	Credit Hours	Sections per Term	UG or G	Instructor	Sust-focused (SF) or Sust-inclusive (SI)
AGRI 1000 Agricultural Ecosystems (A)	Agriculture	Agriculture	This course is an introduction to agriculture and food systems. The principles of agricultural production as studied in the disciplines of animal science, plant science, agricultural engineering, and soil science will be integrated to give a comprehensive view of agricultural ecosystems. Course work will include lectures, laboratories, problem-solving exercises, and small-group work. The course will expose students to issues and raise questions to be considered during the remainder of their undergraduate careers. The goals of this course are to provide students with knowledge of the application of science to agriculture, and to assist students to understand the integrated nature of agriculture and food systems in both regional and global contexts. Associated course goals are to develop communication and independent learning skills and the ability to function effectively in team situations, and to stimulate students to think critically, logically, and quantitatively while respecting the values and ideas of others.	3		UG		SF
AGRI 2000 Transition to Organic Agriculture (A)	Agriculture	Agriculture	This course is recommended for students looking for a general introduction to organic agriculture. The course consists of five stand-alone modules: Why organic?, Organic Certification, Planning the Farm System, Transition to Organic Crop Production, and Transition to Organic Livestock Production. Throughout the course students will be encouraged to participate in discussion groups and use the organic information resources currently available over the Internet.	3		UG		SF

AGRI 4001 Agriculture, Food and Well-being (A & H)	Agriculture	Agriculture	This case-based course investigates local, regional, and global issues related to agriculture, food, and well-being. Learners will work together to develop practical solutions for real life cases thus enhancing their understanding of global economic and politicial forces shaping agriculture. This course will help students enhance their critical thinking skills and systems analysis capacity. Students will explore how agriculture and food are related to, interconnected with or impacted by people, the land and environment, and ultimately social/economic well-being. The course is team taught with faculty from the following disciplines: animal science, plant science, environment science, engineering, food science and social sciences. Industry leaders also are involved as mentors.	3	3	UG	Kevany K.	SI
AGRI 5250 Soil Microbiology	Agriculture	Agriculture	This course is designed to provide an intensive study of the microbiology of soils and will emphasize nutrient cycling and biodegradation. Topics covered include the relationships between the abiotic and biotic components of soils; the microbial biochemistry of the carbon, nitrogen, sulphur, phosphorus, and selected micronutrient cycles; heavy metal cycling; and the microbial degradation of industrial wastes and pesticides. The laboratory classes will concentrate on techniques to monitor the microbial biomass in soil and the microbial components of nutrient cycles. These include new advances in bacterial taxonomy and identification, and the use of gas chromatography and high-performance liquid chromatography in quantitating nutrient cycling. In addition to a major term paper, a comprehensive laboratory report on the entire term's lab work, and a single take-home examination, graduate students will be required to: modify the term give a seminar to the class on their term paper topic paper into a critical review of some aspect of soil microbiology, chosen in consultation with the instructor (the review must be current and in depth; it must be written in manuscript format and will be graded accordingly) perform additional laboratory exercises not assigned to undergraduate students, use more replicates, perform a full statistical analysis of data, and provide a report in manuscript format	3		G		SI

AGRI 5650 Applied Weed Science	Agriculture	Agriculture	This is a lecture and laboratory based course designed to introduce students to the advanced principles of weed science and vegetation management. The course will build upon the foundation created in BIOA3002 and is designed to provide students with the knowledge and skills critical for competency and knowledge generation in the field of weed science. Emphasis will be placed on crop-weed competition, managing weeds in annual and perennial cropping systems, determining the fate of herbicides in plants and soils, knowledge of herbicide mode of action and injury symptomology, examination of herbicide application technology, approaches to trouble shooting when field scouting, and management of aquatic weed species.	3		G	White S.	SI
AGRI 5661 MICROBIOMES IN AGRICULTURE	Agriculture	Agriculture	This course is to provide students with an understanding of diversity and function of microbial communities in soil, water and food. The students will be introduced to various concepts of plant- and animal- microbiome and the role microbial populations in host health and fitness. Application of microbiomes in food industry will be discussed. The theory of metagenomics approaches to culture independent microbial community profiling will be discussed. The students will work on analysis of current publications on the subject and develop research project on the evaluations of microbial communities in environmental niches	3		G	Yurgel S.	SI
AGRI 5770 Mathematical Modelling for Biosystems	Agriculture	Agriculture	Mathematical modelling of biosystems, including deterministic and probabilistic models used n soils research, water management, plant and animal science and food production will be covered. Relationships between empirical/experimental data, suggested prediction models, solving and validating mathematical models will be included, using modelling techniques of relevance to the life sciences and engineering.	3		G		SI

AGRI 5780 Agriculture, Food and Well-being	Agriculture	Agriculture	This course develops learners' understanding and skills in criticality, synthesizing, and systems thinking through the examination of local and global issues in agriculture, food, and well-being. The intersections of agricultural systems and policies, animal and plant science, food production and processing, etc., and the social sciences are investigated to obtain a deeper understanding of systems that support agriculture, food, and well-being.	3		G	Kevany K.	SF
AGRN 2000 Organic Field Crop Management (A) DE	Agronomy	Agriculture	This course will introduce students to organic principles and practices applied to the production and management of field crops. The criteria for optimum yield and quality of field crops are presented within the context of organic farming principles, sustainable soil and nutrient management, and the requirements for organic certification. Five stand-alone modules provide a framework for study:*Soil and Field Management Practices: methods used in organic farming to build and maintain soil fertility, preserve soil structure, conserve and recycle nutrients, reduce weed pressure, and reduce outbreaks of pest and disease;*Nutrient Management Planning: how to optimize the efficiency of nutrient cycling, improve resource utilization, and minimize nutrient loss on the farm;*Forages: organic methods of production for pasture, hay, silage, cover crops, or green manure;*Row Crops: organic methods of production of cereal row crops (corn, sorghum), root crops (carrots, potatoes), seed legumes (soybean, peas, beans), and others (e.g., hemp); and *Small Grains and Oilseeds: organic methods of production of winter-seeded grains (winter wheat, winter rye), spring-seeded grains (spring wheat, oats, and barley), oilseeds (canola, flax), and others	3	2	UG	Jans D.	SF
AGRN 2001 Cereal-Based Cropping Systems (A)	Agronomy	Agriculture	This course takes a systems approach to the study of crop and soil management in rotations involving the growing of the principal cereals, oilseeds, pulses, and other grains, and their relationship to other crops in a rotation. Through a whole-farm approach over time, it studies environmentally and economically sustainable methods for grain cash crops and grain-based animal feed production. It stresses soil and water conservation and an understanding of the principles and processes of the nutrient cycles, which are critical to improving the food production environment. Students will gain knowledge of grains as they relate to people and the environment, from soil to shelf, both in a Maritime temperate climate and in an international context.	3		UG		SI

AGRN 2002 Forages and Cover Crops (A)	Agronomy	Agriculture	This course deals with the production and use of forages and cover crops in Atlantic Canada. The course examines the importance of forages and cover crops in agriculture and the environment. Individual species, as well as combinations of different species, will be highlighted. Other topics include forage crop establishment, management, growth physiology, winter survival, feed quality, use (pasture, hay and silage), soil fertility, and weed control. An introduction to cover crops includes benefits, types, selection and management.	3		UG	McLean N.	SI
ANSC 0020 Dairy Industry I	Animal Science	Agriculture	Students participate in an examination of the structure of the dairy industry and of the supply management system in which dairy farms operate. They will also be required to identify current issues facing the industry and to examine their potential impact on sustainability and opportunities in the Atlantic Canadian industry. CALENDAR NOTES: Fall semester – This is a Workplace Readiness course required for the Dairy Farming option in the Diploma in Business Management.	0		UG		SI
ANSC 0021 Dairy Industry II	Animal Science	Agriculture	A continuation of the topics in ANSC 0020. Students extend their examination of the issues facing the dairy industry in a series of lectures presented by speakers from a variety of fields.	0		UG		SI
ANSC 0206 Managing Dairy Milking Systems and Housing Facilities	Animal Science	Agriculture	Students examine in detail the management of the milking system and evaluate current and future options in milking systems technology. They also examine current and future options for housing and equipment, and analyze the ability of those options to meet the financial, environmental, and animal welfare goals of the operation. Tours and field trips give the students an opportunity to view a variety of housing and milking systems. Some of the tours or field trips may be conducted outside scheduled class time.	2		UG		SI

ANSC 2004 Organic Livestock Production (A) DE	Animal Science	Agriculture	This course provides information on organic livestock production in general, as well as more detailed analyses of organic beef and sheep, dairy, and swine and poultry production. An in-depth study of organic approaches to livestock health is included. The course is divided into five stand-alone modules: Introduction to Organic Livestock Production, Organic Beef and Sheep Production, Organic Dairy Production, Organic Swine and Poultry Production, and Health Management in an Organic Livestock System. Students will be required to participate in discussion forums and make use of the organic information resources available on the Internet. Evaluation will be based on participation, module quizzes, written assignments, and a final exam.	3	2	UG	Wilkins P.	SF
ANSC 2005 Animal Agriculture (A)	Animal Science	Agriculture	Through a mixture of classroom lectures and exercises at Faculty of Agriculture, Dalhousie, this course will enable students to recognize common breeds of farm animals, to describe livestock production cycles and methods, and to understand the place of farm animals in the world food system. The course will provide introduction to subject matter covered in more senior animal science courses, such as nutrition, reproduction, behavior and welfare, animal anatomy, and environmental physiology. The interaction of livestock production with our environment will be examined.	3		UG		SI
ANSC 3007 African Wildlife Ecology	Animal Science	Agriculture	This course will give students an understanding and appreciation of ecological principles and the complexities of conservation through observation and experience of both the natural and social environments in South Africa. Students will travel to a South African game reserve, where they will observe the animals and plants in South Africa's unique vegetation zones. Both biotic and abiotic factors will be used to determine South Africa's unique vegetation zones, particularly with respect to the role of large mammals. The focus will be on the manner in which the structure and composition of vegetation influences the community structure of small and large mammals, birds, reptiles and insects. A thorough understanding of South African (sub Saharan) ecology and how the unique natural and social history of South Africa has contributed will help prepare students for the general ecological and conservation issues.	3		UG		SF

ANSC 4004 Ecology of Milk Production in Ruminants (A)	Animal Science	Agriculture	Milk is a highly prized food, the efficient forage-based production of which has been a major economic phenomenon in agriculture for millennia. Four main species – cattle, buffalo, goats and sheep – have been selected to produce milk for humans. All are from the Bovidae Family (Suborder Ruminantia) of cudchewers. Chosen initially because they didn't compete for the scarce food supplies of our ancestors, ruminants, especially cows, have been selected intensively for milk-yielding characteristics and conformation. The objectives of this course are to examine the production of milk, from provision of feed for the animals to processing the milk into products, and the important contribution made by the dairy industry in providing sustainable food security for society. This course will challenge perceptions of students who will become future dairy farmers or consumers and thus will influence future policy.	3		UG		SI
APSC 0200 Environmental Management	Applied Science	Agriculture	Students examine the major environmental issues and risks in agricultural production. The emphasis is on how agricultural activities impact the environment and how environmental issues, regulations, and programs impact the way agricultural activities are carried out. The course will enable the student to identify the legal and other requirements for reducing the environmental risks associated with production activities, and to work with an engineer or environmental specialist in determining ways to minimize environmental risk.	2		UG		SF

APSC 0201 Machinery and Building Technology	Applied Science	Agriculture	Two keys to the success of utilizing biomaterials are selection of appropriate machines and designing effective facilities to manage the production/processing system. In the first half of the course, students are introduced to the types of equipment, their productivity, and methods of selection for efficient operation. This will include machinery for soil preparation, planting, crop care, and harvesting. The machines and their unit operation are analyzed with respect to functions, work rates, material flow and power usage. The importance of monitoring machine performance relating to work quality and environmental effects of machine operation will be studied. The labs will emphasize safety, basic maintenance, adjustment, calibration and performance testing. The second half of the course provides an introduction to the planning process of structures and various topics related to the use of building materials, particularly green materials. Functional layouts, ventilation principles of storage, and production buildings are considered. Field trips supplement the lecture material. A term paper is required.	2		UG		SI
APSC 1003 Practices and Mechanics of Materials	Applied Science	Agriculture	This course deals with the practices of selecting and working with materials, including considerations for green practices. Selection of materials is based on many properties depending on the application; usually strength, workability, durability, and costs are key concerns. Green practices during the construction of machines, structures and buildings will include traditional properties and their environmental and resource efficiency including their deconstruction. Using green materials and products promotes conservation of dwindling non renewable resources and helps to reduce the environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these source materials.	3		UG	Nelson C.	SF

APSC 2000 Environmental Impacts and Resource Management (A)	Applied Science	Agriculture	This course is an introduction to environmental engineering and technology, emphasizing a quantitative engineering approach. The course addresses the issues associated with the safe and ecologically appropriate handling, processing, storage, and utilization of organic wastes arising from human activities, including agricultural and bio-resource production systems. Topics covered will include: growth models for populations of living organisms, as well as models for depletion and replenishment of natural resources; the concept of mass and energy balances applied to quantify changes in environmental systems; physical, chemical, and biological unit operations for treatment and reduction of solid, liquid, and gaseous wastes; and reduction of pollution impacts on air and water resources.	3		UG		SF
APSC 2000 Environmental Impacts and Resource Management (A)	Applied Science	Agriculture	This course is an introduction to environmental engineering and technology, emphasizing a quantitative engineering approach. The course addresses the issues associated with the safe and ecologically appropriate handling, processing, storage, and utilization of organic wastes arising from human activities, including agricultural and bio-resource production systems. Topics covered will include: growth models for populations of living organisms, as well as models for depletion and replenishment of natural resources; the concept of mass and energy balances applied to quantify changes in environmental systems; physical, chemical, and biological unit operations for treatment and reduction of solid, liquid, and gaseous wastes; and reduction of pollution impacts on air and water resources.	3		UG	MacKenzie T.	SF
APSC 2007 Fluid Power Technology	Applied Science	Agriculture	This course covers the subjects essential to understanding the design, analysis, operation, and maintenance of fluid power systems: hydraulic, pneumatic, and water. Emphasis is placed on the practical applications of fluid power and the functioning of system components such as reservoirs, pumps, compressors, motors, valves, filters, lines and hoses, and mechanical and electrical controls in typical fluid power circuits. The principles of fluid flow, pressure and force, energy conservation, and power in the context of using fluid energy to do useful mechanical work are covered. Theory is presented to emphasize how and why fluid power systems operate. General maintenance, safety, and environmental issues associated with fluid power systems are also discussed.	3		UG		SI

APSC 2013 Machinery and Building Technology (A)	Applied Science	Agriculture	Two keys to the success of utilizing biomaterials are selection of appropriate machines and designing effective facilities to manage the production/processing system. In the first half of the course, students are introduced to the types of equipment, their productivity, and methods of selection for efficient operation. This will include machinery for soil preparation, planting, crop care, and harvesting. The machines and their unit operation are analyzed with respect to functions, work rates, material flow and power usage. The importance of monitoring machine performance relating to work quality and environmental effects of machine operation will be studied. The labs will emphasize safety, basic maintenance, adjustment, calibration and performance testing. The second half of the course provides an introduction to the planning process of structures and various topics related to the use of building materials, particularly "green" materials. Functional layouts and ventilation principles of storage and production buildings are considered. Field trips supplement the lecture material. A term paper is required.	3		UG		SI
APSC 3015 Irrigation and Drainage	Applied Science	Agriculture	This course examines basic soil/water/plant/atmosphere relationships. It introduces students to soil and water conservation and management principles. The course covers irrigation and drainage of golf courses, athletic areas, parks, and residential landscapes.	3		UG	Thomson A.	SF
APSC 3020 Energy Production and Utilization	Applied Science	Agriculture	This lecture-based course provides an overview of the whole energy system, focusing on selected attributes of energy. The assessment, management and remediation of energy production is a global issue, which will ultimately impact all walks of life, business, industry and future infrastructure. It includes an introduction to the energy supply chain, transmission and distribution systems, energy use, energy policy and the environment and methods of generation. It also includes an overview of renewable energy assessment techniques and feasibility tools.	3		UG		SF
APSC 4004 Energy Conversion and Assessment (A)	Applied Science	Agriculture	This lecture-based course focuses on selected attributes of existing and renewable energy options, including the reserves and consumption of oil, coal and gas; fossil energy technologies for power generation; fundamental principles, applications and status of solar energy, biomass energy, wind energy and hydro-power; and outlook and evaluation of renewable energy.	3		UG	Thomson A.	SF

APSC 4005 Watershed Management and Environmental Restoration (A) (H)	Applied Science	Agriculture	This lecture-based, non-quantitative course focuses on the citizen (bottom-up) and governmental (top-down) management of watersheds and theoretical debates concerning environmental restoration, both in rural and (sub)urban environments. Topics to be covered include: watershed atlases, water sensitive planning, land-use systems analysis, community-based monitoring and management , nature-culture interactions, restorative redevelopment, and the post-industrial regeneration of damaged sites for ecotourism and environmental education. Broad latitude will be permitted in the subject areas of the assignments in order to appeal to individuals' interests and career aspirations in environmental science, landscape architecture, international development, and environmental governance and sociology.	3		UG	Murray G.	SF
APSC 4006 Wastewater Management (A)	Applied Science	Agriculture	This course gives an overview of sources of water pollution, particularly in the rural situation, and standard methods of treatment. Alternative approaches such as wetlands and filters will be discussed. Laboratory sessions will include field trips, methods of sampling, and some testing of water.	3		UG		SF
AQUA 4000 Finfish Production (A)	Aquaculture	Agriculture	Aspects of breeding and genetics, fish management, financial management, economics, marketing, housing systems, and water management are presented in an integrated approach to provide a sound understanding of this aspect of aquaculture. Management of finfish throughout the life cycle is presented. The course includes a weekend field trip to commercial farms; attendance is obligatory.	3		UG		SI
ARCH 1201 Science of the Built Environment 1	Architecture	Architecture	This course introduces a broad range of scientific principles to understand the interior environment in modern buildings. Topics include light, heat, sound, electricity, and fire. It uses a "common-sense" approach involving graphic images, practical understanding, and problem-solving. A background in mathematics or science is not required.	3		UG	Pitcairn, D.	SI
ARCH 1202 Science of the Built Environment 2	Architecture	Architecture & Planning	This course introduces a broad range of scientific principles that influence the relation between modern buildings and their exterior environment. Topics include heating, cooling, storms, water, and foundations. It uses a "common-sense" approach involving graphic images, practical understanding, and problem-solving. A background in mathematics or science is not required.	3		UG	Pitcairn, D.	SI

ARCH 3106 Ancient Settlements, Buildings, and Landscapes	Architecture	Architecture	This course explores the origin and evolution of human settlement patterns from prehistory to the early modern era. With a comparative analysis of global cultures, it considers geographic, ecological, social, and economic factors that are common or unique. Topics include land use, habitation, defensive structures, monumental complexes, commercial districts, infrastructure, and communication networks.	3		UG		SI
ARCH 3107 Modern Settlements, Buildings, and Landscapes	Architecture	Architecture & Planning	This course explores the development of human settlement patterns from the early modern era to the present day. With a comparative analysis of global cultures, it considers geographic, ecological, social, and economic factors that are common or unique. Topics include land use, habitation, defensive structures, monumental complexes, commercial districts, infrastructure, and communication networks.	3		UG	Bonnemaison S. (P) Loeffler E	SI
ARCH 3208 Building Technology	Architecture	Architecture & Planning	This course studies aspects of building technology that mediate the relationship between interior and exterior environments. Building materials studies include structural and environmental properties, constructional implications, and principles of assembly and jointing. The principles of heat flow, air flow and moisture flow in building enclosures are presented. Students undertake a series of design exercises applying knowledge of topics studied in the course.	3		UG	Mullin R. (P) Stotts E.	SI
ARCH 4112 Architectural History and Theory: 20th Century to the Present	Architecture	Architecture & Planning	This course investigates the history and theory of architecture as cultural expression from the 20th century to the present. It explores design practices, theories, and paradigm shifts in recent decades and diverse global contexts, including questions of class, gender, race, and ecology.	3		UG		SI
ARCH 4211 Building Systems Integration	Architecture	Architecture & Planning	This course studies the integration of building structural and enclosure systems in architectural design. Long span structural systems and lateral forces are examined, including their interaction with the enclosure system. Building enclosure studies include the performance of materials in assemblies, the performance of the building envelope, and the sequence of construction. The integration of structure and enclosure is examined through the construction detail. Students complete case studies and design projects integrating structure and enclosure in buildings.	3		UG	Jannasch, E. (P) Kilborn, A.	SI

ARCH 4212 Building Systems Integration	Architecture	Architecture & Planning	This course studies performance standards related to human activities in buildings, and the systems and configurations required to support those activities. Building systems are considered in relation to climate, urban situation, and the natural environment. Principles of systems thinking, as well as the use of physical and computational modeling methods, are applied to the comprehensive design of a building to achieve defined performance standards and to consider issues of sustainability with regard to energy balance, water conservation, and component materials.	3		UG	Forren J. (P) Parsons A.	SF
ARCH 5004-1 Urban Systems Studio	Architecture	Architecture & Planning	This studio examines the infrastructure of the metropolis and its influence on urban form and development. The focus of this design studio is the urbanised Dutch delta landscape and the projected transformations brought about by change, whether due to climate, urbanization, or economic (shifts in modes of production, energy networks etc.), which provide both opportunity and threat. The studio investigates the historic and current landform/water infrastructures crucial to the formation of the Dutch cultural landscape, its urban form and its architectures.	6		G	Venart, C.	SI
ARCH 5004-2 Urban Systems Studio	Architecture	Architecture & Planning	This studio examines the infrastructure of the metropolis and its influence on urban form and development. This semester we will focus on Havana, Cuba, a city in-between: scarcity and abundance; communism and capitalism; collapse and development; and global isolation and integration. Focusing on sites of urban cultivation within the city, the studio will consider the cultures, programs, and networks that have developed around the human need for food production and carry out a design project to strengthen this infrastructure whilst enhancing the public realm within the city.	6		G	Fitzgerald, S.	SF

ARCH 5007-2 Landscape Studio	Architecture	Architecture & Planning	This studio investigates architectural responses to landscape. Research and design work will be centered around the theme of 'nature, culture and wellness' in a "wellness retreat" that will be known as "The Farm at Margaree" in Cape Breton, Nova Scotia. The project must unify a passion for cultural landscape, local community, and environmental stewardship. The Farm at Margaree will focus on delivering authentic, local, cultural, and natural sensory experiences. The relevant architecture and programming is derived from the interpretation of place. Students will work on developing core principles that guide the design process.	6		G	Sweetapple, T.	SF
ARCH 5011 Coastal Studio	Architecture	Architecture & Planning	This studio on net-positive architecture has two objectives. The first is to shift the design ethos from the green notion of impacting less to one of producing an ecological and socially-beneficial architecture. This is the basis for a net-positive approach. The second objective is to critically analyze the varied and subjective experience of entering and exploring the natural world, specifically the urban parks, open spaces and islands located in Halifax harbour. Through these lenses, the studio will develop a sophisticated and ecologically-grounded understanding of place and culture to help formulate a series of architectural interventions	6		G	Corson, J. (P) Gallaugher, D. Robertson, K. Willett, J.	SF
ARCH 5013 Design-Build Studio	Architecture	Architecture & Planning	This design-build studio investigates how a material's life cycle, thermal exchange, fabrication, joinery and assembly can be re-imagined through the lens of feedback with the environment. This term used analogue and computational modalities to examine a single material class, "artificial rock"; a composite mixture of binder, fibers, and aggregates. Its most common form is concrete: a composite of cement, water, and gravel. But "artificial rock" can incorporate minerals, organic matter, process wastes, and carbon sequestering production methods to produce materials tailored towards different structural and environmental needs. Nova Scotia offers possibilities to include materials derived from flax, shells, and seaweed.	6		G	Forren, J.	SF
ARCH 5106 International Sustainable Development	Architecture	Architecture & Planning	This course examines recent sustainable development in developed and developing countries. Local building practices and cultural appropriateness are studied within social, economic, and urban contexts. Through readings and case studies, it considers how architects, planners, and builders have handled materials and technology to engender patterns of sustainable living.	3		G	Kawar, R.	SF

ARCH 5199-1 Humanities Seminar	Architecture	Architecture & Planning	This seminar investigates urban infrastructures in the Dutch delta, a hybrid entity between nature and culture. It follows change through a set of theoretical texts in the context of an ever-evolving debate on landscape.	3		G	Venart, C.	SF
ARCH 5210 Life Cycle Analysis	Architecture	Architecture & Planning	This course studies the range of environmental impacts associated with building materials and assemblies, from their raw state to the end of their useful life. It considers operating energy, embodied energy, and carbon sequestration, with particular attention to the structure and building envelope of wood framed heritage buildings.	3		G	Parsons A.	SF
ARCH 5211 The Construction Detail	Architecture	Architecture & Planning	Wood building dominates the residential construction industry of North America and is becoming more common in both residential and non-residential projects worldwide. The course begins with an overview of the wood building industry and its subtrades, the historical evolution of wood building practices, and the intrinsic properties of the material itself. It then examines the "clutch point" in the design process where abstract concepts become real, material strategies. It emphasizes the cultural nature of construction, with reference to the idea of convention and material culture traditions. Finally, the course addresses environmental sustainability implications of wood design strategies, in terms of embodied energy and climatic response.	3		G	MacKay-Lyons, B.	SI
ARCH 5212-1 From Principle to Detail	Architecture	Architecture & Planning	The course is broadly about the role of materials in architectural detailing. In addition to seminars and case studies, this course will examine the structure, material qualities, construction and environmental technologies of a concurrent student design project in detail. The seminar component of the course will focus on an emerging discourse related to: how buildings are cared for and maintained through the lens of economy, ecology and labor; and how material considerations and detailing impact post-occupancy periods and building endurance.	3		G	Mullin, R.	SI

ARCH 5212-2 From Principle to Detail	Architecture	Architecture & Planning	A primary objective of the course is to shift the design ethos from the green notion of impacting less to one of producing an ecological and socially-beneficial net-positive architecture. The basis for this 'positive' approach, from the first stage of an integrated analysis and framework to final design details, will form this term's work. Assignments will allow students to demonstrate and apply their knowledge of these learned green-building principles and techniques. Within a context of climate change and habitat destruction, this course aims to supply concrete tools and strategies towards architectural design that meets these global challenges.	3		G	Corson, J. (P) Gallaugher, D. Robertson, K. Willett, J.	SF
ARCH 5212-3 From Principle to Detail	Architecture	Architecture & Planning	The course examine passive principles of phenomena flows as a positive strategy influencing architectural material selection, design, and assembly. It focuses on solar power, air pressure, and local hydrological cycles, then combines them into a well-balanced microclimate. Each unit will consider the various scales of the phenomenon, from larger climate to local site condition.	3		G	Lilley, B.	SF
ARCH 5213 Facades	Architecture	Architecture & Planning	This course examines the various functions of a building facade: protection from weather, interior comfort, urban sign, and potential energy producer. It considers how a facade designed for a particular program can achieve high performance through attention to detail: building materials, manufacturing processes, and construction techniques.	3		G		SI
ARCH 5217 Innovation in Computers and Building	Architecture	Architecture & Planning	Soft systems use algorithmic logic to organize material flows at the level of the detail, building, site, and territory. Some methods which may be explored by individual groups include structural simulation, thermodynamic modeling, parametric modeling, and material inventorying and their incorporation with processes of design and construction through augmented reality.	3		G	Forren, J.	SI
ARCH 5220 Adaptive Re-use	Architecture	Architecture	Through examples and case studies, this course introduces issues of authenticity, sustainability, and relevant principles of practice as they apply to the adaptive re-use of heritage buildings. These issues are put into practice by re-designing an authentic, sustainable heritage building.	3		G	Parsons, A.	SF
BIOA 0103 Weed Science	Biology	Agriculture	This course deals with the principles of weed science. Included are discussions on weed recognition, and chemical and non-chemical approaches to controlling weeds in various agricultural crops and in lawns and non-crop areas. Selection, safe use, handling, and storage of herbicides are stressed.	2		UG	White S.	SI

BIOA 0200 Entomology	Biology	Agriculture	An introduction to the study of the phylum Arthropoda, with particular reference to the class Hexapoda (Insecta), emphasizing insect pests of the northeast. Anatomy, physiology, taxonomy, behaviour, and ecology of insects are considered during lectures and laboratory work. Discussions on the relationship of insects to humans, basics of insect control methods, and pesticide safety are included. Students will be required to prepare and submit an insect collection.	2		UG		SI
BIOA 3000 General Entomology (A)	Biology	Agriculture	An introduction to the science of entomology from an agricultural perspective. Insect anatomy, physiology, and taxonomy are considered; also included are discussions on insect behaviour, reproduction, life cycles, and population ecology. Basics of monitoring techniques and population dynamics are illustrated. Students will be required to prepare and submit an insect collection.	3		UG		SI
BIOA 3001 Ecology	Biology	Agriculture	An introduction to the principles and general concepts of ecosystem structure and function is presented. The dynamics of populations and community interactions are considered in relation to various biotic and abiotic environmental influences. The laboratory reinforces topics covered in the lectures and readings by emphasizing the importance of field observation and interpretation.	3		UG		SF
BIOA 3002 Weed Science (A)	Biology	Agriculture	This course deals with the principles of weed science. Included are discussions on weed recognition, and chemical and non-chemical approaches to controlling weeds in various agricultural crops and in lawns and non-crop areas. The selection, safe use, handling, and storage of herbicides are stressed, along with the environmental impact of the different methods of weed control.	3		UG		SF
BIOA 3006 Aquatic Ecology	Biology	Agriculture	The biology of aquatic species in marine and freshwater environments is discussed, with emphasis on biological systems involving farmed species, and organism interdependencies and interactions are examined. An introduction to the principles of ecology at the community and ecosystem level of integration is included. CALENDAR NOTES: Fall semester	3		UG		SI

BIOA 4002 Conservation Biology	Biology	Agriculture	This course will examine the ecological concepts underlying current issues in conservation biology. Topics covered include effects of agricultural habitat fragmentation on wildlife, conservation of biodiversity, stability and resilience of ecosystems, optimal design of nature reserves, and habitat heterogeneity. This is a discussion-style course concentrating on current published scientific papers chosen by the students. Students will also learn to read and critically evaluate scientific papers, and to apply this ability to writing literature reviews.	3		UG		SF
BIOL 1011 Principles of Biology Part II	Biology	Science	Biology 1011 broadens the background laid down in BIOL 1010 to include plant and fungi form and function, animal form and function, and ecology. Knowledge of high school mathematics, chemistry and biology is recommended	3		UG		SI
BIOL 1021 Introductory Biology II: Organismal Biology & Ecology	Biology	Science	Biology 1021.03 is the equivalent of BIOL 1011.03, and is offered primarily online in the fall, winter and summer terms. Topics include diversity of eukaryotic life, ecology, and plant and animal biology. High school mathematics, chemistry, and biology are recommended. Learning activities include readings, quizzes, interactive multimedia, online labs, home labs, and recorded lectures.	3		UG		SI
BIOL 1021 Introductory Biology II: Organismal Biology & Ecology	Biology	Science	Biology 1021.03 is the equivalent of BIOL 1011.03, and is offered primarily online in the fall, winter and summer terms. Topics include diversity of eukaryotic life, ecology, and plant and animal biology. High school mathematics, chemistry, and biology are recommended. Learning activities include readings, quizzes, interactive multimedia, online labs, home labs, and recorded lectures.	3		UG		SI
BIOL 2060 Introductory Ecology	Biology	Science	Ecology examines interactions of plants and animals, including humans, with each other and with their non-living world. Topics include population growth, competition, predation, food webs, metapopulation dynamics, biodiversity and ecosystem function. The course has a quantitative approach providing a foundation for further work in ecology, marine biology and environmental science.	3		UG		SF

BIOL 2060 Introductory Ecology	Biology	Science	Ecology examines interactions of plants and animals, including humans, with each other and with their non-living world. Topics include population growth, competition, predation, food webs, metapopulation dynamics, biodiversity and ecosystem function. The course has a quantitative approach providing a foundation for further work in ecology, marine biology and environmental science.	3		UG	Schmidt A. (P) Latta R.	SF
BIOL 2601 The Flora of Nova Scotia	Biology	Science	Introduction to the biodiversity of flowering plants (Angiosperms) found in Nova Scotia. A wide range of plant communities are visited on several day-long field trips. A focus on plant identification is supplemented with lessons in plant ecology, floral biology, pollination mechanisms, natural history, and human uses (e.g., edible, poisonous, medicinal).	3		UG		SI
BIOL 3037 Life Rewritten: Applications and Implications of Gene Editing and Synthetic Biology	Biology	Science	This course introduces students to gene editing and synthetic biology tools (eg.CRISPR) as well as both current and future applications of those tools for conservation, medicine, and food production. This course empowers students to develop informed opinions about the ethics of using such tools in science and society.	3		UG	Bertrand E. (P) Cote P.	SI
BIOL 3065 Conservation Biology	Biology	Science	This course offers an introduction to conservation biology: the science of understanding and conserving biodiversity on Earth. Students learn how biodiversity change is assessed and what tools are used to prevent the extinction of species and the disruption of ecosystems. Tutorials involve oral presentations as well as a written essay, and an in-depth discussion of controversial topics.	3		UG	Worm B.	SF
BIOL 3080 The Ecology and Evolution of Fishes	Biology	Science	The class examines selected topics on the ecology and evolution of marine and freshwater fishes. Topics include: phylogeny and systematics; functional morphology and physiology; population biology; life-history evolution; behavior; fisheries science; and conservation biology.	3		UG	Hutchings J.	SI
BIOL 3101 Microbial Ecology	Biology	Science	Lectures on the ecology of bacteria, viruses and protists. Community structure, food web nutrient cycling, biogeochemical cycles, competition, succession and symbiosis are discussed with examples from marine, fresh-water and soil habitats. There is an emphasis on marine organisms.	3		UG	Laroche J.	SI

BIOL 3219 Flora of Nova Scotia	Biology	Science	Hands-on introduction to the plants of Nova Scotia, with an emphasis on taxonomy and a focus on the flowering plants. Includes identification, morphology, distribution, habitat, and ecology. Takes several day-long and half-day field trips. Evaluation includes a plant collection, field notebook, field report, presentation, and lecture and lab exams.	3		UG		SI
BIOL 3221 Diversity of Algae	Biology	Science	This is a taxonomic introduction to the major algal groups (macrophytic and microscopic) with an emphasis on the marine seaweeds. Basic taxonomic differences are covered, along with an introduction to macrophyte ecology, human uses and symbioses. Laboratory sessions focus on morphology and reproduction.	3		UG		SI
BIOL 3225 Plants in the Human Landscape	Biology	Science	The use of plants for human recreation and aesthetic purposes in gardens, public parks, suburban and urban landscapes. Topics include: history of gardens, garden design, plant materials, edible landscaping, plants and human health. The course includes field trips and group work and students complete a design project.	3		UG	Rajaselvam R.	SI
BIOL 3327 Entomology	Biology	Science	The course is an introduction to the study of insects. Topics include insect classification, evolutionary diversity, biology, ecology, behaviour, and various applied aspects. Through this survey of the insects, students will gain an appreciation of insect biodiversity as well as their economic and ecological importance.	3		UG		SI
BIOL 3060 Environmental Ecology	Biology	Science	The ecological effects of pollution, disturbance, and other stressors, both anthropogenic and natural. Major subject areas are air pollutants, toxic metals, acidification, eutrophication, oil spills, pesticides, forestry, warfare, urban ecology, risks to biodiversity, and resource degradation. The overarching context of the course is ecological sustainability of the human economy.	3		UG		SF
BIOL 3061 Communities and Ecosystems	Biology	Science	Part 1 includes ecosystem history and theory, species interactions, modelling, complex systems theory, systems ecology, and quantitative approaches such as computer simulation. Part 2 discusses food webs, ecological networks, trophic cascades, ecological complexity and stability, and qualitative approaches such as loop analysis. PREREQUISITES: BIOL 2060.03 (or BIOA 3001.03) or INTD 2001.03 or INTD 2002.03	3		UG		SF

BIOL 3226 Economic Botany: Plants & Civilization	Biology	Science	The story of the human use of plants for food, fibre and fuel including the botany, domestication, development, distribution, production, processing, history, economic and social impacts of the major world crops (cereals, fruits, vegetables, flowers and industrial crops) and the importance of plants in medicine and conservation. PREREQUISITES: A grade of B- or higher in BIOL 1010.03 or (BIOL 1020.03 or BIOA 1002.03 or BIOL 1030.03) and BIOL 1011.03 or (BIOL 1021.03, BIOA 1003.03, or BIOL 1031.03); or SCIE 1505.18	3		UG		SF
BIOL 3601 Nature Conservation	Biology	Science	This interdisciplinary course explores relationships between humans and the natural world, including damage caused to species and ecosystems. The course looks at environmental ethics and world views, environmental philosophy, sustainability, the cultural expression of natural values (literature, music, art) and conservation science and actions, including the establishment of protected areas.	3		UG	Rajaselvam R.	SF
BIOL 3623 Applied Coastal Ecology	Biology	Science	Impacts of anthropogenic inputs on the structure and function of coastal ecosystems. Through field trips and other classwork, students examine ecosystem health, e.g., in macroalgal communities on rocky shores, in seagrass beds on sedimentary shores, and learn basic experimental design, principles of environmental assessment and monitoring, and coastal habitat remediation.	3		UG		SF
BIOL 3626 Field Studies of Marine Mammals	Biology	Science	Hands-on introduction to research on marine mammals. Lectures provide an overview of marine mammal adaptations, evolution, population biology, social organization, conservation, and management. Labs include a necropsy and techniques of photographic identification of individuals. On a several-day camping trip, students observe marine mammals from whale-watch boats and conduct research projects.	3		UG		SI
BIOL 3633 Spatial Information and GIS in Ecology	Biology	Science	A hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address an applied problem in ecology.	3		UG		SI

BIOL 3639 Herpetology	Biology	Science	Through a combination of lectures, labs and field activities, this course provides an overview of the global diversity, evolution, ecology and conservation of herpetofauna (amphibians and reptiles), and the natural history and identification of Nova Scotian herpetofauna. Students gain experience with common field research and monitoring techniques for herpetofauna.	3		UG		SI
BIOL 3640 Tropical Ecology and Biodiversity Field Class	Biology	Science	Hands-on introduction to tropical ecology, biodiversity, and conservation. Includes an 18-day field trip to Sri Lanka to visit a variety of tropical terrestrial and aquatic ecosystems, quantify habitats, identify species, and study agroforestry, ecological interactions and animal behavior. Evaluation includes lecture tests, field notebooks, class research projects, presentations and reports.	6		UG		SF
BIOL 3761 Marine Ecology	Biology	Science	Building upon an understanding of basic ecological and evolutionary principles, and a familiarity with the major marine invertebrate and algal taxa, this course examines patterns and processes at the organismal, population and community levels that determine the diversity and distribution of life in the sea. PREREQUISITES: BIOL 2060.03 (or BIOA 3001.03) and (BIOL 2003.03 or BIOL 2004.03), and OCEA 2000X/Y.06 or (OCEA 2001.03 and OCEA 2002.03) CROSSLISTED: MARI 3761.03	3		UG		SI
BIOL 4001 Environmental Impact Assessment	Biology	Science	This course serves as the capstone to the EIA certificate. It is a hands-on training course that guides students through a nine-step framework for preparing individual EIAs on a physical project as well as a Strategic Environmental Assessment on a policy. International, national, provincial examples illustrate the framework. CALENDAR NOTES: All students taking BIOL 4001.03 or ENVS 4001.03 must have completed 90 credit hours and be in their fourth year of study, or have permission of instructor.	3		UG		SF
BIOL 4065 Sustainability and Complexity	Biology	Science	Sustainability is a transdisciplinary area integrating equitable societies, protected environments, and robust economies. Achieving sustainability is a challenge that has only had limited success in our complex world. Complexity studies offer new approaches for achieving sustainability beyond the traditional ones mostly focused upon reducing unsustainability.	3		UG		SF

BIOL 4500 The Evolution of Life Histories	Biology	Science	Life history describes how reproductive effort changes with age to create strategies that influence survival and reproduction. Life-history research is fundamental to population ecology, evolutionary biology, sustainable harvesting, and conservation biology. Life-history theory provides an explanatory/predictive framework for understanding why organisms differ in how they propagate genes to future generations.	3		UG	Hutchings J.	SF
BIOL 4510 Cultural Evolution	Biology	Science	Culture is socially learned and group-specific information or behaviour. This course explores the nature of culture across the animal kingdom, how it evolves, and its relationship to ecology, genetic evolution and conservation. Students consider and discuss the controversies and uncertainties as to the role of culture in biology. PREREQUISITES: BIOL 2040.03, and BIOL 3062.03 or PSYO 3162.03	3		UG		SI
BIOL 4661 Biological Oceanography	Biology	Science	The goal is to describe how physical, chemical and biological processes interact to determine the species composition, biogeochemical activities, and trophic structure of marine communities. Outstanding problems currently facing biological oceanographers and earth systems scientists are discussed, as are current attempts and methodologies to address them.	3		UG	Algar C.	SI
BIOL 4662 Biology of Phytoplankton	Biology	Science	This class presents the phytoplankton in the context of their evolutionary history and ecological diversity, with an emphasis on their adaptations and acclimation to different environments and their role in food webs and in biogeochemical cycling.	3		UG	MacIntyre H.	SI
BIOL 5067 Ecology and Evolution of Fishes	Biology	Science	This course will examine selected topics on the ecology and evolution of marine and freshwater fishes. Topics shall include systematics, morphology, evolutionary ecology, behaviour, life history strategies, population biology, and fisheries management.	3		G	Hutchings J.	SF
BIOL 5501 The Evolution of Life Histories	Biology	Science	A life history describes how reproductive effort changes with age to create strategies that influence survival and reproduction. Life-history research is fundamental to population ecology, evolutionary biology, sustainable harvesting, and conservation biology. Life-history theory provides an explanatory/predictive framework for understanding why organisms differ in how they propagate genes to future generations.	3		G	Hutchings J.	SF

BIOL 5510 Cultural Evolution	Biology	Science	Culture is socially learned and group specific information or behaviour. This course explores the nature of culture across the animal kingdom, how it evolves, as well as it's relationship to ecology, genetic evolution and conservation.	3		G		SI
BIOL 5602 Introduction to Aquaculture	Biology	Science	This course offers a lecture-based introductory overview of aquaculture; the culturing and rearing of aquatic plants and animals. Lectures will deal with the following topics: (1) general overview of aquaculture; (2) physical and chemical properties of the aquatic environment; (3) site selection; (4) aquatic engineering; (5) aquaculture modeling; (6) finfish culture; (7) bivalve culture; (8) crustacean culture; (9) seaweed culture; (10) health and pathology; (11) growth and nutrition; (12) genetics and reproduction; (13) legal, economic, social and environmental considerations; (14) sustainability issues. These topics will be covered with both a Maritimes and a global perspective. This course is designed to familiarize students with the multi-disciplinary nature of aquaculture as a field. The introduction will describe the state of aquaculture production in the world. The main body of the course is divided in three sections covering the aquatic milieu, species specific culture techniques, and general biological principles. The amount of interplay between various physical, biological and species-specific aspects will be shown in each topic. We will overview legal, economic and social considerations and we will look at some of the controversies surrounding aquaculture environmental sustainability. This is an introductory	3		G		SI
BIOL 5660 Ecosystem Modelling for Aquaculture	Biology	Science	Learn a collection of tools for the sustainable utilization of aquatic resources. Emphasis is on bilateral interactions between aquaculture and the environment. topics include water/sediment/biota variability, carrying capacity, invasive species, habitat destruction/creation, ecosystem functions/services, climate change, etc. Tools include data analyis/modelling/visualization/mapping using Python (prior programming experience is not required).	3		G	Ibarra D.	SF

BIOL 5665 Hacking the blue planet: the scientific and social dimensions of ocean fertilization	Biology	Science	This course explores the biology, ecology, biogeochemistry and ethical and legal dimensions of purposeful ocean fertilization. Through lectures, discussion, case studies, and group projects, students consider the biological and oceanographic basis of ocean fertilization and its use as a 1) scientific tool and 2) controversial geoengineering strategy for climate change mitigation.	3		G		SF
BUSI 6900 Corporate Responsibility, Ethics and Society	Business Administration	Management	This course introduces students to the relevance and importance of ethics and social responsibility in business. The ultimate intent of the course is to leave students better equipped to identify, think critically about, and resolve ethical issues that are encountered in one's working life at the individual, organizational, and societal levels.	3		G		SF
BUSI 6900 Corporate Responsibility, Ethics and Society	Business Administration	Management	This course introduces students to the relevance and importance of ethics and social responsibility in business. The ultimate intent of the course is to leave students better equipped to identify, think critically about, and resolve ethical issues that are encountered in one's working life at the individual, organizational, and societal levels.	3		G		SF
BUSI 6996 Sustainable Leadership	Business Administration	Management	This course is designed to introduce students to the fundamental key concepts, theories and best practices of the holistic and triple-bottom-line approach to leading organizations sustainably. This course will focus on complexity of organization decision making and the impact these decisions make to society, the environment, individuals, and pubic stakeholders. Furthermore, students will understand how managers and leaders use qualitative skills to create value in a complex organization (e.g., how managers use heuristics to derive knowledge based on both quantitative and non-quantitative information). Topics covered include moving from data to information to knowledge to action; leadership reasoning skills such as reasoning from context cues, reasoning from competing knowledge sources (e.g., competing stakeholder expectations), reasoning from qualitative information; and persuasive skills. Students will be exposed to general management and organizational theories, articles on the various types of organizational issues, and leadership styles and practices. The context of all the discussions will revolve around how sustainable leadership practices can help organizations be centres of sustainable operations.	3		G	Sundararajan B.	SF

BUSI 6997 Leading with Responsibility	Business Administration	Management	This course is designed to prepare future organizational leaders for taking responsibility for the success of an organization through sound ethical practices. The course integrates and emphasizes practical skills for dealing effectively with the most difficult ethical dilemmas, choices, and constraints facing today's organizations. The course also emphasizes on-line research and networking to facilitate continual leadership learning and effective personal adaptation to ever-increasing environmental complexity. Action-learning components include the development of a personal leadership philosophy and practice positional plan that the student can take forward into future work.	3		G		SF
CANA 1102 Halifax and the World: Part I	Canadian Studies	Arts & Social Sciences	This course offers an introduction to both International Development Studies and Canadian Studies by exploring the connections between important global issues and your daily life as a student in Halifax. As you walk across the Dalhousie campus and go about daily life in Halifax, your actions connect you to people around the globe and to the history of the city and world as well as to the many works of literature, art and music that depict these connections. Here are just a few examples of connections that we will explore in Halifax and the World: Part I (INTD / CANA 1102.03):▪ Walking across the Dalhousie campus you are traversing what remains unceded Mi'kmaq territory raising hard questions about relations between Settler and First Nations Peoples.▪ While walking downtown on a Friday night you might tread in the footsteps of the central characters in Hugh MacLennan's novel Barometer Rising and other major works of Canadian fiction.▪ As you walk through the city you'll see monuments and statues that commemorate the city's early colonial leaders – which raise questions about how we chose to remember history of the city and its connections to the world. The course will critically examine the connections between daily life in Halifax and broader issues of colonialism, race and class relations, historical memory, ethics and justice through a combination of lectures, guest speakers, discussion groups, field trips, experiential learning in the city of Halifax. Assignments include written reflections on specific sites in Halifax which students are expected to visit and explore, a public engagement project, and a series of quizzes (there is no final exam).	3		UG		SF

CANA 1103 Halifax and the World: Part II	Canadian Studies	Arts & Social Sciences	This course builds on INTD/CANA 1102.03 (Halifax and the World: Part I) with a continued focus on the connections between important global issues and your daily life as a student in Halifax. The course will focus on connections between life in Halifax and global development issues in other parts of the world. In particular, the course will highlight the 'commodity chains' that connect our daily consumption decisions to other people around the world who are involved in the life cycle of those commodities – from their production through to their disposal. The course will also specifically address the ethical questions and challenges that emerge from these connections and the practical ways in which we might respond to those questions. As in the first semester, the course will a combination of lectures, guest speakers, discussion groups, field trips, and experiential learning in the city of Halifax. The assignments will include written reflections on specific sites in Halifax which students are expected to visit and explore, a public engagement project, and a series of quizzes (there is no final exam).	3		UG	Schnurr M.	SF
CANA 2001 The Idea of Canada: Social and Political Perspectives	Canadian Studies	Arts & Social Sciences	This course employs an interdisciplinary approach to focus on selected themes in Canadian history and society. It explores developments before and after the arrival and European peoples, and focuses on the rise and the impact of settler colonialism. It examines major events in the formation of Canada, and gives students the opportunity to work directly with primary sources. Themes may include, but are not restricted to: Indigenous history and culture; imperial influences and colonialism; political and constitutional reform; bilingualism and multiculturalism; nationalism and ethnic conflict; globalization and protest movements.	3		UG		SF
CANA 2005 Introduction to African Canadian Studies: Society, History and Culture	Canadian Studies	Arts & Social Sciences	There has been a presence of African peoples in Canada for over 400 years; however, the rich histories of African-Canadian people have been often ignored. This course examines African Canadian society and culture from the historical to contemporary period. Topics will include patterns of immigration and settlement, slavery, family, continental African and diasporic connections, identity, arts and culture, education, religion, employment, justice and the law, the media, diasporic debates, Black struggles and resistance, and African Canadian achievements. The course will be taught from a critical race and gender perspective, and will include readings about the diverse Black communities across Canada.	3		UG	Saney I.	SF

CANA 2050 Historical Issues in Indigenous Studies	Canadian Studies	Arts & Social Sciences	This course is an interdisciplinary introduction to the history of encounters and relationships between indigenous peoples and European settlers in Canada. Topics may include treatise, colonial policy, residential schools, child welfare, resettlement, and the Indian Act. This course provides the necessary background to understand contemporary Indigenous issues.	3		UG		SF
CANA 2052 Contemporary Issues in Indigenous Studies	Canadian Studies	Arts & Social Sciences	This course offers an interdisciplinary introduction to contemporary challenges faced by Indigenous peoples in Canada. Topics may include language and culture, land rights, economics, governance and treaty relationships, child welfare and education, health, social services, environmental issues, violence, criminal justice and self-determination, political mobilization and resistance, and decolonization.	3		UG	Doyle-Bedwell P.	SF
CANA 3052 Indigenous Social Health and Environmental Issues	Canadian Studies	Arts & Social Sciences	This course offers an interdisciplinary overview of contemporary social, health, and environmental issues impacting Canada's Indigenous Peoples. Topics will include an exploration of the human rights of Indigenous Peoples in Canada, social statistics, food security in northern communities, health and well-being in Indigenous communities, connection to place, impact of environmental degradation and land dispossession, Indigenous knowledge and the environment, politics and political activism, and the role of media.	3		UG	Doyle-Bedwell P.	SF
CANA 2218 Canadian Economy: Policy Issues	Canadian Studies	Arts & Social Sciences	Canada's economy today faces many problems: unemployment, productivity, income distribution, environmental protection, trade relations, federal-provincial fiscal relations, maintenance of social programs, etc. What are the most important economic policy issues that Canada now faces? What is the appropriate policy role for government?	3		UG		SI
CANA 2233 Canadian Economic History	Canadian Studies	Arts & Social Sciences	An examination of the economic history of Canada from the time of Confederation to WWI. Major topics explored include: the economic reasons for Confederation, the building of the CPR, the Wheat Boom, foreign trade and investment and the roots of regional disparities.	3		UG		SI

CANA 2280 African Nova Scotian History	Canadian Studies	Arts & Social Sciences	Do African Nova Scotians constitute a distinct people? This course provides an historical survey of the Black population in Nova Scotia, from its origins through to the present. Treating the people of African descent in Nova Scotia as a particular aspect of the broader African diaspora, we will examine the African Nova Scotian experience in both local and global contexts. The central tenet of the course is that the history of the Black population is an integral component of the region's history: neither can be understood in isolation from the other. A recurring theme is the active and conscious historical agency of African Nova Scotians in the struggle to assert their democratic rights and achieve self-determination.	3		UG		SF
CHEE 4123 Environmental Biotechnology	Chemical Engineering	Engineering	This course outlines the principles and applications of environmental biotechnology. Quantitative tools for describing microbial stoichiometry and kinetics will be examined and related to reactors of interest to environmental engineering. Applications of biological treatment processes will be studied and may include the activated sludge process, lagoons, anaerobic treatment and bioremediation.	3		UG	Madadian E.	SI
CHEE 3560 Green Engineering	Chemical Engineering	Engineering	This course introduces the framework required to assess the environmental impact of products and processes, and provides the foundation for environmentally conscious engineering design. Major sustainability challenges associated with the release of chemicals into the environment will be reviewed. Economic, environmental and social indicators of sustainability, and the criteria for evaluation of sustainable materials and green processes will be covered. Students will evaluate the green attributes of alternative products and processes by applying sustainability metrics.	3		UG	Kermanshahi pour A.	SF
CH&E 5000 Community Health Principles	Community Health & Epidemiology	Medicine	This is an introductory course in Community Health Principles for graduate-level students in the health fields. Community health focuses on the health of populations or groups. The course will cover a broad range of community health issues, and will focus on strategies to improve the health of a population with emphasis on health protection, disease prevention, and health promotion. The student will apply community health principles and acquire in-depth knowledge of specific health topic areas through group and individual projects.	3		G		SI

CH&E 6001 Environ & Occupatnl Health	Community Health & Epidemiology	Medicine	Principles and concepts underlying environments and human health comprise the major focus of this course. The nature of a variety of agents, including chemical, physical, biological, ergonomic and radiation hazards, how these agents are dispersed and transformed in the environment, the pathways of human exposure to these agents, and characterization of the health effects resulting from exposure are reviewed. The course will also discuss human environments as a determinant of health and will consider dimensions of places, spaces and health as factors in the human environment. Two field trips are planned 1) Pockwok water treatment plant 2) Montague Historic Gold Mine. There will also be a laboratory teaching class (at the NRC-IMB) covering personal exposure to volatile organic compounds in the environment. CROSSLISTED: ENVI 5010.03	3		G		SF
CH&E 6001 Environ & Occupatnl Health	Community Health & Epidemiology	Medicine	Principles and concepts underlying environments and human health comprise the major focus of this course. The nature of a variety of agents, including chemical, physical, biological, ergonomic and radiation hazards, how these agents are dispersed and transformed in the environment, the pathways of human exposure to these agents, and characterization of the health effects resulting from exposure are reviewed. The course will also discuss human environments as a determinant of health and will consider dimensions of places, spaces and health as factors in the human environment. Two field trips are planned 1) Pockwok water treatment plant 2) Montague Historic Gold Mine. There will also be a laboratory teaching class (at the NRC-IMB) covering personal exposure to volatile organic compounds in the environment.	3		G	Kim J.	SF
CH&E 6042 Determinants of Health in Human Populations	Community Health & Epidemiology	Medicine	This course will focus on health from a population and societal perspective, with an emphasis on the determinants and distribution of health in human populations. Students will be introduced to basic demographic tools and concepts useful for morbidity decline and change, the medicalization of health, and the changing institutional structure of healthcare delivery. Separate treatment will be given to determinants and consequences of health in the two settings. Population-based approaches to health policy will be explored.	3		G		SI

CH&E 6080 Measurement in Epidemiological Research	Community Health & Epidemiology	Medicine	This course will focus on methodological issues related to the measurement of exposures, outcomes, and other relevant covariates in epidemiological research. Topics to be covered include ecological perspectives in health research measurement, available measurement tools, how to design your own measures and scale development, assessment of reliability and validity, health and quality of life measures, and judging measurement quality. Students will learn how to choose an instrument when designing an epidemiological study and understand the implications of measurement error on their analyses.	3		G	Kephart G. (P) Ilie G.	SI
CHIN 2290 Emerging Giants: The Economic Rise of China and India	Chinese	Arts & Social Sciences	This course examines the economic history, current issues, and future trends of China and India, answering such questions as: What explains China's and India's growth? How is climate change affected by this growth? How are global labour markets affected? Must growth lead to rising inequality? Is democracy required for development?	3		UG		SI
CHMA 3009 Environmental Chemistry	Chemistry	Agriculture	In this course students will undertake an in-depth study of the chemical processes involved in the pollution of the environment. Chemical pollution of the atmosphere, hydrosphere, and lithosphere will each be studied in depth. In each case, chemical solutions to these problems will be considered. Chemical processes such as dissolution, coordination, ion exchange, hydrolysis, ionization, and freezing point depression will be covered.	3		UG	Stratton G.	SF
CHEM 6361 Sustainable Materials Issues	Chemistry	Science	This course will provide a quantitative coverage of matters concerning eco-informed choices of materials for applications, with an emphasis on energy and sustainability.	1.5		G		SF
CIVL 3451 Water Quality and Treatment	Civil Engineering	Engineering	The course expands on the student's previous experience in aqueous chemistry and fluid mechanics. The course provides an Engineering perspective on: (i) water quality analysis, specifically on the physical, chemical and biological characteristics of water; (ii) significance and interpretation of water quality properties; (iii) modeling water quality in natural and engineered systems; and (iv) water treatment systems at the introductory level.	3		UG		SF

CIVL 4200 Transportation Systems	Civil Engineering	Engineering	This course covers urban transportation planning, transportation demand and supply, transportation management. The environmental impact of transportation systems such as noise and air pollution will be examined. Methods to measure, predict, and evaluate impact of transportation modes will be covered.	3		UG		SI
CIVL 4431 Water Distribution and Sewerage Systems	Civil Engineering	Engineering	This design-oriented introduction to municipal engineering is concerned with the hydraulic and hydrologic basis for our water-related urban infrastructure. Specifically, the design of potable water distribution systems, wastewater collection systems, and storm water management systems is presented. The minimization of the environmental impacts associated with the construction of a subdivision is also presented, both qualitatively and quantitatively.	3		UG		SF
CIVL 4440 Water and Wastewater Treatment	Civil Engineering	Engineering	The focus of the course is on design of water treatment and municipal pollution control plants. Lectures and laboratory periods are on physical chemical and microbiological qualities of water and municipal wastewater. Lectures include various unit operations and unit processes of water and domestic wastewater treatment. Field visits to local and water and wastewater treatment plants are included.	3		UG		SF
CIVL 4460 Solid Waste & Landfill Engineering	Civil Engineering	Engineering	This course provides the students with an understanding of the types of solid waste generation, physical and chemical properties of solid waste, solid waste treatment and disposal alternatives, design and operation of a landfill (including landfill components and configuration, landfill sitting, liner system, leachate control and treatment, and gas collection and control system).	3		UG	Lake C.	SF
CIVL 6118 Advanced Wastewater Treatment	Civil Engineering	Engineering	Theory and application of treatment processes for municipal and industrial wastewater. Course is delivered in three modules to cover physical and chemical treatment processes, microbial.	3		G	Stoddart A.	SF

CIVL 6139 Transport Operations	Civil Engineering	Engineering	This course is an introduction to the operation of transportation services at the urban and regional levels. Surveys and data collection, development of computerized data bases, and elements of travel forecasting; trip generation, trip distribution, modal split, trip assignment are covered. Operational characteristics of public transportation, airports and freight distribution systems, and performance evaluation are discussed. Environmental, energy and safety implications of transportation systems, and existing policies are reviewed.	3		G	Habib M.	SI
CIVL 6144 Geo-Environmental Barrier Design	Civil Engineering	Engineering	Geo-environmental aspects of waste management are examined with emphasis on the design of barrier systems to provide long term protection against groundwater contamination. A major focus is the integration of engineering design and dydrogeologic considerations relative to contaminant transport through engineered barrier systems and natural soils.	3		G		SF
CIVL 6414 Environmental Systems Engineering	Civil Engineering	Engineering	This course discusses various operational research techniques and their applications to environmental systems planning and pollution control. Case studies are designed to deal with the planning, design, and operation issues of environmental systems. Uncertainty-based optimization will be discussed for addressing systems' variability and for making decisions with improved cost-effectiveness and efficiency. Computer software packages will be used to enhance the learning experience of the course. PREREQUISITES: Statistics and Engineering Mathematics or consent by the instructor.	3		G		SF
COMM 2310 Business Ethics and Corporate Social Responsibility (CSR)	Commerce	Management	Business Ethics & Corporate Social Responsibility builds student capacity and capability for engaging difficult and complex ethical issues in today's organizations. This course examines common ethical challenges facing today's organizational leaders, and through theoretical and applied knowledge, students develop their awareness, capacity, and capability to scrutinize ethical situations and to develop useful courses of action. The course challenges students to think critically through moral visioning and imagination and prepares students to address everyday organizational ethical challenges with creativity and moral intelligence	3		UG		SI

COMM 2310 Business Ethics and Corporate Social Responsibility (CSR)	Commerce	Management	Business Ethics & Corporate Social Responsibility builds student capacity and capability for engaging difficult and complex ethical issues in today's organizations. This course examines common ethical challenges facing today's organizational leaders, and through theoretical and applied knowledge, students develop their awareness, capacity, and capability to scrutinize ethical situations and to develop useful courses of action. The course challenges students to think critically through moral visioning and imagination and prepares students to address everyday organizational ethical challenges with creativity and moral intelligence	3		UG	Williams K.	SI
COMM 2310 Business Ethics and Corporate Social Responsibility (CSR)	Commerce	Management	Business Ethics & Corporate Social Responsibility builds student capacity and capability for engaging difficult and complex ethical issues in today's organizations. This course examines common ethical challenges facing today's organizational leaders, and through theoretical and applied knowledge, students develop their awareness, capacity, and capability to scrutinize ethical situations and to develop useful courses of action. The course challenges students to think critically through moral visioning and imagination and prepares students to address everyday organizational ethical challenges with creativity and moral intelligence	3		UG		SI
COMM 4315 International and Intercultural Management	Commerce	Management	This senior level course is designed to provide students with the knowledge and skills necessary for effective membership and management in global as well as culturally diverse domestic workplaces. The growing importance of international business and escalating levels of involvement in global competitiveness necessitates that the manager of the 21st century acquire additional skills and abilities for effective international and intercultural interactions at home and abroad. The course content includes such topics as: introduction to comparative and cross-cultural management, variations on cultural orientations and value, cross-cultural communications, employee attitude, motivational issues in cross-cultural settings, differences in management and leadership styles, training for international assignments, cross-cultural staffing, inter-cultural negotiations, ethics and social responsibility, and expatriation and repatriation management. RECOMMENDED prior learning: COMM 3303.03 and COMM 3309.03	3		UG		SI

CPST 3030 Engineering in Society II	Complementary Studies	Engineering	The course provides an overview of the concepts and interrelationships among sustainable development, environmental stewardship and public health and safety in relation to engineering practice. These concepts will be examined through historical examples and current theory and practice of the engineering profession. Lectures and discussion will consider global ecosystem functions, human interactions with the environment, methods of reducing human impacts; methods of achieving sustainability, engineering challenges to enhance sustainable development; and factors that influence occupational health and safety from engineering and management viewpoints. Students will be exposed to management methods and tools such as environmental auditing, ISO 14000, risk analysis and WHMIS and will be expected to consider class topics in relation to their own area of engineering specialization.	3		UG		SF
CPST 3030 Engineering in Society II	Complementary Studies	Engineering	The course provides an overview of the concepts and interrelationships among sustainable development, environmental stewardship and public health and safety in relation to engineering practice. These concepts will be examined through historical examples and current theory and practice of the engineering profession. Lectures and discussion will consider global ecosystem functions, human interactions with the environment, methods of reducing human impacts; methods of achieving sustainability, engineering challenges to enhance sustainable development; and factors that influence occupational health and safety from engineering and management viewpoints. Students will be exposed to management methods and tools such as environmental auditing, ISO 14000, risk analysis and WHMIS and will be expected to consider class topics in relation to their own area of engineering specialization.	3		UG	Ross J.	SF
ECED 6190 Energy Systems Analysis	Electrical and Computer Engineering	Engineering	This course applies systems analysis techniques to assess the major global issues and their relationships with energy, the resources and technologies available to meet future energy needs, potential sustainable energy futures, and the transformative changes needed to achieve these futures.	3		G		SF

ECOA 1000 Principles of Microeconomics (A)	Economics	Agriculture	A course in comprehensive principles of microeconomic theory, covering the market system, producer and consumer theory, environmental and resource economics, and international trade policy. Emphasis in this course is on the application of economics to issues and problems facing many countries and their citizens today. The approach is practical and “real-world,” using microeconomic theory to develop an understanding of the issues and problems being discussed and the policy choices facing governments in dealing with these matters.	3		UG		SI
ECOA 1000 Principles of Microeconomics (A)	Economics	Agriculture	A course in comprehensive principles of microeconomic theory, covering the market system, producer and consumer theory, environmental and resource economics, and international trade policy. Emphasis in this course is on the application of economics to issues and problems facing many countries and their citizens today. The approach is practical and “real-world,” using microeconomic theory to develop an understanding of the issues and problems being discussed and the policy choices facing governments in dealing with these matters.	3		UG	Dunlop D.	SI
ECON 1101 Principles of Microeconomics	Economics	Science	How do you decide whether or not to go to university? Why does the price of pizza change so much less than the price of oil? What will better help prevent climate change: a carbon tax, or a cap-and-trade system? Microeconomic analysis, which considers the behaviour of individuals and businesses, can answer questions like these. FORMATS: Lecture	3		UG		SI
ECON 1101 Principles of Microeconomics	Economics	Economics	How do you decide whether or not to go to university? Why does the price of pizza change so much less than the price of oil? What will better help prevent climate change: a carbon tax, or a cap-and-trade system? Microeconomic analysis, which considers the behaviour of individuals and businesses, can answer questions like these. FORMATS: Lecture	3		UG		SI
ECON 1101 Principles of Microeconomics	Economics	Science	How do you decide whether or not to go to university? Why does the price of pizza change so much less than the price of oil? What will better help prevent climate change: a carbon tax, or a cap-and-trade system? Microeconomic analysis, which considers the behaviour of individuals and businesses, can answer questions like these.	3		UG	Shamsuddin M.	SI

ECON 1102 Principles of Macroeconomics	Economics	Science	Why are some countries rich and others poor? If high oil prices cause the loonie to rise, how are Ontario manufacturers affected? Why were mortgage interest rates above 20% in 1981 but below 5% in 2013? Macroeconomic analysis, which considers the behaviour of the entire economy, can answer questions like these. CALENDAR NOTES: ECON 1101.03 is not required before taking ECON 1102.03. ECON 1101.03 and ECON 1102.03 (together) satisfy the Principles of Economics requirement for Economics majors and for Bachelor of Commerce and Bachelor of Management students.	3		UG		SI
ECON 2213 Emerging Giants: The Economic Rise of China and India	Economics	Science	This course examines the economic history, current issues, and future trends of China and India, answering such questions as: What explains China's and India's growth? How is climate change affected by this growth? How are global labour markets affected? Must growth lead to rising inequality? Is democracy required for development?	3		UG		SI
ECON 2216 Economics of Global Warming	Economics	Science	This course uses economic principles to investigate such questions as: What are the benefits and costs of various time paths for abating emissions? How do we value the well-being of future generations? How do we balance helping the poor with environmental sustainability? What policies can align incentives with environmental sustainability?	3		UG	Forsdyke R.	SF
ECON 2217 Women and the Economy	Economics	Science	This course studies questions such as: Have economic conditions improved for women in Canada over the past 30 years? Is there gender discrimination in the Canadian labour market? What are the economic consequences of divorce? Are women more likely than men to be poor? Are there inequalities within families?	3		UG		SF
ECON 2218 Canadian Economy: Policy Issues	Economics	Science	Canada's economy today faces many problems: unemployment, productivity, income distribution, environmental protection, trade relations, federal-provincial fiscal relations, maintenance of social programs, etc. What are the most important economic policy issues that Canada now faces? What is the appropriate policy role for government?	3		UG		SI

ECON 2850 The Science and Economics of Climate Change	Economics	Science	This course examines how climate change will impact the environment and human activities, and how to formulate and implement economically realistic solutions. It integrates the physical and biological science with economics in order to analyze the response options as we move towards a carbon-neutral society. PREREQUISITES: ECON 1101.03 or ECON 1102.03 or any First year MATH or STAT course	6		UG		SF
ECOA 3002 Agricultural and Food Policy (AH)	Economics	Agriculture	This course introduces students to the structure of the agri-food industry and the process of policy and implementation. A critical assessment of the institutions (organizations, programs, and policies) in agriculture is the main focus of the course. Through guest speakers, students' presentations, interactive class discussions, and lectures, students will learn how policies are developed and who is involved in the policy development process. An historical appreciation for agricultural policy in Canada will be pursued with a critical assessment of these policies. In reviewing policy problems affecting the agri-food industry, students will examine possible solutions to these issues. Topics covered include: reasons for government intervention; historical development of agri-food policy in Canada; the policy process; players in agriculture and food policy; structure of provincial, federal, and cost-shared programs; consumers and food policy; resource and environmental policy; international agricultural and food policies; trade agreements; and agribusiness involvement in agriculture and food policy.	3		UG	Grant H.	SI
ECOA 3008 Environmental Economics (A)	Economics	Agriculture	This course is designed to apply economic theory to the analysis of environmental problems, issues and policy. Students will learn how economic theory can be applied to mitigate the harmful effects of pollution and the inappropriate use of resources. The efficiency and efficacy of market versus non-market solutions will be discussed. Frameworks for measuring environmental costs and benefits will also be developed. The impact of environmental and resource issues on the agri-food industry at all levels in the marketing chain will be examined. Application will include air and water pollution, biodiversity preservation and global environmental problems, including climate change.	3		UG	Clark S.	SF

ECON 3330 International Trade	Economics	Science	This course examines the theory and empirics of international trade, including standard historical trade theories, more recent theories, and evidence regarding these theories. The course investigate factor movements, the welfare effects of trade policies in both industrial and developing countries, and the institutions that have developed to regulate those policies.	3		UG		SI
ECON 3332 Resource Economics	Economics	Science	This course focuses on intertemporal economics and the economics of market failure as they pertain to the use of natural resources. A selection of resource sectors will also be discussed. Fisheries, agriculture, forestry, and energy represent possibilities, but this will vary from year to year.	3		UG	Burton P.	SI
ECON 3335 Environmental Economics	Economics	Science	This course serves as an introduction to environmental economics. Topics include social decision making, externalities and public goods, regulatory approaches (standards, charges, tradable permits), forms of value derived from the environment and measurement techniques.	3		UG		SF
ECON 3335 Environmental Economics	Economics	Science	This course serves as an introduction to environmental economics. Topics include social decision making, externalities and public goods, regulatory approaches (standards, charges, tradable permits), forms of value derived from the environment and measurement techniques.	3		UG		SF
ECOA 4004 Trade (AH)	Economics	Agriculture	This course will provide students with an understanding of the factors that influence the exchange of products, with particular emphasis on trade interventions and institutions. Students will be introduced to trade theory, which they will use to evaluate trade policy issues. Students will learn how various government policy instruments and institutions affect international and interregional trade. Also, the complex set of rules and regulations governing international trade, such as the WTO, will be analyzed. The consequences of, and linkages among, international trade, the environment, and economic development will also be pursued.	3		UG	Dunlop D.	SI
ECOA 4006 Intermediate Econometrics	Economics	Agriculture	This course will combine statistics and economic theory using the regression model. Topics will include a selection of limited dependent variable models commonly arising in economics including: Logit, Probit, Tobit Heckman double hurdle and frequency of purchase models. Other topics will include simultaneous equation models, panel data econometrics and time series models. Applications will be presented in the areas of Environmental, Resource, Food and Agricultural Economics.	3		UG	Clark S.	SI

ECON 4317 Poverty and Inequality	Economics	Science	Why are some people poor, while others are rich? Why do some nations have more poverty or inequality than others? What can or should be done? This course examines the extent of poverty and inequality in contemporary societies, and the theories underlying alternative measures and explanations.	3		UG		SF
ECON 5000 Development Microeconomics	Economics	Science	This course introduces students to microeconomic models particularly relevant to understanding economics in a developing country context. These models help us to understand some of the difficulties for firms in a developing country and the challenges for individuals and households to emerge from poverty, as well as solutions. Topics may include: theories of the household and fertility, labour market models in a developing country context, the environment and development, land markets, credit markets, human capital, technology, and political economy models.	3		G		SI
ECON 5252 From Disaster Relief to Development	Economics	Science	This course introduces students to the growing literature built around comparative experiences of disaster prevention, relief and sustainable development. Frameworks for better understanding the reasons behind a cross-section of complex disasters are explored. Ways to improve development planning at both project and broader community and national policy levels are examined. Main themes include food and clean water, (security of aid distribution, drought reduction); responsible ocean governance; refugees, asylum seekers and settlements for sustainable development; early warning systems for hurricanes, volcanoes, forest fires and famines - their integration into national development planning and emergency programming in the context of global warming, political and economic instability, as well as issues of humanitarian law and peacekeeping. Case studies are routinely drawn from a number of World Bank, UN, EMO, NGO and International Red Cross and Red Crescent experiences, as a part of the course's applied orientation. Follow-up research projects and internship experiences may be facilitated as an extension of this course. FORMATS: Seminar	3		G		SF

ECON 5254 Applied Development Economics	Economics	Science	This course focuses on the theory and evidence of economic development, and from these draws out implications for policy and practice. The aim of this course is to provide an overview of the current literature on the microeconomic foundations of development as well as the literature explaining the macroeconomic factors hindering economic development. Topics covered include the role of human capital (health, education), the functioning of factor markets, the role of institutions in mediating change and paths for sustainable growth, economics of conflict and women empowerment. On the methodological side, we will examine econometric techniques that researchers have used to identify causal relationships (ordinary least square, panel data, instrumental variables, randomized experiments, difference-in-differences, regression discontinuity design).	3		G	Akbulut-Yuksel M.	SI
ECON 5317 Poverty and Inequality	Economics	Science	Why are some people poor, while others are rich? Why do some nations have more poverty or inequality than others? What can or should be done? This course examines the extent of poverty and inequality in contemporary societies, and the theories underlying alternative measures and explanations.	3		G		SF
ECON 5517 Environmental Economics	Economics	Science	This course is designed as an introduction to the theory and application of environmental economics. It includes the theoretical analysis of 1) interpersonal and intertemporal decision-making criteria; 2) public goods and externalities (such as pollution) and the advantages/disadvantages of regulatory mechanisms; 3) valuation of environmental benefits or damages (e.g., compensating and equivalent variations); 4) preference revelation (e.g., surveys, hedonic pricing, and travel-cost methods); and 5) anthropocentric valuation of the environment (e.g., existence value, access value, option value and quasi-option value) and the possibility of nonanthropocentric decision making. Empirical analyses will be discussed where the above approaches have been implemented.	3		G	Burton P.	SF
ENGL 3040 Irish Literature. 1700-1900: Satire, Sentiment, and the Gothic	English	Arts & Social Sciences	This course will survey Irish writing in English from 1700 to 1900 and emphasize three literary modes significant to this body of work—satire, sentiment, and the gothic—across the genres of poetry, drama, and prose fiction. Possible authors include Swift, the Sheridans, Moore, Mangan,LeFanu, the Wildes, and Stoker. Includes sections on colonialism, gender, and eco-history	3		UG	JM Wright	SI

ENGL 5973 Climate Fiction	English	Arts & Social Sciences	This course will focus on climate fiction, with particular attention to contemporary science fiction representations of climate change. It will also introduce students to the methodologies of ecocriticism, ecofeminism, and petrocultures, among others.	3		G	Haslam J.	SF
ENGM 4675 Risk Assessment and Management	Engineering Mathematics	Engineering	This course introduces the risk assessment and system reliability methodologies, from classical event trees to simulation. Examples of risk-based decision making analyses will be covered, ranging from oil exploration to environmental site remediation. The student will carry out a risk assessment involving design decisions on a project of their own choosing.	3		UG	Fenton G.	SF
ENGM 6675 Risk Assessment and Management	Engineering Mathematics	Engineering	This course introduces risk assessment and system reliability methodologies, from classical event trees to simulation. Examples of risk-based decision making analyses will be covered, ranging from oil exploration to environmental site remediation. The student will carry out a risk assessment involving design decisions on a project of their own choosing.	3		G	Fenton G.	SF
ENGN 2014 Bioresource Processing (A)	Engineering	Agriculture	This course deals with the technologies of converting biomass into upgraded fuels as well as direct combustion. Students are introduced to biomass conversion; physical conversion of biomass (drying, dewatering, densification); thermo-chemical conversion of biomass (torrefaction, pyrolysis, gasification, combustion); heat and power applications; biogas production (digester design and kinetic considerations); ethanol and bio-diesel conversion technologies; and environmental impacts.	3		UG	He Q.	SF
ENVA 2000 Environmental Studies I (A)	Environmental Sciences	Agriculture	This is the first of a two-semester course sequence that deals with environmental issues from both an agricultural and a socio-economic basis. The scientific principles of each issue will first be outlined and explained, and then the agricultural and socio-economic aspects of the issue will be examined. The topics to be emphasized in this course will include issues associated with population growth, the atmosphere, and the hydrosphere. Students will be expected to show their understanding of the interplay between agriculture and environmental issues by writing a major term paper.	3		UG		SF

ENVA 2001 Environmental Studies II (A)	Environmental Sciences	Agriculture	This is the second of a two-semester course sequence that deals with environmental issues from both an agricultural and a socio-economic basis. All aspects of the issues will be integrated to provide an overall view of each issue. The topics to be emphasized in this course will include issues associated with biodiversity, the lithosphere, waste management, and legal aspects of the environment. Students will be expected to show their understanding of the interplay between agriculture and environmental issues by writing a major term paper.	3		UG	MacDonald M.	SF
ENVA 2002 Composting and Compost Use (A) DE	Environmental Sciences	Agriculture	Composting and the utilization of organic matter produced on the farm provide the basis for soil fertility in organic systems; however, potential benefits derived from compost use are often limited by the supply and quality of composts produced on-farm. The objective of this web-based course is to teach composting primarily by providing students with the opportunity to make their own compost over a period of 13 to 15 weeks. Students learn through five stand-alone modules*: Composting of Organic Materials (how the underlying principles of composting are applied when combining various feedstock materials for composting); Composting Process (how to evaluate and manage an actively working pile and troubleshoot to maintain optimum conditions for composting); On-Farm Composting (efficient and low cost composting methods for agricultural composting at various scales); Compost Quality (how to evaluate the quality of the finished compost, as well as the quality requirements of various standards, markets, and end uses for compost); and Compost Utilization and Marketing (considerations and requirements for the optimal use of compost in organic greenhouse crop production and organic farming systems, as well as factors which are important in the marketing of compost).	3		UG		SF

ENVA 2003 Introduction to Urban and Peri-Urban Agriculture (A) (H)	Environmental Sciences	Agriculture	Long considered a sustenance necessity in the Global South, peri-urban and urban agriculture (UA) is experiencing a resurgence in popularity in developed nations, with thousands of projects being implemented in cities across North America, Europe, and Asia. This course will provide an introduction and overview to the science, society, design, and development of UA projects around the world. Topics to be considered include historical precedents (e.g. allotments and community gardens), foundations (e.g. food systems and food literacy, urban regeneration, aesthetics and design), and technical elements (e.g. soil and water management, municipal planning). This course will be taught on-line with weekly 'lab' meetings in which students are interlinked via the inter-campus AV networking system (so that no travel is required). Assignments will have enough latitude to appeal to students who are interested in any or all of the agriculture and food, sustainability and planning, international development and urban regeneration, and individual health and social well-being.	3		UG		SF
ENVA 2003 Introduction to Urban and Peri-Urban Agriculture (A) (H)	Environmental Sciences	Agriculture	Long considered a sustenance necessity in the Global South, peri-urban and urban agriculture (UA) is experiencing a resurgence in popularity in developed nations, with thousands of projects being implemented in cities across North America, Europe, and Asia. This course will provide an introduction and overview to the science, society, design, and development of UA projects around the world. Topics to be considered include historical precedents (e.g. allotments and community gardens), foundations (e.g. food systems and food literacy, urban regeneration, aesthetics and design), and technical elements (e.g. soil and water management, municipal planning). This course will be taught on-line with weekly 'lab' meetings in which students are interlinked via the inter-campus AV networking system (so that no travel is required). Assignments will have enough latitude to appeal to students who are interested in any or all of the agriculture and food, sustainability and planning, international development and urban regeneration, and individual health and social well-being.	3		UG	Lynch D.	SF
ENVA 3000 Environmental Impact Assessment	Environmental Sciences	Agriculture	An introduction to the study and assessment of environmental toxicity and ecotoxicology as they are used to predict the environmental impact of agricultural, industrial, and other xenobiotics and associated processes. The laboratory portion of the course will deal primarily with bioassay and assessment techniques.	3		UG	Murray G.	SF

ENVA 3002 Waste Management and Site Remediation (A)	Environmental Sciences	Agriculture	This course will examine the following topics: pollution from wastes, waste disposal and treatment, the use of wastes, wastes as resources, recycling, composting, waste reduction, incineration, biomass from wastes, biogas production, site remediation, and bioremediation. Agricultural wastes will be emphasized throughout the course.	3		UG	Niu H.	SF
ENVA 3003 Environmental Studies Field Course	Environmental Sciences	Agriculture	This 12-day course is designed to provide students with an opportunity to pursue a holistic approach to solve real environmental problems. It will be held at (an) environmentally significant site(s). Students will be expected to pre-plan and to perform on-site analyses to identify any environmental problems. An interim report of findings will be required during the course. After completion of the field work, students are expected to write a report of their findings with appropriate recommendations regarding solutions to identified problems. Students should contact the course instructor prior to October 15 in the preceding Fall semester for scheduling information about the course. Expenses associated with the course are the responsibility of the student. The course is offered subject to enrollment. CALENDAR NOTES: Summer semester	3		UG		SF
ENVA 3004 Principles of Pest Management (A)	Environmental Sciences	Agriculture	An investigation of the philosophy of pest management. Topics will include the study of different approaches to pest management and an assessment of the use of single versus integrated pest control options. Costs of pest control from economic, social, and environmental perspectives will be discussed.	3		UG		SI
ENVA 3021 Ecohydrology (A)	Environmental Sciences	Agriculture	This course deals with the emerging green infrastructure tool of ecohydrology for water resource protection. The emphasis is on best management practices (BMPs) that combine environmental engineering and landscape design to mitigate against damage caused by urban and rural development. Topics to be covered include: waterscape ecology, non-point source pollution, soil erosion, and the BMPs of buffer strips., stormwater treatment wetlands, runoff bioswales, rain gardens, and green ecoroofs in Canadian and international settings.	3		UG		SF

ENVA 3021 Ecohydrology (A)	Environmental Sciences	Agriculture	This course deals with the emerging green infrastructure tool of ecohydrology for water resource protection. The emphasis is on best management practices (BMPs) that combine environmental engineering and landscape design to mitigate against damage caused by urban and rural development. Topics to be covered include: waterscape ecology, non-point source pollution, soil erosion, and the BMPs of buffer strips., stormwater treatment wetlands, runoff bioswales, rain gardens, and green ecoroofs in Canadian and international settings.	3		UG		SF
ENVA 4006 Air, Climate and Climate Change (A)	Environmental Sciences	Agriculture	This course examines the composition of our atmosphere, how it functions to create weather and climate, and its role in agricultural production. A fundamental understanding of chemistry and physics of atmospheric processes will provide the basis for an examination of micro-, regional- and global-scale meteorological processes. The expression of these meteorological processes will be examined over time and space as a means of examining climate and climate change. The role of weather and climate in agricultural production will be discussed. The global debate surrounding anthropogenic greenhouse gas emissions and climate change will be considered from scientific, social and political perspectives. Agricultural adaptation to climate change, both regionally and globally, will be considered. The laboratory portion of the class will examine the tools for measuring the composition of the atmosphere, the physical state of the atmosphere, the transfer of heat and mass to and within the atmosphere, and the use of weather and climate data in agricultural decision-making.	3		UG		SF
ENVE 3251 Environmental and Industrial Microbiology	Environmental Engineering	Engineering	The principles of microbial communities are applied to biological systems. Emphasis is placed on microbial populations in air, soil and water. Further investigation includes microorganisms found in food, aquaculture and mining industries. Applications of microbial ecology to agriculture, industry, biotechnology and environment are examined.	3		UG		SI

ENVE 3461 Environmental Measurement and Analysis	Environmental Engineering	Engineering	This course will cover the fundamentals of characterizing and monitoring processes within environmental systems through measurement and analysis. The course will begin with an overview of transducers and the various types of sensors and data acquisition systems typically used in environmental monitoring. Students will learn how to properly measure fluid flow processes and sample for contaminants within surface water and ground water. In addition, the measurement and analysis of contaminants in soil and atmospheric media will be covered. Data presentation and the use of geographical information systems (GIS) and global positioning systems (GPS) will also be covered. Students will gain hands-on experience using environmental monitoring equipment and instrumental methods of analysis during field and laboratory classes. Students taking this class as a core course will be expected to attend a two-day surveying field camp on the Sexton Campus over the first weekend of term.	3		UG		SI
ENVE 3500 Air Quality	Environmental Engineering	Engineering	This course covers sources, the impact on health and the environment, atmospheric chemistry, fate and transport and the measurement and modeling of atmospheric pollutants. The application of regulatory computer models to air quality case studies will be demonstrated in laboratory classes. In addition, field and laboratory classes will provide hands on experience of measuring and characterizing air pollutants. Problem solving sessions are used to illustrate the application of meteorology, measurements and models to determine the sources and impact of air pollutants at various receptors found both outdoors and indoors.	3		UG	Boutilier L.	SF
ENVE 4641 Contaminant Fate and Transport	Environmental Engineering	Engineering	This course focuses on the quantitative analysis of mechanisms that control the fate and transport of contaminants in the environment. The occurrence, movement, and transformation of contaminants in a variety of environmental media, including surface waters, terrestrial environments, and the atmosphere are covered. A 3-d field lab will be held at the beginning of the semester, in which students will gain experience in: (i)sampling environmental media, and (ii)characterizing transport processes in terrestrial and aquatic environments.	3		UG	Jamieson R.	SF

ENVE 4772 Environmental Assessment and Management	Environmental Engineering	Engineering	This course examines the ecological impacts of human activities with regard to water, air and soil pollution. Ecological theory and practice are reviewed and methods of environmental regulation and management considered in the light of the concepts of sustainability and maintenance of biodiversity. Lectures will include presentations by government and corporate regulators and managers. Tutorials will be devoted to the preparation and presentation of hypothetical environmental impact statements and assessments.	3		UG		SF
ENVI 5001 Environmental Assessment	Environmental Studies	Management	Students explore all aspects of environmental assessment (EA), with a focus on EA processes in Canada. The course examines professional practice in scientific, procedural and political dimensions. Current cases are studied opportunistically. Students learn the materials through case studies, seminars, group projects and research papers.	3		G		SF
ENVI 5010 Introduction to Environmental and Occupational Health	Environmental Studies	Management	This course will introduce students to many of the principles and concepts underlying environmental and occupational health, focusing on human health. It will review the nature of a variety of agents, including chemical, physical, biological, ergonomic and radiation hazards, how these agents are dispersed and transformed in the environment, the pathways of human exposure to these agents, and characterization of the health effects resulting from exposure. It will present methods for evaluating and controlling hazards, including occupational hygiene evaluation techniques and risk assessment models used in environmental settings. A number of case studies will be covered in detail, including indoor air quality, heavy metals exposure, and organic dust in workplace environments. Special topics will include risk communication and health promotion in the workplace. The course will conclude with a summary of legislative initiatives and standards which have been implemented to protect human health and an evaluation of their effectiveness.	3		G	Kim J.	SF
ENVI 5011 Pollution Abatement: Monitoring, Mitigation and Management	Environmental Studies	Management	This course will be relevant to students with an interest in the management of anthropogenic impacts or pollutants in the environment arising from industrial activities. The course will be broad in scope, reflecting the course instructor's experience in conducting academic research and management of environmental pollution and human impacted ecosystems.	3		G		SF

ENVI 5021 Fisheries Management	Environmental Studies	Management	This interdisciplinary course focuses on the theory and practice of fishery management, with emphasis on Sustainable Fishery Systems. It will address the structure and dynamics of fisheries, and key themes in managing fisheries for sustainability and resilience, through class seminars and discussion, as well as attendance at related fisheries and coastal events.	3		G		SF
ENVI 5031 Economics for Resource and Environmental Management	Environmental Studies	Management	This course is designed as a one term introduction to economics for graduate students who do not have any or limited undergraduate economics training. However, it is also suitable for students with prior economics training who are interested in exploring the environment-economy relationship further. The course begins with a brief but intense guided tour of economics. We then focus on key topics in environmental economics, including among others:* the sustainable economy* theory of market failure, public goods and externalities* environmentalist critiques of economic thinking* environmental and natural resource accounting* economic valuation of the environment* time in economic/environmental analysisThe final part of the class explores the theory and practice of a new discipline which better integrates environmental and economic analysis; namely the field of “ecological economics”. The course is open to students in other parts of the University who are interested in economy and environment.	3		G		SF
ENVI 5039 Indigenous Perspectives on Resource and Environmental Management	Environmental Studies	Management	This course explores issues concerning Indigenous peoples’ relationships with natural resources and settler populations within a broad socio-politico-environmental context. We will review key Canadian and international laws and guiding frameworks affecting Indigenous participation and leadership in land and resource use, environmental management and planning. In developing an understanding of Indigenous peoples’ perspectives on resource and environmental management, direct engagement must be central to the process. Therefore, students will have the opportunity to learn directly from guest Elders and Indigenous leaders who are involved in resource and environment issues. Key readings in this course will also be by Indigenous scholars who are leading the way in shaping the discourse and approaches to Indigenous resource and environmental management. We will also consider approaches to collaboration and research that are developed by, with and for Indigenous communities.	3		G		SF

ENVI 5041 Environmental Education	Environmental Studies	Management	Environmental education for all ages is a critical step in fostering sustainable behaviours and achieving higher level environmental goals. This course takes an interdisciplinary approach to studying environmental education, examining the cognitive and social science underpinnings of behaviour change. Through course readings and experiential "hands-on" learning opportunities, students are invited to critically evaluate how environmental educators create effective and authentically engaging programs. This course examines environmental education for both youth and adults in formal school settings, wilderness settings and in urban settings. Course readings and lectures also explore the influence that mass media has upon environmental behaviour, as well as how policies aim to change and/or modify environmental behaviour.	3		G		SF
ENVI 5047 Biodiversity Conservation System Design	Environmental Studies	Management	Biodiversity conservation systems are increasingly necessary as human activities dominate the landscape, seascape and freshwater systems. Precise prescriptions for conservation design are evolving. The theory and practice of conservation system design are explored through lectures, student presentations, discussions and exercises, as an active learning module involving the students, the instructor and the broader community. Topics include representation of ecological systems, focal species, population viability, habitat suitability, landscape ecology, connectivity, road ecology and planning for species shifts in response to climate change.	3		G	Beazley K.	SF
ENVI 5204 Coastal Zone Management	Environmental Studies	Management	This seminar is designed to introduce students to the concepts, principles, approaches and issues associated with integrated management of coastal zones worldwide. Coastal zones are critical areas of transition between land and sea, involving complex overlaps between resource uses and government jurisdictions. This course will address the legal, policy and administrative frameworks prevailing in Canada, but will do so within the global context of coastal zone management. Case studies and examples from developed and developing countries will be used to present practical approaches to the management of multiple uses in coastal zone, including community-bases management models. The seminar will be conducted by lecture, formal student presentations, questioning and discussions of course material. CROSSLISTED: LAWS 2041.03, MARA 5009.03	3		G		SF

ENVI 5205 Law and Policy for Resource and Environmental Management	Environmental Studies	Management	This course provides students with an overview of substantive and procedural aspects of Canadian law and policy related to natural resources and the environment. The course will involve lectures, guest speakers, seminar discussions and class participation. Strong emphasis is placed on the Canadian legislative and regulatory framework and the unique character of the regulated subject areas such as toxic substances, air and water quality, fisheries, forests, agriculture, minerals, parks and biodiversity. The role of the common law in preventing or redressing environmental degradation will also be addressed.	3		G	Tyedmers P.	SF
ENVI 5500 Socio-political Dimensions of Resource and Environmental Management	Environmental Studies	Management	The goal of this course is to introduce students to the social, cultural, and political dimensions regarding resource and environmental management. Key objectives are to introduce, analyze, and utilize a range of frameworks for understanding the human dynamics of resource and environmental management decision-making. Because this course is integrated with ENVI5205 (biophysical dimensions of resource and environmental management) and ENVI5505 (law/policy dimensions of resource and environmental management) in the same term as required for the MREM program, there is a focus on common case studies to demonstrate the interconnectedness of these dimensions. Student groups in this course undertake in-depth investigation of the socio-political elements of resource and environmental management cases in Atlantic Canada.	3		G	Zurba M.	SF
ENVI 5504 Management of Resources and the Environment	Environmental Studies	Management	Students explore key management concepts applied in managing natural resources and the environment. Topics include management paradigms, systems, principles, approaches, tools and institutions associated with a wide range of sectors such as fisheries, forests, agriculture, the coastal zone, oceans, parks and protected areas, energy, waste, water, and others. Case studies complement lectures, seminars and field trips.	3		G		SF

ENVI 5505 Biophysical Dimensions of Resource and Environmental Management	Environmental Studies	Management	This course will introduce students to techniques and tools employed in natural resource and environmental management programs and projects and engage students in case-based problem solving learning intended to understand how bio-physical information is utilized in assessing resource and environmental issues and contributing to effective decision-making. Some of the tools that will be reviewed are environmental impact assessment, environmental site assessment, life cycle analysis, environmental monitoring and adaptive environmental assessment and management.	3		G	Walker T.	SF
ENVI 5506 CSR in Natural Resource Sectors	Environmental Studies	Management	The course introduces students to the concept of Corporate Social Responsibility (CSR) and how it is applied in natural resource sectors including oil & gas, mining, agro-food, seafood and forestry. Both theoretical and practical aspects of CSR are addressed, giving students a solid base of knowledge to become CSR practitioners in natural resource sectors. An overview of the global environmentalist movement is first presented to give students some context on where the concept of sustainability came from and how the expectations from the business community have changed over time. The link between sustainable development and CSR is discussed. The business case for CSR is explained along with the review of alternative business models. The practice of CSR in each sector is covered independently first looking at the nature of industry, the main sustainability issues and what practical steps businesses can take to contribute towards sustainability goals. Finally, practical ways of integrating CSR in a business strategy are reviewed.	3		G		SF
ENVI 5507 Environmental Informatics	Environmental Studies	Management	Environmental informatics refers to digital systems for environmental monitoring, analysis, communication and decision making. The course will cover: digital data and where to find it; how to access such data ethically and manage it intelligently; tools and techniques necessary for making best use of those data; and, a working knowledge of a subset of those datasets, tools and techniques, including census, spreadsheets, database management systems and geographic information systems.	3		G		SF

ENVS 1100 Foundations of Environmental Science: Ecosphere, Resources & Sustainability	Environmental Studies	Science	This course introduces students to key topics in Environmental Science including science literacy, environmental ethics, principles of ecology, evolution, biodiversity, human population growth, soil, agriculture, forestry, and oceans and freshwater systems. Tutorials reinforce and supplement lectures and allow for small group discussion and debate.	3		UG		SF
ENVS 1200 Current Environmental Challenges: Analysis and Solutions	Environmental Science	Science	This course introduces current issues and challenges in Environmental Science including air pollution and climate change, non-renewable and renewable energy, waste, urbanization, environmental law, and sustainability and education. Tutorials reinforce and supplement lectures and allow for small group discussion and debate.	3		UG	Cray H.	SF
ENVS 2000 Urban Field School	Environmental Science	Science	This field course offers an introduction to urban environmental science by examining the role of humans in ecosystems and how humans change ecosystem processes and functions within urban areas. Students gain hands-on experience in environmental science techniques during excursions in different urban settings within the Halifax Regional Municipality.	3		UG		SF
ENVS 2310 Energy and the Environment	Environmental Science	Science	The physical principles and limitations of renewable energy source utilization and energy conversion. A quantitative introduction to energy conversion and storage systems, including solar power and heating, wind, tidal, geothermal, hydroelectric, nuclear power, hydrogen technology, electrical and mechanical energy storage. The input of these energy options on the global climate and environment will be discussed.	3		UG	Rahali G.	SF
ENVS 2410 Environmental Issues in Earth Sciences	Environmental Science	Science	Geology underlies many of the environmental problems facing humanity today. Topics include environmental aspects of energy and mineral resource, geologic hazards, geologic connections to pollution and waste disposal, and the role that water plays in its various guises. Canadian examples are incorporated where appropriate. Approved with Canadian Studies.	3		UG	Ryan A.	SF
ENVS 2500 Field Methods in Environmental Science	Environmental Science	Science	A field-based immersion into environmental field sampling methods. Students gain skills in flora and fauna identification and inventory, assessment of ecosystem health, and sampling methods for air and soil. GPS, GIS, and basic remote sensing skills are utilized in sampling design, collection and visualization of results. CALENDAR NOTES: Includes a number of field trips. An auxiliary fee is charged to cover field expenses.	3		UG		SI

ENVS 3100 Environmental Analytics	Environmental Science	Science	This course takes a hands-on approach to data analysis to support environmental conservation. Topics include experimental design, spatial pattern analysis, visualization of 3D data, ecological modelling, and animated mapping of time series data. Emphasis is placed on learning skills directly applicable to conducting environmental research in a variety of settings.	3		UG	Mui A.	SI
ENVS 3200 Introduction to Environmental Law	Environmental Science	Science	This course will take a look at how environmental law operates in Nova Scotia within the Federal framework and it will illustrate some of the multi-disciplinary aspects which make this area of law part science, part art and part soothsaying.	3		UG		SF
ENVS 3200 Introduction to Environmental Law	Environmental Science	Science	This course will take a look at how environmental law operates in Nova Scotia within the Federal framework and it will illustrate some of the multi-disciplinary aspects which make this area of law part science, part art and part soothsaying.	3		UG	Simpson J.	SF
ENVS 3225 Plants in the Human Landscape	Environmental Science	Science	The use of plants for human recreation and aesthetic purposes in gardens, public parks, suburban and urban landscapes. Topics include: history of gardens, garden design, plant materials, edible landscaping, plants and human health. The course includes field trips and group work and students complete a design project.	3		UG	Rajaselvam R.	SI
ENVS 3226 Economic Botany, Plants and Civilization	Environmental Science	Science	The story of the human use of plants for food, fibre and fuel including the botany, domestication, development, distribution, production, processing, history, economic and social impacts of the major world crops (cereals, fruits, vegetables, flowers and industrial crops) and the importance of plants in medicine and conservation. PREREQUISITES: A grade of C+ or higher in BIOL 1010.03 or (BIOL 1020.03 or BIOA 1002.03 or BIOL 1030.03) and BIOL 1011.03 or (BIOL 1021.03, BIOA 1003.03, or BIOL 1031.03); or SCIE 1505.18	3		UG		SF

ENVS 3500 Geoscience Information Management	Environmental Science	Science	Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a fundamental role for a wide range of applications, from modeling, to analysis and predictions, to decision making. The course is designed for a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of topical areas.	3		UG		SF
ENVS 3501 Environmental Problem Solving I	Environmental Science	Science	This course introduces students to concepts and methods for analyzing environmental problems. Students will learn analytical approaches for problem solving that are appropriate for a wide range of environmental issues and apply these to the analysis of case studies.	3		UG		SF
ENVS 3502 Environmental Problem Solving II: The Campus as a Living Laboratory	Environmental Science	Science	In this course the campus serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater campus sustainability. Working in groups, students apply problem solving models to case studies using qualitative and quantitative research methods and make recommendations for improvements on campus based on their analyses.	3		UG	Cray H.	SF
ENVS 3601 Global Biogeochemical Cycles	Environmental Science	Science	An interdisciplinary course that examines example global cycles of water, carbon, nitrogen, phosphorus, and sulphur, and human impacts on these cycles, as manifested in our atmospheric, soil, ocean and freshwater environments. This course involves discussion of the latest developments in this rapidly changing field and will provide a framework for those interested in global change.	3		UG	Sterling S.	SF

ENVS 3623 Applied Coastal Ecology	Environmental Science	Science	Impacts of anthropogenic inputs on the structure and function of coastal ecosystems. Through field trips and other classwork, students examine ecosystem health, e.g., in macroalgal communities on rocky shores, in seagrass beds on sedimentary shores, and learn basic experimental design, principles of environmental assessment and monitoring, and coastal habitat remediation.	3		UG		SF
ENVS 3633 Spatial Information and GIS in Ecology	Environmental Science	Science	A hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address an applied problem in ecology.	3		UG		SI
ENVS 3702 Sustainable Industries	Environmental Science	Science	This course introduces concepts and methods for analyzing industrial sustainability through an interdisciplinary lens including economic, social and environmental considerations. The business case for industrial sustainability, the tools necessary to decouple economic growth of our business sectors from resource use and environmental degradation, and the role of sustainable industries in the sustainable development agenda are explored.	3		UG	Adams M.	SF
ENVS 4001 Environmental Impact Assessment	Environmental Science	Science	This courses provides an opportunity to explore all aspects of environmental impact assessment (EIA) as practiced in Canada and in other countries. The courss traces the development of EIA over the past 30 years and critically examines the scientific, procedural and political dimensions.	3		UG		SF
ENVS 4003 Coral Reefs and Environmental Change	Environmental Science	Science	Coral reefs are iconic marine ecosystems both biologically and economically. This class introduces students to the biology of both tropical and cold-water corals, key characteristics of their abiotic environments, human impacts at both local and global scales, and management options for sustainable resource use and the the protection of biodiversity.	3		UG		SF
ENVS 4004 Pathways to Sustainable Energy	Environmental Science	Science	Students gain a practical understanding of how to move towards a low-carbon energy future. Students learn about international, national, and subnational policies that drive adoption of renewable energy, energy efficiency, and carbon capture and storage technologies and how the technologies work. The technological barriers to their widespread adoption and how to overcome these barriers are also discussed.	3		UG		SF

ERTH 1060 Earthquakes, Volcanoes and Natural Disasters	Earth Sciences	Science	Earthquakes, meteorite impacts, rapid climate change, volcanic eruptions, hurricanes, landslides, solar flares, and floods are natural disasters that affect our economy, public policy, and safety. Where, why and how frequently do natural disasters occur? Are predictions possible? Are media portrayals of risk and damage realistic? This course, aimed at the nonspecialist, investigates these intriguing questions. Excerpts of “disaster films”, in conjunction with lectures and discussions are used to identify the causes, consequences and sometimes erroneous perceptions of natural hazards. Examples from Atlantic Canada and contemporary disasters are used to assess local risk and real-time events worldwide.	3		UG		SI
ERTH 1090 Geology II	Earth Sciences	Science	Earth systems introduced in Geology I are explored in greater detail, with an emphasis on change through time, earth resources, and on geologic systems that are connected to human actions. This course provides a strong background to pursue further work in the environmental sciences and is the required course for Earth Sciences majors.	3		UG	Arnott A.	SI
ERTH 2270 Introduction to Applied Geophysics	Earth Sciences	Science	An Introduction to using physical principles to explore the Earth's subsurface, with an emphasis on near-surface applications. Topics include seismic, gravity, magnetic, electrical, and electromagnetic surveying techniques, and their application in prospecting, hydrogeology, environmental assessments, and well-logging. The geophysics field school, normally conducted during the last week of April, is an integral part of this course.	3		UG	Zhang M.	SI
ERTH 2380 Geochemistry	Earth Sciences	Science	An introduction to the principles of chemistry applied to geologic systems, including an overview of the chemistry of rocks and minerals, isotopes in the geologic environment, processes that control the mobility of elements in geologic environments, and the use of geochemical data in solving geological and paleo- environmental problems.	3		UG	Cox R.	SI
ERTH 2410 Environmental Issues in Earth Sciences	Earth Sciences	Science	Geology underlies many of the environmental problems facing humans today. Topics include environmental aspects of energy and mineral resource, geologic hazards, geologic connections to pollution and waste disposal, and the role that water plays in its various guises. Canadian examples are incorporated where appropriate. Approved with Canadian Studies.	3		UG	Ryan A.	SF

ERTH 3303 Stratigraphy	Earth Sciences	Science	Stratigraphy is the backbone of the geological sciences; it brings together sedimentology, paleontology, petrology and structural geology to reconstruct Earth history. We survey the impact of sea-level change, tectonics and climate on sediment accumulation, with emphasis on seismic and sequence stratigraphy. Case studies focus on sedimentary basins across Canada, and practical work includes laboratory and class exercises, as well as field excursions.	3		UG		SI
ERTH 3500 Geoscience Information Management	Earth Sciences	Science	Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a fundamental role for a wide range of applications, from modeling, to analysis and predictions, to decision making. The course is designed for a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of topical areas.	3		UG		SF

ERTH 3500 Geoscience Information Management	Earth Sciences	Science	Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a fundamental role for a wide range of applications, from modeling, to analysis and predictions, to decision making. The course is designed for a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of topical areas.	3		UG		SF
ERTH 3601 Global Biogeochemical Cycles	Earth Sciences	Science	We currently face daunting environmental challenges at the global scale that are expected to worsen in the 21st century, including a global water crisis, climate change and pollution of our waters and atmosphere; this course examines the science behind these environmental issues from the multidisciplinary framework of global biogeochemical cycling. With the global scale as the focus, this course pulls together the many disparate fields that are encompassed by the broad reach of biogeochemistry. You will learn about the processes that drive the movement of carbon, water, nitrogen, phosphorus, and sulphur, through the earth system, and the residency of these elements in the atmosphere, soils, lithosphere, oceans and freshwaters. In the quantitative and analytical exercises you calculate and compare the effects of industrial emissions, land clearing, agriculture, and rising population on the processes driving the Earth's chemical cycles. Weekly journal readings for discussion in laboratory group cover the latest developments in this exciting and rapidly changing field. This course provides an excellent framework for those interested in the science of global change.	3		UG	Sterling S.	SF

ERTH 4153 Petroleum Geology	Earth Sciences	Science	The course provides an introduction to petroleum geology (gas and oil) with some discussion of alternative energy sources. The course provides an introduction to petroleum geology and petroleum systems with discussion of basin analysis, source rock evaluation, seismic and well log sequence stratigraphy, core and outcrop description, depositional facies analysis, oil sands geology, biostratigraphy, drilling and completions, petrophysics and well log analysis in addition to other topics. PREREQUISITES: ERTH 2270.03, ERTH 3140.03, ERTH 3303.03	3		UG		SI
ERTH 4410 Environmental Geoscience	Earth Sciences	Science	Environmental geoscience integrates various aspects of earth sciences to critically examine the interaction between humans and the geologic environment. Topics include: environmentally sensitive elements and minerals, geologic hazards, water, soil, mineral and energy issues, use of isotopes as tracers, as well as waste management, radioactivity, and the urban environment.	3		UG		SF
ERTH 4520 GIS Applications to Environmental and Geological Sciences	Earth Sciences	Science	Geographic information systems (GIS) provide a rich set of new tools to the geologist and environmental scientist, not only to solve conventional problems, but also to explore transdisciplinary questions not readily answered by other means. This course builds on the fundamentals of GIS taught in ERTH 3500.03 to explore analytical tools that aid in decision-making processes encountered in mineral exploration, hydrogeology, site selection, environmental assessment, and global change analysis. The course concentrates on case studies and problem solving, including those requiring multi-criteria and multi-objective decision making processes.	3		UG	Greene C.	SI
ERTH 5520 GIS Applications to Environmental and Geological Sciences	Earth Sciences	Science	Geographic information systems (GIS) provide a rich set of new tools to the geologist and environmental scientist, not only to solve conventional problems, but also to explore questions not readily answered by other means. This course builds on the fundamentals of GIS taught in ERTH 3500.03 to explore analytical tools that aid in decision-making processes encountered in mineral exploration, hydrogeology, site selection, environmental assessment, and global change analysis. The course concentrates on case studies and problem solving, including those requiring multi-criteria and multi-objective decision making processes.	3		G	Greene C.	SI

ERTH 5600 Exploring Geographic Information Systems	Earth Sciences	Science	Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a significant role in a wide range of applications, from modeling, to analysis and predictions, to decision making. The course is aimed at a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Students are expected to complete and present a GIS project related to their field of research. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of application areas..	3		G		SF
FIGA 0001: International Politics & Development	n/a	Art & Social Sciences	You are coming to Dal to learn more about international relations and Canada's place in the world. You might be considering either a career in international human rights work, development projects, or politics. You're curious about the political arrangements that structure our world and how to influence them.	0		UG		SI
FIGS 0004: The Ocean	n/a	Science	Who should register: You are coming to Dal to learn more about the ocean. You may be interested in marine mammal conservation or in finding out how to run a sustainable fishery. Or you may be mostly curious about the organisms themselves – what exactly is a wolf fish and where does it live? Perhaps your goal is to understand the ocean as a whole – how large-scale ocean processes influence climate change, for example. In this FIG, you will meet first year students with similar interests. You will have the opportunity to explore these interests and the options for shaping your academic pathway, with senior peers and with experts, all in a small group setting. Relevant Science programs: Marine Biology, Ocean Sciences	0		UG		SI

FIGS 0005: Earth and Environment	n/a	Science	Who should register: You are coming to Dal with an interest in the natural world. You may want to focus your studies on how our world came to be as it is today – continental drift, mountain building, ice ages, river migration, paleobiology, or you may be most interested in how we as humans are changing that world – our impacts on climate, land, water and ecosystems. In this FIG, you will meet first year students with similar interests. You will have the opportunity to explore your interests and the options for shaping your academic pathway, with senior peers and with experts, all in a small group setting. Relevant Science programs: Earth Sciences, Environmental Science, Biology, Chemistry, Economics, Marine Biology, Physics, Statistics, Sustainability	0		UG		SI
GEOA 3000 Rural Geography (H)	Geography	Agriculture	This course focuses on rural geographic problems in Canada and the Atlantic region. Discussion will include, for example, rural land use issues, settlement dynamics, rural resource problems, urban/rural interaction, agricultural change, rural well-being, and rural planning. The geographic perspective emphasizes spatial variability and human/land interactions.	3		UG	Ferguson O.	SI
GEOG 1060 Earthquakes, Volcanoes and Natural Disasters	Geography	Art & Social Sciences	Earthquakes, meteorite impacts, rapid climate change, volcanic eruptions, hurricanes, landslides, solar flares, and floods are natural disasters that affect our economy, public policy, and safety. Where, why and how frequently do natural disasters occur? Are predictions possible? Are media portrayals of risk and damage realistic? This course, aimed at the nonspecialist, investigates these intriguing questions. Excerpts of “disaster films”, in conjunction with lectures and discussions are used to identify the causes, consequences and sometimes erroneous perceptions of natural hazards. Examples from Atlantic Canada and contemporary disasters are used to assess local risk and real-time events worldwide.	3		UG		SI
GEOG 2001 Landscape Analysis	Geography	Art & Social Sciences	Designers and planners need to understand the influence of physical, biological, and cultural systems in landscape evolution, and the relevance of that information in analyzing land capability. Students develop inventory and analysis tools for understanding environmental processes and their implications for design and planning. There will be field trips and a lab component.	3		UG		SI

GEOG 2070 Area Studies on Mexico and Central America	Geography	Art & Social Sciences	Following an examination of the indigenous heritage, and the colonial legacy of the conquistadors, the class deals principally with the contemporary period, examining the Mexican Revolution and its aftermath, the Somoza dynasty, Nicaragua under the Sandinistas, the U.S. role in the region, the human rights situation in Central America, and probable developments in the region. The class is designed to provide an understanding of the contemporary reality of this volatile region, in many ways a microcosm of the crucial situation of Latin America as a whole.	3		UG		SI
GEOG 2201 Introduction to Development I	Geography	Art & Social Sciences	Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine how this situation came to be. It begins by analyzing the different meanings of the term “development” and then examines the major approaches that have shaped practical development initiatives on the ground in the Global South over the past 60 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.	3		UG		SF
GEOG 3102 Coastal Change and Adaptation	Geography	Arts & Social Sciences	Human activities alter coastal environments directly and by influencing natural processes. We analyze the drivers of change and impacts on environment, economy and society. Mitigation and management strategies for sustainable adaptation are investigated. Lectures are integrated with student presentations, guest lectures and discussion of current coastal and marine research.	3		UG	Klein G.	SF
GEOG 3106 The Canadian North	Geography	Arts & Social Sciences	This course introduces the Canadian North through an examination of the challenges faced by northern peoples. Emphasis is placed on the causes and consequences of global environmental change, and interactions with ecological processes and challenges for the human environment. Inuit perspectives of ecological knowledge will complement discussions on planning and development in a warming future. Principles of ecosystem management and emergent challenges for a sustainable future will also be addressed.	3		UG	Medeiros A.	SF

GEOG 2800 Climate Change	Geography	Art & Social Sciences	Most models of the atmosphere predict that increasing concentrations of greenhouse gases will continue to warm the surface of the earth and the oceans in the twenty-first century. The magnitude of the warming and its consequences are still very controversial. This class will discuss, mainly from a nonmathematical viewpoint, the reasons for the greenhouse effect, the current warming in the context of the historical record of climate change, and sources of natural climate variability such as the El Nino Southern Oscillation. It will also review arguments that attribute the warming that has occurred in the Twentieth century to natural variability, and those that attribute the warming to increased human emission of greenhouse gases.	3		UG		SF
GEOG 3500 Exploring Geographic Information Systems	Geography	Art & Social Sciences	Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a fundamental role for a wide range of applications, from modeling, to analysis and predictions, to decision making. The class is designed for a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of topical areas. PREREQUISITES: Two years of university study or equivalent or instructor's permission	3		UG		SF
GEOG 3633 Spatial Information and GIS in Ecology	Geography	Arts & Social Sciences	A hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address an applied problem in ecology.	3		UG		SI

GEOG 4520 GIS Applications to Environmental and Geological Sciences	Geography	Arts & Social Sciences	Geographic information systems (GIS) provide a rich set of new tools to the geologist and environmental scientist, not only to solve conventional problems, but also to explore transdisciplinary questions not readily answered by other means. This class builds on the fundamentals of GIS taught in ERTH 3500.03 to explore analytical tools that aid in decision-making processes encountered in mineral exploration, hydrogeology, site selection, environmental assessment, and global change analysis. The class concentrates on case studies and problem solving, including those requiring multi-criteria and multi-objective decision making processes.	3		UG	Greene C.	SI
GWST 1010 Introduction to Gender and Women's Studies	Gender & Women's Studies	Art & Social Sciences	Gender and Women's Studies is an interdisciplinary field aimed at developing a critical understanding of gender as a category of analysis in scholarly enquiry and social dynamics. Paying close attention to the experiences and perspectives of women, students have the opportunity to examine history, social structures, the sciences, language, literature, culture from the illuminating perspective of gender. In all these areas, Gender and Women's Studies investigates how gender intersects with other variables such as race, class, and cultural difference. This introductory course provides an overview of some of the central topics of Gender and Women's Studies, such as the sex/gender distinction, understanding sexualities, the social construction of motherhood, changing definitions of manliness and womanliness, and the place of sex and gender in the legal system.	3		UG		SI
GWST 1015 Gender and Diversity	Gender & Women's Studies	Arts & Social Sciences	This course continues from "Introduction to Gender and Women's Studies" to focus particularly on the many ways that gender as a social system interacts with other systems of power and inequality. We all make sense of our lives through multiple identities that combine in shifting ways to define our opportunities for action and the limits we face. Identities based on gender, race, ethnicity, age, class, sexuality, disability, nation, or religion are blended in varied ways for individuals, but they are not just individual self-perceptions. They are also elements of larger social systems. Topics may include the multiple identities of the body; race, gender, and violence; diversity and work; contemporary transformations of the family; and gender and globalization.	3		UG	Jeffers A.	SF

GWST 2192 Gender, Sexuality and Society	Gender & Women's Studies	Art & Social Sciences	This course introduces students to the sociological study of gender and sexuality. It explores how socio-economic and cultural conditions—particularly in contemporary Canada— shape our understandings and experiences of gender and sexuality and how both intersect with age, ethnicity, class and other markers of identity. Specific topics to be examined may include the interconnected histories of sexuality and gender expectations in western societies, representations of gender and sexuality in the contemporary media, the family as a changing social institution and/or the social organization of intimate relationships, and different forms of gender and sexual activism and the notions of justice that they represent. Students taking this course will gain an in-depth understanding of gender and sexuality as evolving socially constructed concepts that have real and multiple effects.	3		UG		SF
GWST 2217 Women and the Economy	Gender & Women's Studies	Art & Social Sciences	This course will provide a broad and relatively non-technical analysis of women's economic experiences. For example, we will study questions such as: Are there feminists who are economists? Have economic conditions improved for women in Canada over the past 30 years? How do economic outcomes for women in Canada compare with those in other affluent countries? Is there a glass ceiling for women in the workplace? Is there gender discrimination in the Canadian labour market? Who does the unpaid work? What are the economic consequences of divorce? Are women more likely than men to be poor? Are there inequalities within families? PREREQUISITES: ECON 1101.03/1102.03 with a grade of C- or better	3		UG		SI
GWST 4390 Practicum in Public Policy: NGOs and Government Services	Gender & Women's Studies	Arts & Social Sciences	This course is designed to provide students who have fourth-year standing in Political Science the opportunity to gain practical experience by working at a government or non-government, research, or advocacy organization that is instrumental in shaping public policy or advancing human rights; to learn about the services, projects, and campaigns undertaken by specific organizations; to apply and share the knowledge that they have gained from their academic studies in political theory, public policy, international relations, and/or human rights advocacy; and to become familiar with the day-to-day challenges of employment in government and non-government organizations and public services.	3		UG	Denike M.	SI

HIST 1510 The History of the Future: How Visions of the Future Have Shaped History Around the World	History	Arts & Social Sciences	Climate change, among other prospects, clouds our future. But visions of the future have bewitched, enchanted, and troubled human dreams for millennia. This class explores diverse moments of doubt, desire and dread across global history when oracles, artists, believers and popular leaders projected hopes and fears into near and distant futures. It explores how prophecies of the world's end reordered the world instead, how promises of impending perfection sometimes generated quite opposite results. This class asks how the future is used to shape the present.	6		UG	Bingham J.	SI
HIST 2070 Mexico and Central America since: From Revolution to Drug Wars	History	Art & Social Sciences	Following an examination of the indigenous heritage, and the colonial legacy of the conquistadors, the course deals principally with the contemporary period, examining the Mexican Revolution and its aftermath, Nicaragua under the Sandinistas, the impact of NAFTA, the "democracy" of Mexico, gang wars and narcotics, the U.S. role in the region, the human rights situation in Central America, and probable developments in the region. The course is designed to provide an understanding of the contemporary reality of this volatile region.	3		UG		SI
HIST 2205 Historical Issues in Indigenous Studies	History	Art & Social Sciences	This course is an interdisciplinary introduction to the history of encounters and relationships between indigenous peoples and European settlers in Canada. Topics may include treatise, colonial policy, residential schools, child welfare, resettlement, and the Indian Act. This course provides the necessary background to understand contemporary Indigenous issues.	3		UG		SF
HIST 2280 African Nova Scotian History	History	Art & Social Sciences	Do African Nova Scotians constitute a distinct people? This course provides an historical survey of the Black population in Nova Scotia, from its origins through to the present. Treating the people of African descent in Nova Scotia as a particular aspect of the broader African diaspora, we will examine the African Nova Scotian experience in both local and global contexts. The central tenet of the course is that the history of the Black population is an integral component of the region's history: neither can be understood in isolation from the other. A recurring theme is the active and conscious historical agency of African Nova Scotians in the struggle to assert their democratic rights and achieve self-determination.	3		UG		SF

HORT 1000 Landscape Plants I	Horticulture	Agriculture	Herbaceous and woody plants are studied with respect to their identification, landscape value, and use. Special groups of plants to be studied include plants with fall interest, shade-loving plants, groundcovers, and vines, as well as many other plants suited to Atlantic landscapes, all of which are plants required for Landscape Industry Certification. The lab involves the study of plant families, plant morphology, use of plant keys, plant collecting, and digital herbarium specimens. CALENDAR NOTES: Fall semester	3		UG		SI
HORT 1001 Landscape Plants II	Horticulture	Agriculture	Herbaceous, woody, and aquatic plants are studied with respect to their identification, landscape value, and use. Special plant groups covered in the course include interior plants, culinary herbs, plants with special growth habits, native plants, and bog and marginal plants for aquatic gardens, in addition to many other plants for Atlantic landscapes. The recognition of deciduous woody plants by their winter wood characteristics is included.	3		UG	Smith K.	SI
HORT 2001 Principles of Organic Horticulture (A) DE	Horticulture	Agriculture	Study of the principles that form the basis for organic production of horticultural crops. Special attention is given to regulations, soil fertility, organic soil amendments, compost and mulches, crop rotation, plant health, management of diseases and pests, and companion planting. Students will apply their knowledge through an instructor-approved project that will be presented on-line using an appropriate multi-media venue.	3		UG		SF
HORT 2006 Tree Fruit Crops (A)	Horticulture	Agriculture	Tree fruit production with emphasis on resource conservation is investigated in relation to the region. Origins, history, biosystematics, adaptation, and culture of tree fruits, including organic systems, are studied. Propagation, pruning, training, harvesting, and marketing of these crops are covered in this course.	3		UG	Percival D.	SF
HORT 2007 Small Fruit Crops (A)	Horticulture	Agriculture	The course consists of the study of strawberry, blueberry, raspberry, cranberry, currant, gooseberry, kiwi, elderberry, Saskatoon berry, and grape production. Aspects of propagation through to harvesting and marketing of each crop is discussed. Some aspects of organic production of small fruits are included. Origins, adaptation, and distribution of each crop are examined. New small fruit crop development for nutraceuticals is covered.	3		UG		SI

HORT 2008 Residential Landscape Design and Construction	Horticulture	Agriculture	This course introduces a systematic process for developing residential landscape designs. Emphasis is placed upon maximizing the usefulness of the property and developing it in an environmentally sound and sustainable manner. Grade changes, on-site storm water management, and the engineering use of plants in design is included. Students work with a residential design client from the development of the design brief to the final presentation. Studio exercises will utilize the computer as a design tool as well as manual graphic techniques.	3		UG	Chaisson S.	SF
HORT 2012 Landscape Maintenance	Horticulture	Agriculture	Landscape techniques and standards are discussed, as they pertain to modern landscape maintenance. Experience is gained in documenting activities in existing landscapes. The course provides skills and knowledge to produce accurate schedules for maintaining landscapes including Sustainable Sites.	3		UG	Veitch S.	SI
HORT 3000 Environmental Processes and Natural Landscape Functions	Horticulture	Agriculture	The structure, functions, and dynamics of landscapes that are altered by human design are discussed. Key ecological processes and their disruption, landscape modification, and landscape planning and management will be examined. Students are expected to participate in field work, and to engage in self-directed study. CALENDAR NOTES: Fall semester	3		UG		SF
HORT 4000 Urban Tree Management	Horticulture	Agriculture	This course focuses on the management of the urban forest. Tree inventory systems, planning the urban forest, rhizosphere management, site reclamation, the valuation of urban trees, and trees and the law will be included. Lab exercises will include tree assessment techniques, tree inventory exercises, use of tree inventory software, new techniques for hazard tree assessment, new techniques for managing pests and diseases in urban trees, and site assessment and remediation. Tree pruning exercises will emphasize preservation of tree structure, quality of cuts, and work efficiency and safety.	3		UG		SF
HPRO 3360 Multicultural Health Promotion Research and Policy	Health Promotion	Health	The purpose of this course is to provide students with an opportunity to explore the distinct and integrated influence of research and policy on the health of multicultural populations within the Canadian context. In particular, this course will assist students in developing a critical understanding of the intersection of multicultural health with policies and power. Through engagement with multidisciplinary perspectives, students will examine health research and policy issues pertaining specifically to New Canadians (Immigrants), African Canadians, and Aboriginal peoples.	3		UG		SI

HPRO 5514 Current Frameworks in Health Promotion	Health Promotion	Health	The purpose of this graduate seminar is to offer an advanced understanding of the current frameworks used in health promotion research and practice. Students will critically examine key approaches to research and practice such as the social determinants of health framework and the harm reduction framework. A key focus of the course will be on exploring population health interventions that utilize these and other frameworks, and that are aimed at reducing health inequities. The challenges and opportunities in developing and implementing population health interventions for different populations will also be debated.	3		G		SI
HSCE 3000 Culture, Diversity and Health	Health Sciences Education	Health	Community development, community advocacy, social justice and primary healthcare will be the theoretical frameworks for exploring the Health Science practitioner's role and practice in the context of working with populations in high risk environments. The emphasis is on understanding the issues, collaborating with those involved, and building individual and group capacities to enhance and promote the health and well-being of specific populations.	3		UG		SI
HSCE 3000 Culture, Diversity and Health	Health Sciences Education	Health	Community development, community advocacy, social justice and primary healthcare will be the theoretical frameworks for exploring the Health Science practitioner's role and practice in the context of working with populations in high risk environments. The emphasis is on understanding the issues, collaborating with those involved, and building individual and group capacities to enhance and promote the health and well-being of specific populations.	3		UG	Cukier S.	SI

HSTC 2400 Science and the Media	History of Science and Technology	Arts & Social Sciences	From the first Babylonian astronomical records on cuneiform to the public understanding of science on television, the various media have long been crucial to the success and spread of science. This course provides a history of science in the media from the ancient and medieval use of geometrical diagrams, astronomical figures and anatomical illustration through early modern printed texts, popular broadsheets and color botanical plates all the way to the ubiquity of science in literature, cinema and on the Internet. This expanding presence of science in the media is examined against the backdrop of three revolutions: literary and artistic (ancient and medieval worlds), mechanical (early modern period) and electronic (contemporary age). Specific themes considered include the increasing accuracy of scientific illustration, the rise of scientific journals, public scientific demonstrations, science in poetry and prose fiction, science and art, radio and television documentaries, the advertising and marketing of science, scientific apocalypses and techno-utopias, bioethics, Soviet era technological iconography, environmentalism and science-religion relations in the journalistic press, science fiction from H.G. Wells' War of the Worlds to Star Wars and Jurassic Park, and science in computing and cyberspace.	3		UG	Snobelen S.	SI
HSTC 3202 Ecology and Religion	History of Science and Technology	Arts & Social Sciences	This course examines the relationship between spirituality and the human encounter with the environment in history and today. Beginning with an examination of some of the ancient, Medieval and early modern religious foundations of ecology and the environmental movement, the course moves on to focus on contemporary green theology, the practice of religious environmentalism and the interaction between religious traditions and the environmental sciences and technologies. It engages with primary sources from and scholarship about Western (Abrahamic), Eastern (Dharmic) and indigenous religions, along with twenty-first-century green theology, religious environmentalism, ecofeminist perspectives and Dark Green Religion. Grounded in the history of science and technology, this course takes an interdisciplinary approach to its themes, incorporating historical, literary, theological, political, sociological and philosophical perspectives.	3		UG	Snobelen S.	SF

INDG 2050 Historical Issues in Indigenous Studies	Indigenous Studies	Arts & Social Sciences	This course is an interdisciplinary introduction to the history of encounters and relationships between indigenous peoples and European settlers in Canada. Topics may include treatise, colonial policy, residential schools, child welfare, resettlement, and the Indian Act. This course provides the necessary background to understand contemporary Indigenous issues.	3		UG		SF
INDG 2052 Contemporary Issues in Indigenous Studies	Indigenous Studies	Arts & Social Sciences	This course offers an interdisciplinary introduction to contemporary challenges faced by Indigenous peoples in Canada. Topics may include language and culture, land rights, economics, governance and treaty relationships, child welfare and education, health, social services, environmental issues, violence, criminal justice and self-determination, political mobilization and resistance, and decolonization.	3		UG	Doyle-Bedwell P.	SF
INDG 3050 Indigenous Research Methodology & Knowledge Practices	Indigenous Studies	Arts & Social Sciences	This course examines the methods and practices used for research with Indigenous groups or communities, and explores their ethical and political aspects. Topics will cover the history of research relationships with Indigenous groups or communities, community-based research approaches, research ethics, the political, cultural, and practical aspects of conducting research with groups or communities, research protocols, research agreements, data collection and analysis, and the OCAP (ownership, control, access, and possession) principle.	3		UG	Robinson M.	SI
INDG 3052 Indigenous Social Health and Environmental Issues	Indigenous Studies	Arts & Social Sciences	This course offers an interdisciplinary overview of contemporary social, health, and environmental issues impacting Canada's Indigenous Peoples. Topics will include an exploration of the human rights of Indigenous Peoples in Canada, social statistics, food security in northern communities, health and well-being in Indigenous communities, connection to place, impact of environmental degradation and land dispossession, Indigenous knowledge and the environment, politics and political activism, and the role of media.	3		UG	Doyle-Bedwell P.	SF
INFO 6500 Community-Led Services	Information Management	Management	Students will learn how to identify the interests and needs of particular client groups, and how to integrate these needs into the ongoing operations of an information organization. Particular attention will be given to working in the community with socially excluded community members and applying the Community-Led Library Service Model.	3		G		SI

IAGR 3002 International Rural Development (H)	International Development	Agriculture	This course explores the history, defining characteristics, and diversity of developing societies, with a focus on the people and issues of rural communities. Students will explore the main issues facing rural communities in developing regions, as well as the many cultural, social, political and economic factors that can impact the success of development projects and initiatives at the community level. Students will be expected to develop an understanding of a variety of perspectives on international community development and also to develop an appreciation for the opportunities and challenges of sustainable development in different societies and cultures.	3		UG	Cameron G.	SF
INTD 1102 Halifax and the World: Part I	International Development Studies	Arts & Social Science	This course offers an introduction to both International Development Studies and Canadian Studies by exploring the connections between important global issues and your daily life as a student in Halifax. As you walk across the Dalhousie campus and go about daily life in Halifax, your actions connect you to people around the globe and to the history of the city and world as well as to the many works of literature, art and music that depict these connections. Here are just a few examples of connections that we will explore in Halifax and the World: Part I (INTD / CANA 1102.03 – Fall semester): Walking across the Dalhousie campus you are traversing what remains unceded Mi'kmaq territory raising hard questions about relations between Settler and First Nations Peoples. While walking downtown on a Friday night you might tread in the footsteps of the central characters in Hugh MacLennan's novel Barometer Rising and other major works of Canadian fiction. As you walk through the city you'll see monuments and statues that commemorate the city's early colonial leaders – which raise questions about how we chose to remember history of the city and its connections to the world. The course will critically examine the connections between daily life in Halifax and broader issues of colonialism, race and class relations, historical memory, ethics and justice through a combination of lectures, guest speakers, discussion groups, field trips, experiential learning in the city of Halifax. Assignments include written reflections on specific sites in Halifax which students are expected to visit and explore, a public engagement project, and a series of quizzes (there is no final exam).	3		UG		SF

INTD 1103 Halifax and the World: Part II	International Development Studies	Arts & Social Sciences	This course builds on INTD/CANA 1102.03 (Halifax and the World: Part I) with a continued focus on the connections between important global issues and your daily life as a student in Halifax. In the winter semester, the course will focus on connections between life in Halifax and global development issues in other parts of the world. In particular, the course will highlight the 'commodity chains' that connect our daily consumption decisions to other people around the world who are involved in the life cycle of those commodities – from their production through to their disposal. The course will also specifically address the ethical questions and challenges that emerge from these connections and the practical ways in which we might respond to those questions. As in the first semester, the course will involve a combination of lectures, guest speakers, discussion groups, and experiential learning in the city of Halifax. The assignments will include written reflections on specific sites in Halifax which students are expected to visit and explore, a public engagement project, and a series of quizzes (there is no final exam).	3		UG	Schnurr M.	SF
INTD 2001 Introduction to Development I	International Development Studies	Arts & Social Sciences	Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine how this situation came to be. It begins by analyzing the different meanings of the term "development" and then examines the major approaches that have shaped practical development initiatives on the ground in the Global South over the past 60 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.	3		UG	Cameron, J.	SF
INTD 2001 Introduction to Development I	International Development Studies	Arts & Social Science	Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine how this situation came to be. It begins by analyzing the different meanings of the term "development" and then examines the major approaches that have shaped practical development initiatives on the ground in the Global South over the past 60 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.	3		UG	Cameron, J.	SF

INTD 2002 Introduction to Development II	International Development Studies	Arts & Social Sciences	This course builds upon the core concepts and approaches studied in INTD 2001 (i.e. different theoretical approaches to development and the historical creation of underdevelopment). The course examines key contemporary issues in the field of development and analyses the connections between them: debt, global trade rules, foreign aid, hunger and malnutrition, rural and urban livelihoods, population growth. The course also examines the principle actors involved in development and the strategies they have used to promote and resist development, including: governments, non-governmental organizations (NGOs), the World Bank and IMF, and popular social movements in the Global South and North.	3		UG		SF
INTD 2002 Introduction to Development II	International Development Studies	Arts & Social Sciences	This course builds upon the core concepts and approaches studied in INTD 2001 (i.e. different theoretical approaches to development and the historical creation of underdevelopment). The course examines key contemporary issues in the field of development and analyses the connections between them: debt, global trade rules, foreign aid, hunger and malnutrition, rural and urban livelihoods, population growth. The course also examines the principle actors involved in development and the strategies they have used to promote and resist development, including: governments, non-governmental organizations (NGOs), the World Bank and IMF, and popular social movements in the Global South and North.	3		UG	Cameron J.	SF
INTD 3114 Environment and Development	International Development Studies	Arts & Social Science	This seminar investigates the intersections between environmental science and development studies. Our primary focus will be to understand how the non-human environment impacts and constrains development interventions, both in the past and the present. The course is organized into three distinct sections. The first focuses on informal lectures mixed in with discussion and interactive forums, including debates and small group exercises. The second component of the course revolves around student presentations, while the final component consists of a simulated negotiation.	3		UG	Schnurr M.	SF
INTD 3115 Global Health: Challenges of Global Health Equity in the 21st Century	International Development Studies	Arts & Social Science	By examining global inequities that lead to health injustices, this course explores why health care is abundant for some and nonexistent for others. It identifies why some are born to live well, and other are doomed to die quick. It asks, "what are we going to do about it?	3		UG	Huish, R.	SI

INTD 3116 Contemporary Issues in Gender and Development	International Development Studies	Arts & Social Sciences	Some progress toward gender equality has occurred over the past four decades, but key gaps exist in all countries. This course seeks to examine the impact of development processes on gender justice and gender relations. The course provides a theoretical and conceptual grounding in the debates around women/gender and development and also explores the gendered impact of development policies and practices by examining issues such as, the realities of working in development, masculinities, female genital cutting, gender and work, Canada's Feminist International Assistance Policy, violence against women, etc. Case studies are utilised from different regional and cultural contexts. The course also explores the diversity of women's resistance, struggles and activism at the local, national and transnational levels.	3		UG	Ulicki T.	SF
INTD 4322 Children and War	International Development Studies	Arts & Social Sciences	The aim of this course is to explore the many dynamics of conflict that affect children globally. The course will take both a thematic and case study approach. Currently, conflicts that occur are most often intra-state conflicts. The victims of such conflicts are disproportionately women and children. At the same time, the demographics of many of the most war-torn societies has led to increasing numbers of children being involved in the conflict. This course will aim to explore various aspects related to children and war. On the one hand, the course will discuss the effects of war on children. However, it will also discuss the involvement of children in the participation of war. In addition, what are the responsibilities of the International Community to protect and support children of war? What can we learn from the children that have survived in terms of their agency and resilience? What preventative measures can be taken to better ensure children do not fall victims to armed conflict? The course will also explore aspects of culture and its effects on solutions to the dynamics of children and war. In addition, students will learn about various types of child exploitation that make children vulnerable across the peace and wartime spectrum.	3		UG	Whitman, S.	SF
IPHE 2201 Introduction to Aboriginal Peoples' Health and Healing	Interprofessional Health Education	Health	This course provides students the opportunity to learn about Aboriginal perspectives regarding health, as well as the multiple and complex challenges facing Aboriginal peoples with respect to key health issues, such as health and social inequities, the epidemiology of disease and culturally appropriate service provision.	3		UG	Martin D.	SF

JOUR 2400 Science and the Media	Journalism	Journalism	From the first Babylonian astronomical records on cuneiform to the public understanding of science on television, the various media have long been crucial to the success and spread of science. This course provides a history of science in the media from the ancient and medieval use of geometrical diagrams, astronomical figures and anatomical illustration through early modern printed texts, popular broadsheets and color botanical plates all the way to the ubiquity of science in literature, cinema and on the Internet. This expanding presence of science in the media is examined against the backdrop of three revolutions: literary and artistic (ancient and medieval worlds), mechanical (early modern period) and electronic (contemporary age). Specific themes considered include the increasing accuracy of scientific illustration, the rise of scientific journals, public scientific demonstrations, science in poetry and prose fiction, science and art, radio and television documentaries, the advertising and marketing of science, scientific apocalypses and techno-utopias, bioethics, Soviet era technological iconography, environmentalism and science-religion relations in the journalistic press, science fiction from H.G. Wells' *War of the Worlds* to *Star Wars* and *Jurassic Park* , and science in computing and cyberspace.	3		UG	Snobelen S.	SI
KINE 3200 Sociocultural Issues in Physical Activity	Kinesiology	Science	This course will provide students with an introduction to social theory, culture, and social psychology as applied to physical activity and sport. While recognizing that physical activity does not take place in a social vacuum, and that social content often influences how physical activity and sport are experienced, this course explores participation in, and perceptions of physical activity and sport according to gender, social class, age, sexual orientation, ethnic group and nationality. The meaning of physical activity and sport in society, the role of Canadian public policy in promoting and facilitating participation in physical activity, and sport as an agent for social change will also be explored.	3		UG	Huybers S.	SI

LARC 2001 History of Landscape Architecture	Landscape Architecture	Agriculture	This course introduces students to the history of landscape architecture from Mesopotamia and Egypt through to modern landscape development. The focus is on the cultural, social and political processes, and design theories and techniques, in shaping the design of gardens and public spaces. Non-western cultures, including China, Japan and the Islamic world are included as an influence on the changing preferences within western landscape design. Interaction of physical and biological landscape processes have shaped our interpretation of world landscape influences, and will be discussed in that context. This course is designed to place landscape architecture in a broad cultural and social context and develop skills in critical thinking and writing.	3		UG	Osborne S.	SI
LARC 4000 Construction and Detailing	Landscape Architecture	Agriculture	This course explores the three major concerns of the landscape architecture detailer—function, ease of construction, and aesthetics. It provides a framework for analyzing existing details and devising new ones related to aesthetics, water drainage and movement, structures, construction assemblies, sustainable resources, and more. Landscape architects provide design services for the entire project including deck, fence & screen design, exterior furniture and fireplace design, and the design of functional features including irrigation, lighting and services. The calculation and preparation of grading plans is an important component of the course. Enrolment is limited to BTech LA students.	3		UG		SI
LAWS 2001 Maritime Law and Practice	Law	Law	Maritime Law is essential to international trade by facilitating the safe, orderly, secure and environmentally sound movement of goods and people. This course is a general introduction to maritime law as it is developed and practiced in Canada. Particular topics of the course include the Federal Court of Canada (as the Admiralty Court), maritime law jurisdiction, ship legal personality, ownership and registration, marine insurance, maritime safety (standard of good seamanship, collision avoidance rules, death and personal injury, contributory negligence, limitation of liability), pilotage, towage, salvage, vessel-source pollution and compensation claims, maritime securities and their enforcement through the action in rem and conflict of laws issues. The course complements International Trade and Shipping, Ocean Law & Policy, and Law of the Sea. This course is a required course for the Marine Law Specialization Certificate. FORMATS: Lecture	3		UG		SI

LAWS 2020 Fisheries Law	Law	Law	This seminar is designed to acquaint students with the public and private law aspects of fishing and fishery management in Canada. While the central focus is on law and the regulatory framework, questions of policy frequently arise for discussion. The course is taught by a combination of questioning, lectures and guest speakers. Problems unique to fisheries regulation and methods of fishery management will be discussed to set the context in which the law operates. International considerations, constitutional problems, fisheries legislation, aboriginal rights, the interplay between private rights and public rights, and problems of enforcement and environmental protection are central topics.	2		UG	Jan S.	SF
LAWS 2022 Law of the Sea	Law	Law	The adoption of the United Nations Law of the Sea Convention, 1982 was the result of the world's most ambitious law reform movements. The Convention is a comprehensive instrument functioning as a "Constitution of the Oceans." This course will undertake detailed analysis of the law of the sea by examining the Convention, related instruments and materials concerning its interpretation and enforcement, and recent initiatives to further develop the law of the sea. Particular attention will be given to navigational issues (territorial sea, international straits, archipelagoes), resource issues (exclusive economic zone, fisheries, non-living resources); maritime boundary delimitation; protection of the marine environment; marine scientific research; dispute settlement; and the role of international institutions in ocean governance. The course will be conducted in seminar format and will include in-class small group work. Students are expected to contribute to class discussions and will have an opportunity to present their research papers in class.	3		UG	Chircop A.	SI
LAWS 2041 Coastal Zone Management	Law	Law	This course is designed to introduce students to the concepts, principles, approaches, and issues associated with integrated management of coastal zones worldwide. This course uses a systems approach to understanding the global context of coastal zone management. Case studies and examples from developed and developing countries are used to present practical approaches to the management of multiple uses in the coastal zone, including community-based management models.	3		UG		SF

LAWS 2051 International Environmental Law	Law	Law	The progression of international environmental law from “customary” co-existence to “conventional” cooperation is explored through nine topics: (1) State Responsibility and Liability for Transboundary Pollution; (2) “Soft Law” and Sustainable Development Principles: From Stockholm to Rio and Beyond; (3) The Legal Waterfront of Marine Environmental Protection; (4) The International Law of the Atmosphere: Climate Change;(5) The Conservation of Biodiversity; (6) The International Framework for Controlling Transboundary Movements of Hazardous Wastes and Toxic Chemicals; (7) The Protection and Management of International Watercourses; (8) Polar Regions and International Environmental Law; and (9) Free Trade and the Environment.	3		UG	Mushkat P.	SF
LAWS 2056 International Trade Law	Law	Law	This course examines the World Trade Organization (WTO) and the North American Free Trade Agreement (NAFTA), and prepares the student to understand generally the role of international and domestic law in modern trading relations. Emphasis is placed on the issues raised by recent trade agreements, such as non-discrimination (e.g. MFN and national treatment), trade rules and unfair trade remedies, services and intellectual property, trade and environmentalism and so forth. Special attention is given to the dispute settlement mechanism, which emphasizes a legal approach to trade relations. The course will be conducted as a seminar, based on regularly scheduled readings.	3		UG	Akinkugbe O.	SI
LAWS 2079 Oil and Gas Law	Law	Law	This course deals with the legal characterization of oil and gas, onshore and offshore, applicable constitutional and international law principles, basic rights transfer agreements, regulation, operator responsibilities, aboriginal rights, environmental law, the Offshore Accords and their implementation and current regulatory issues.	2		UG	Watt D.	SI

LAWS 2104 Environmental Law I	Law	Law	Environmental laws in support of sustainable development are explored through nine class themes. The international law context for environmental law is briefly introduced, including the principles of precaution, polluter pays and public participation. The role of common law in preventing and redressing environmental degradation is considered. Constitutional realities and restrictions to environmental management are examined. The traditional commandcontrol approach to environmental regulation is critiqued and alternate approaches are introduced. Environmental impact assessment law and practice is covered. The course concludes with a number of more specific themes, such as enforcement, judicial review, biodiversity and climate change.	3		UG		SF
LAWS 2133 Environmental Law II - Interdisciplinary Perspectives on Climate Change	Law	Law	This course takes an in depth interdisciplinary look at one of our greatest global environmental challenges, climate change. Climate change is used as a case study to explore the role of law in addressing such challenges. Current law and policy approaches to climate change are considered at global, regional, national and sub-national levels. Within this context, students will consider the role of science and economics among other disciplines in identifying the role of law.RECOMMENDED but not required: Environmental Law I or International Law.	3		UG	Majekolagbe A.	SF

LAWS 2153 Business and Environmental Law	Law	Law	This course examines the evolution of business responsibilities to prevent and remedy environmental harm in domestic and international law. First, the course will explore how environmental concerns, notably liability for contaminated sites and pollution, impact business transactions and operations. Consideration will be given to the role of government in regulating private sector business operations, the meaning of due diligence, and industry standards. Second, the course will explore international and transnational business and environment issues, such as transnational environmental liability, and the implications of investor-state dispute settlement for the ability of states to effectively regulate the environment. Finally, the course will consider how international normative shifts, most recently the 2030 Sustainable Development Goals, are pushing businesses to pro-actively embrace international corporate social responsibility norms, and adopt business models and financing tools that enable them to contribute positively to long-term sustainability, rather than simply reacting to fear of liability. COREQUISITES: Business Associations or Environmental Law I	3		UG		SF
LAWS 2191 Animals and the Law	Law	Law	This seminar examines legal issues pertaining to non-human animals. It is concerned with how such entities have been conceptualized by the law and with how they should be. Should animals be viewed as objects (property), as legal subjects (rights holders), or as something else altogether? This debate will provide the context for examining the history of animal protection legislation and current issues relating to animals. These include the constitutional authority to legislate with respect to non-humans, animal cruelty (including such specific topics as experimentation on non-human animals, treatment of farmed animals, and hunting), endangered species legislation, standing in animal welfare/rights litigation, market-based approaches and civil disobedience by animal activists.ENROLMENT: 16 students	3		UG	Lee A.	SI

LAWS 2221 Public Health Law	Law	Law	Protection of the public's health has historically been one of the critical functions of the State; witness early laws regarding quarantine, sanitation, and food quality control. Both SARS and HIV have served as recent wake-up calls to remind us of the importance of regulation in the control of infectious disease outbreaks. The prevalence of obesity and diabetes prompts some to recommend state intervention in hitherto-unchecked areas of life often considered private. How is the balance to be set vis-à-vis state interference when juggling the values of individual liberty, privacy interests, protection of the public, and the promotion of health? This course examines these legal and ethical issues via the above topics as well as some of the following: compulsory testing and treatment for infectious disease; vaccination; drug and tobacco control; surveillance and research; genetics; maternity and parenting; and environmental impacts on health.	3		UG		SI
LAWS 2251 African Nova Scotians and the Law	Law	Law	This course will examine how municipal, provincial, federal, and international laws have constructed and mediated the lives of African Nova Scotians from slavery and segregation through to contemporary endemic inequities in the areas of human rights, employment, criminal justice, health and education. The course will specifically explore the range of legal remedies that African Nova Scotians in collaboration with allies have used to address discriminatory laws, policies and practices; and will assist students in developing public interest lawyering skills. Students will choose a case study early in the course, develop a corresponding legal advocacy plan, and execute components of the plan through in–class assignments. FORMATS: Lecture	3		UG		SF

LAWS 2270 Indigenous Governance	Law	Law	This seminar course is intended for students who want to obtain a deeper appreciation of governance systems and structures that currently apply to First Nation communities pursuant to the Indian Act and other federal legislation and policy, spanning areas such as elections, the exercise of Band Council authority through resolutions and by-laws, membership, essential services program devolution, land issues and economic development, employment and human rights issues on reserve, and dispute resolution mechanisms. This course will also examine systems beyond the Indian Act, including systems that First Nations communities are currently engaging in and aspiring towards, such as self-government and greater implementation of customary and Indigenous law. This course will be useful for students who intend to work closely with First Nations communities or organizations and government departments servicing those communities. As opposed to being a general survey of the legal and policy issues affecting Indigenous Peoples in Canada, like the Aboriginal Peoples and the Law course, this course will make governance issues affecting First Nations communities its focal point. FORMATS: Lecture	3		UG		SF
LAWS 2280 Aboriginal Peoples and the Law	Law	Law	This course will examine the legal position of Aboriginal peoples within Canada. The objective of the course is to engage with the unique legal and policy issues which must be understood and addressed to effectively work in the area of Aboriginal Law. Course materials will engage jurisprudence and legislation within the broader nexus of colonial history, aboriginal conditions and culture, and government programs and policies. Particular topics may include sources of law, unique constitutional provisions, the special position of Indian reserves, the nature of aboriginal title and rights, Indian treaties, fiduciary obligations, taxation, and self-government/self determination.	3		UG	Metallic N.	SF

LAWS 2289 Indigenous Law as Practice: Applying Mi'kmaq Legal Traditions	Law	Law	Although Indigenous peoples governed their lands and lives for millennia, the imposition of British and Canadian law disrupted the transmission of Indigenous legal traditions in many communities. This made it difficult to practice Indigenous law. Canadian control of Indigenous governance undermined the ongoing reinvention of Indigenous governing institutions. This made it harder for leaders and families to encourage well-being within Indigenous communities. It also made it more difficult for Indigenous communities to effectively relate with other communities. Yet, all is not lost. Despite these problems Indigenous and other peoples can still choose to be guided by their own laws and values. Governance can be facilitated through the conscious adoption and creation of Indigenous law in the contemporary context. This course examines Indigenous legal principles and values and shows that they still exist as resources for decision-making in contemporary circumstances. Indigenous law and policies can be reinvigorated and reinvented to enhance decision-making within Indigenous communities today. The application of Indigenous law can develop community capacity, foster leadership, and influence well-being. Recapturing, revitalizing and newly developing Indigenous law can help communities develop resilience. Lawyers, judges and other legal actors can also benefit from understanding, applying and (where appropriate) incorporating Indigenous law in their agreements and activities with Indigenous peoples. This course examines Indigenous legal values and considers their application to promote the resurgence of Indigenous social, political, cultural and economic success life. Given our presence in Mi'kma'ki we will focus on Mi'kmaq law throughout the course. In line with this legal order, we will learn and apply Mi'kmaq methodologies in our time together. This will take us into stories, songs, the environment, and other embodied forms of learning, in addition to our	2		UG	Metallic N.	SF

LAWS 2290 Advanced Aboriginal Peoples and the Law	Law	Law	This course is designed to familiarize students with the current moment in Aboriginal law. Aboriginal law is experiencing a rapid evolution and we are seeing dramatic growth in the body of jurisprudence, critical scholarship and policy initiatives in the area. This course will examine the legal position of Aboriginal peoples within Canada. The objective of the course is to engage with recent jurisprudence and scholarship to assess where the future of Aboriginal Law and Indigenous-Crown relations are heading. the unique legal and policy issues which must be understood and addressed to effectively work in the area of Aboriginal Law. Course materials will engage jurisprudence and legislation within the broader nexus of Colonial history, aboriginal conditions and culture, and government programs and policies. Particular topics may include Aboriginal equality and human rights claims, the revitalization of Indigenous Law, the Truth and Reconciliation Commission Final Report, the United Nations Declaration on the Rights of Indigenous Peoples, Aboriginal rights and title, consultation, the criminal justice system and self-governance, sources of law, unique constitutional provisions, the special position of Indian reserves, the nature of aboriginal title and rights, Indian treaties, fiduciary obligations, taxation, and self-government/self determination.	3		UG	Metallic N.	SF
LAWS 2800 Introduction to Environmental Law	Law	Law	This course offers an introduction to environmental law for engineering students. The course considers environmental law at the international, federal, provincial and municipal levels of government, and the division of powers over the environment among these levels of government and indigenous governments. Students will be exposed to different approaches to regulating human activities and their impact on the environment, including environmental assessments, standards, approvals, and economic instruments. Criminal and civil law tools for enforcing environmental protection efforts will be explored. Finally, the course will consider emerging issues in environmental law, including indigenous rights, environmental rights, and corporate social responsibility. Evaluation will be by combination of assignments and final examination.	3		UG	Dunning M.	SF

MARA 5003 Marine Science and Technology	Marine Affairs	Science	This course provides a survey of marine science and technology (basic marine-basin geography and geology, physical, chemical and biological oceanography). Various fields and topics are addressed from a scientific research and technology application perspective. Where possible, and relevant, the application of the scientific findings to issues of management, resource exploitation and policy formation are addressed. Course content and assignments should help marine managers use science and technology to: 1) recognize /formulate problems; 2) identify relevant information necessary to address problems; 3) find relevant and reliable information/assistance; 4) reliably interpret the information to make objective management decisions.	3		G	Filgueira R.	SI
MARA 5009 Coastal Zone Management	Marine Affairs	Science	This course is designed to introduce students to the concepts, principles, approaches, and issues associated with integrated management of coastal zones worldwide. It uses a systems approach to understanding the global context of coastal zone management. Case studies and examples from developed and developing countries are used to present practical approaches to the management of multiple uses in the coastal zone, including community-based management models.	3		G		SF
MARA 5010 Contemporary Issues in Ocean Management and Development - Part 1	Marine Affairs	Science	This course offers an introduction to the field of marine affairs and to the broad suite of contemporary issues confronting the ocean and coastal manager. As a foundation core course for MMM students, the course draws on examples from topical streams of the MMM degree program. Subject areas addressed include current governance approaches, negotiation and consensus building, managing and assessing risk to both the human and natural components of the ecosystem and protection and preservation of the coastal and marine environment and the communities that depend on them. The course employs interactive teaching techniques with a group work component.	3		G		SI

MARA 5011 Contemporary Issues in Ocean Management and Development - Part 2	Marine Affairs	Science	This course offers an introduction to the field of marine affairs and to the broad suite of contemporary issues confronting the ocean and coastal manager. As a foundation core course for MMM students, the course draws on examples from topical streams of the MMM degree program. Subject areas addressed include current governance approaches, negotiation and consensus building, managing and assessing risk to both the human and natural components of the ecosystem and protection and preservation of the coastal and marine environment and the communities that depend on them. The course employs interactive teaching techniques with a group work component.	3		G	Milley C.	SI
MARA 5012 Community-Based Co-Management	Marine Affairs	Science	This course will critically examine the extent to which community-based co-management provides a viable approach to marine resource management in terms of its costs and benefits, opportunities for and barriers to its implementation, and conditions necessary for its long-term survival as a practical management tool.	3		G	Muaror J.	SI
MARA 5013 Marine Protected Areas	Marine Affairs	Science	The role of MPAs around the world is continually evolving. From fully no-take marine reserves to multiple use marine parks, the range of options available to marine managers is explored. Using the foundations of marine spatial planning, this course will provide the latest information on MPAs with a focus on the Canadian context with exploration of international experiences and best practices.	3		G		SF
MARA 5021 Fisheries Management	Marine Affairs	Science	This interdisciplinary course focuses on the theory and practice of fishery management, with emphasis on Sustainable Fishery Systems. It will address the structure and dynamics of fisheries, and key themes in managing fisheries for sustainability and resilience, through seminars and class discussion, as well as attendance at related fisheries and coastal events.	3		G		SF
MARA 5589 Politics of the Sea	Marine Affairs	Science	The course will examine environmental, political and economic forces which affect contemporary ocean governance and management. Contemporary issues will be used to explore the geo-political ocean on a sectoral basis (transportation, fisheries and resources, military, etc.), as well as analyzing the evolution of national oceans policies and institutions.	3		G	Williamson H.	SI

MARI 3080 The Ecology and Evolution of Fishes	Marine Biology	Science	The course examines selected topics on the ecology and evolution of marine and freshwater fishes. Topics include: phylogeny and systematics; functional morphology and physiology; population biology; life-history evolution; behavior; fisheries science; and conservation biology.	3		UG	Hutchings J.	SI
MARI 3090 Marine Mammalogy	Marine Biology	Science	This course examines the characteristics of marine mammals, the roles of marine mammals in oceanic ecosystems and general principles of marine mammal population biology. Students use information on the biology of marine mammals to explore conservation/management issues. They learn of these animals and explore how they interact with humans.	3		UG	Lidgard D. (P)	SI
MARI 3221 Diversity of Algae	Marine Biology	Science	This course is a taxonomic introduction to the major algal groups (marcophytic and microscopic) with an emphasis on the marine seaweeds. Basic taxonomic differences are covered, along with an introduction to macrophyte ecology, human uses and symbioses. Laboratory sessions focus on morphology and reproduction. CALENDAR NOTES: Also offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times, and special registration procedures, see http://www.seaside.science.dal.ca	3		UG		SI
MARI 3602 Introduction to Aquaculture	Marine Biology	Science	This course offers an introductory overview of aquaculture, the culturing of aquatic plants and animals. The following topics are covered with both a Maritimes and global perspective: overview physico-chemistry of water, engineering, culture techniques, health, nutrition, genetics, environmental and socio-economic considerations. PREREQUISITES: BIOL 2003.03	3		UG		SI
MARI 3623 Applied Coastal Ecology	Marine Biology	Science	Impacts of anthropogenic inputs on the structure and function of coastal ecosystems. Through field trips and other coursework, students examine ecosystem health, e.g., in macroalgal communities on rocky shores, in seagrass beds on sedimentary shores, and learn basic experimental design, principles of environmental assessment and monitoring, and coastal habitat remediation.	3		UG		SF

MARI 3626 Field Studies of Marine Mammals	Marine Biology	Science	Hands-on introduction to research on marine mammals. Lectures provide an overview of marine mammal adaptations, evolution, population biology, social organization, conservation, and management. Labs include a necropsy and techniques of photographic identification of individuals. On a several-day camping trip, students observe marine mammals from whale-watch boats and conduct research projects.	3		UG		SI
MARI 3627 Biology and Conservation of Sharks, Skates and Rays	Marine Biology	Science	This course offers a combination of lectures, labs, and field trips that explore the elementals of elasmobranches (shark, skate and ray) biology and conservation. Students are introduced to current methods used in shark research, such as tagging, and learn about the role of sharks in ecosystems.	3		UG		SF
MARI 3633 Spatial Information and GIS in Ecology	Marine Biology	Science	A hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address an applied problem in ecology.	3		UG		SI
MARI 3761 Marine Ecology	Marine Biology	Science	Building upon an understanding of basic ecological and evolutionary principles, and a familiarity with the major marine invertebrate and algal taxa, this course examines patterns and processes at the organismal, population and community levels that determine the diversity and distribution of life in the sea. PREREQUISITES: BIOL 2060.03 (or BIOA 3001.03), and (BIOL 2003.03 or BIOL 2004.03) and OCEA 2000X/Y.06 or (OCEA 2001.03 and OCEA 2002.03) CROSSLISTED: BIOL 3761.03	3		UG		SI
MARI 4003 Coral Reefs and Environmental Change	Marine Biology	Science	Coral reefs are iconic marine ecosystems both biologically and economically. This course introduces students to the biology of both tropical and cold-water corals, key characteristics of their abiotic environments, human impacts at both local and global scales, and management options for sustainable resource use and the protection of biodiversity.	3		UG		SF
MARI 4350 Cutting Edge in Marine Science	Marine Biology	Science	This course focuses on current, often hotly debated topics in marine science. We discuss recently published papers and current research initiatives on urgent issues, including biodiversity, fisheries, conservation, management, climate change, and human-ocean interactions. Class format includes lectures, case-studies, as well as active discussion, debates, group work and hands-on assignments.	3		UG	Worm B. (P) Lotze H.	SF

MARI 4600 Ecosystem Modelling for Aquaculture	Marine Biology	Science	Learn a collection of tools for the sustainable utilization of aquatic resources. Emphasis is on bilateral interactions between aquaculture and the environment. Topics include water/sediment/biota variability, carrying capacity, invasive species, habitat destruction/creation, ecosystem functions/services, climate changes, etc. Tools include data analysis/modelling/visualization/mapping using Python™ (prior programming experience is not required).	3		UG	Ibarra D.	SF
MARI 4661 Biological Oceanography	Marine Biology	Science	The goal is to describe how physical, chemical and biological processes interact to determine the species composition, biogeochemical activities, and trophic structure of marine communities. Outstanding problems currently facing biological oceanographers and earth systems scientists are discussed, as are current attempts and methodologies to address them.	3		UG	Algar C.	SI
MARI 4665 Hacking the blue planet: The scientific and social dimensions of ocean fertilization	Marine Biology	Science	This course explores the biology, ecology, biogeochemistry and ethical and legal dimensions of purposeful ocean fertilization. Through lectures, discussion, case studies, and group projects, students consider the biological and oceanographic basis of ocean fertilization and its use as a 1) scientific tool and 2) controversial geoengineering strategy for climate change mitigation.	3		UG		SF
MARI 5350 Cutting Edge in Marine Sciences	Marine Biology	Science	This course focuses on current, often hotly debated topics in marine science. We discuss recently published papers and current research initiatives on urgent issues, including biodiversity, fisheries, conservation, management, climate change, and human-ocean interactions. Class format includes lectures, case-studies, as well as active discussion, debates, group work and hands-on assignments.	3		G	Worm B. (P)	SF
MCRA 4000 Soil Microbiology (A)	Microbiology	Agriculture	A study of the biology of the various classes of microorganisms in soil, including bacteria, blue-green algae, fungi, algae, protozoa, and viruses. This course includes details of biochemical transformation of carbon, nitrogen, sulfur, and phosphorus, as well as pesticides and wastes in the environment.	3		UG		SI

MECH 4810 Energy Conversion Systems	Mechanical Engineering	Engineering	Application of basic principles of thermodynamics, fluid mechanics and heat transfer to the analysis and synthesis of energy conversion systems are studied. Primary energy sources and global energy demand are examined. Principles of conventional methods, thermal systems, fuel types, combustors, and gas turbines, initial planning of a hydroelectric power plant, selection of turbines and other components, nuclear fission and fusion, clean energy production, and environmental aspects of energy production are covered.	3		UG	Cook R.	SI
MECH 4820 Energy from Renewable Resources	Mechanical Engineering	Engineering	This course concentrates on the theoretical and practical aspects of solar, wind, tidal and wave sources of energy with particular emphasis on their availability and use in the Atlantic Provinces. Design feasibility studies are undertaken on particular aspects of energy conversion from these sources. The impact of the environment of consumption of conventional energy forms is investigated. The nature and magnitude of energy consumption world-wide and locally is considered.	3		UG		SF
MECH 4850 Solar Energy Engineering	Mechanical Engineering	Engineering	This course deals with solar energy conversion and utilization with emphasis on its availability and use in Canada. Topics included solar heating of domestic and process hot water, solar space heating, the direct conversion of solar energy into electricity (photovoltaics), passive solar heating, solar cooling and solar thermal electric power. The nature and magnitude of energy supply and demand are also discussed.	3		UG	Allen P.	SF
MECH 4851 Heating, Ventilating and Air Conditioning	Mechanical Engineering	Engineering	This is an introduction to the design of thermal systems for indoor climate control. The major topics include: human comfort requirements, outdoor climate variables, heating and dehumidification loads, cooling and dehumidification loads, ventilation requirements and criteria, central system types and selection, energy sources and costs, piping, pumps, ducts, fans, and control systems. Computer programs will be introduced for design calculations involving heating and cooling load, piping, ducting and energy consumption.	3		UG		SI

MECH 4880 Introduction to Nuclear Engineering	Mechanical Engineering	Engineering	The purpose of this course is to introduce the concepts of nuclear engineering and the resulting applications. The subjects that will be discussed are the fundamentals of particle physics: proton, neutron, electron, photon and neutrino, and the atomic model; radioactivity and radiation detection, protection and shielding; principle of nuclear energetic: fission and fusion; nuclear reactor kinetics and control; nuclear reactor design and cooling; nuclear propulsion, nuclear waste disposal.	3		UG	Groulx D.	SI
MECH 6340 Energy Management I	Mechanical Engineering	Engineering	The purpose of this course 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 saving opportunities in refrigeration and cooling systems; insulation; and electrical energy conservation. An inter- disciplinary approach will be employed in this course to provide a wider understanding of the subject.	3		G		SF
MECH 6346 Advanced Energy Storage	Mechanical Engineering	Engineering	Analysis, design, and use of advanced energy storage to provide temporary decoupling of energy resources (e.g. wind, solar, tidal, geothermal) from energy demand (e.g. heating, cooling, electricity). Technologies under investigation include: batteries, latent/sensible thermal, compressed air, pumped hydro, and hydrogen. Storage duration of seconds to seasons is considered.	3		G	Swan L.	SF
MGTA 4006 Issues in Agribusiness Sustainability (A)	Management	Agriculture	This course provides students with an understanding that the agribusiness sector faces a number of challenges in meeting the food and beverage demands of a growing world population. Coping with climate change, reduced arable land and water availability, coupled with increased input costs requires a shift in current practices if the agribusiness industry is to compete in both domestic and global markets. The challenge for the agribusiness sector is to be able to profitably produce more food in environmentally and socially responsible ways so that all consumers have access to the food they need at reasonable prices. This course is an opportunity to integrate discipline skills learnt in specialist courses and to analyze specific applications of sustainable management practices in the field of agribusiness.	3		UG		SF

MGMT 2200 Fundamentals of the Legal Environment of Management	Management	Management	This course provides an introduction to the legal setting of management in Canada. It examines the structure of the legal system and the machinery of justice. It considers the nature and application of various areas of law that are particularly relevant to management in the early 21st century, including administrative law, the law of torts, the law of contracts, principles from equity, organizational structures, employment and labour relations, insurance, the various areas of property law, privacy and freedom of information, and environmental protection.	3		UG		SI
MGMT 2305 Ethics and Social Responsibility	Management	Management	Business Ethics & Corporate Responsibility builds student capacity and capability for engaging difficult and complex ethical issues in today's organizations. This course examines common ethical challenges facing today's organizational leaders, and through theoretical and applied knowledge, students develop their awareness, capacity, and capability to scrutinize ethical situations and to develop useful courses of action. The course challenges students to think critically through moral visioning and imagination and prepares students to address everyday organizational ethical challenges with creativity and moral intelligence.	3		UG	Williams K.	SI

MGMT 2402 Marketing Applications in the Not-for-Profit Sectors	Management	Management	This course is intended to further the student's understanding of the ways in which the discipline of marketing can be applied to a number of public policy, environmental, professional and non-profit management areas. It will integrate the basic theory and concepts covered in the introductory marketing course with the knowledge gained in the introductory courses in environmental and public policy management or in introductory courses in a number of professional fields. The course will maintain an overall managerial perspective in examining the ways in which various constituencies fulfill their strategic organizational objectives through the application of marketing practices. Topic areas examined will be: micro-marketing (firm perspective) vs. macro-marketing (societal perspective); non-profit, cause-related, "green" and social marketing; de-marketing (e.g. anti-smoking, etc.); the use of marketing communications in the electoral and public policy-making process; ethics in marketing; marketing and development. The course may also examine the application of the discipline of marketing to a number of professional fields, such as sports/recreation and health sciences. Learning activities might include: lectures, videos, seminars, internet exercises, examinations and field assignments.	3	3	UG	Clory N.	SI
MGMT 2805 Introduction to Indigenous Governance	Management	Management	This course focuses on the traditional political cultures of Indigenous peoples within Canada as well as the fundamental issues facing Indigenous communities. This introductory course will provide students with the necessary background and conceptual framework that will equip them with a better understanding of Indigenous Governance.	3		UG		SF
MGMT 3201 Financial Management	Management	Management	This course is an introduction to the techniques and core principles for making optimal financial decisions for profit, not for profit and public sector organizations. The emphasis is on understanding the role of finance in an integrated management framework. Concepts covered include stakeholder analysis, financial planning, valuation and triple bottom line analysis.	3		UG		SI
MGMT 3400 Introduction to Real Estate Management	Management	Management	The purpose of this course is to provide students with an overview of the varied aspects of property management in the Canadian environment. Topics include: Residential Management, Building Operations, Environmental Programs and Initiatives, Facility Management, Law and the Lease, and Site Development.	3		UG	Corbin C.	SI

MGMT 3701 The Community as a Living Laboratory	Management	Management	This course introduces students to research, concepts and methods for analyzing community sustainability across a spectrum of perspectives. In this course, the Halifax community serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater environmental, social and economic sustainability. Working in groups, students apply problem-solving models to case studies using qualitative and quantitative research methods to help community-based organizations grapple with real world problems. A variety of tools may be used including systems analysis, environmental audits, field surveys, questionnaires, interviews, and statistical analysis. Students then draw conclusions and make recommendations for improvements on the basis of their analysis.	3		UG		SF
MGMT 3702 Sustainable Industries	Management	Management	The course introduces students to concepts and methods for analyzing industrial sustainability through an interdisciplinary lens that highlights the necessity of including economic, social and environmental considerations. It also intends to deepen their understanding of: a) the business case (short term and long term) for industrial/corporate sustainability; b) the tools, techniques and strategies necessary to decouple economic growth of our business sectors from resource use and environmental degradation; and c) the key role that business and industry play in the sustainable development agenda. Using examples from various industrial settings, a range of management and policy mechanisms for ensuring resource sustainability are explored.	3		UG	Adams M.	SF
MGMT 3802 Public Policy	Management	Management	This course serves as an introduction to the public policy process with an emphasis on the interplay between policy and the four thematic areas of study and professional practice upon which the Faculty of Management has been formed – the private sector, the environment, the public sector and information technology. Students assume the role of a policy analyst during the course and pursue a policy problem of their choosing through the policy process that culminates in a policy project briefing and paper.	3		UG	Ajadi I.	SI

MGMT 4002 Strategy Implementation	Management	Management	This course is the second capstone course in the Bachelor of Management Program and is a continuation of MGMT 4001.03. The course is about strategy implementation. Through the course, students learn to discern and manage four important variables on the way to effectively implementing a chosen strategy: organizational structure, control systems, people management systems, and organizational culture. In addition, students learn about leadership and management in the context of creating organizational change. The course entails lecture case discussions, individual assignments, and a major team project on strategy implementation within an existing organization. Finally, the course draws on, and applies to, the four thematic areas of study and professional practice upon which the Faculty of Management was formed: the private sector, the environment, the public sector and information technology.	3		UG	Baltazar R.	SI
MGMT 4031 Ecological Economics	Management	Management	Ecological economics is an emergent, transdisciplinary field of inquiry whose primary concern is to advance the body of theory and tools to understand and manage the environmental dimensions of economic activity. It is an explicitly normative field oriented towards environmental sustainability in economic organization. Ecological economics recognizes three conditions necessary to environmental sustainability: appropriate scale (relative to biocapacity), efficient allocation, and just distribution. Given the breadth of material encompassed within the scope of ecological economics, this class will explore a subset of possible topics including the basic principles and theory of scale, efficiency, and distributive justice. In addition, the class will look at how these apply to managing real world issues in environmental management and explore the tools used by ecological economists to quantify and interpret scale, efficiency, and distributive justice. This course is designed as a one-term introduction to ecological economics for graduate students in environmental studies and related programs with little or no prior exposure to economics.	3		UG		SF

MGMT 4041 Environmental Education	Management	Management	Environmental education for all ages is a critical step in fostering sustainable behaviours and achieving higher level environmental goals. This course takes an interdisciplinary approach to studying environmental education, examining the cognitive and social science underpinnings of behaviour change. Through course readings and experiential "hands-on" learning opportunities, students are invited to critically evaluate how environmental educators create effective and authentically engaging programs. This course provides an overview of program evaluation techniques as well as environmental education in formal school settings, wilderness education, urban environmental education, how policy and mass media influence environmental behaviour.	3		UG		SF
MGMT 4047 Biodiversity Conservation System Design	Management	Management	Biodiversity conservation systems are increasingly necessary as human activities dominate the landscape, seascape and freshwater ecosystmes. Precise prescriptions for conservation design are evolving. The theory and practice of conservation system design are explored through lectures, student presentations, discussions and exercises, as an active learning module involving the students, the instructor and the broader community. Topics include representation of ecological systems, focal species, population viability, habitat suitability, landscape ecology, connectivity, road ecology and planning for species shifts in response to climate change.	3		UG	Beazley K.	SF
MGMT 4125 Conflict Negotiation & Sustainability	Management	Management	This course looks at local and global conflicts driven by: climate, politics, resource extraction, land use, and development. The class offers preparatory lectures followed by team-based simulated negotiations. Students learn techniques related to de-escalation, negotiation and debate tactics, through assuming and advocating various stakeholders perspectives.	3		UG		SF
MGMT 4205 Law and Policy for Resource and Environmental Management	Management	Management	This course provides students with an overview of substantive and procedural aspects of Canadian law and policy related to natural resources and the environment. The course will involve lectures, guest speakers, seminar discussions and class participation. Strong emphasis is placed on the Canadian legislative and regulatory framework and the unique character of the regulated subject areas such as toxic substances, air and water quality, fisheries, forests, agriculture, minerals, parks and biodiversity. The role of the common law in preventing or redressing environmental degradation will also be addressed.	3		UG	Tyedmers P.	SF

MGMT 4340 Corporate Governance	Management	Management	The central focus of corporate governance is the relationship between the top management team (TMT), the board of directors (BoD), and other stakeholders, especially stockholders. The collapse of once successful, large corporations across the globe illustrates the prankishness of their board members and the degree of their lack of concern for stockholders' interests. The reputation of audit and consulting companies associated with these ill-fated corporations suffered a great setback, leaving stakeholders wondering whom to trust to safeguard their interests.Students will take an in-depth look at the corporate governance triad, as indicated above, that controls the modern corporation. Accordingly, this course will deal with the control, composition, functions, roles, and structure of boards; board responsibility and accountability, CEO tenure and compensation, shareholder and other stakeholder representation; corporate board's vis-à-vis social responsibility and ethics; and comparative corporate governance across North America, Europe, and selected Asian countries.	3		UG	Chowdhury S.	SI
MGMT 4500 Socio-political Dimensions of Resource and Environmental Management	Management	Management	The goal of this course is to introduce students to the social, cultural, and political dimensions regarding resource and environmental management. Key objectives are to introduce, analyze, and utilize a range of frameworks for understanding the human dynamics of resource and environmental management decision-making. Because this course is integrated with ENVI5205 (biophysical dimensions of resource and environmental management) and ENVI5505 (law/policy dimensions of resource and environmental management) in the same term as required for the MREM program, there is a focus on common case studies to demonstrate the interconnectedness of these dimensions. Student groups in this course undertake in-depth investigation of the socio-political elements of resource and environmental management cases in Atlantic Canada.	3		UG	Zurba M.	SF
MGMT 4504 Management of Resources and the Environment	Management	Management	Students explore key management concepts applied in managing natural resources and the environment. Topics include management paradigms, systems, principles, approaches, tools and institutions associated with a wide range of sectors such as fisheries, forests, agriculture, the coastal zone, oceans, parks and protected areas, energy, waste, water, and others. Case studies complement lectures, seminars and field trips.	3		UG		SF

MGMT 4505 Biophysical Dimensions of Resource and Environmental Management	Management	Management	This course will introduce students to techniques and tools employed in natural resource and environmental management programs and projects and engage students in case-based problem solving learning intended to understand how biophysical information is utilized in assessing resource and environmental issues and contributing to effective decision-making. Some of the tools that will be reviewed are environmental impact assessment, environmental site assessment, life cycle analysis, environmental monitoring and adaptive environmental assessment and management.	3		UG	Walker T.	SF
MGMT 4507 Environmental Informatics	Management	Management	This course introduces students to geospatial information management, including the nature of geospatial data; access, representation, and communication of data and information; and relevant tools and materials such as census data, spreadsheets, and geographic information systems. Special topics may include privacy, health, citizen science, or the humanities.	3		UG		SI
MGMT 4705 Environmental Assessment	Management	Management	Students explore all aspects of environmental assessment (EA), with a focus on EA processes in Canada. The course examines professional practice in scientific, procedural and political dimensions. Current cases are studied opportunistically. Students learn the materials through case studies, seminars, group projects and research papers.	3		UG		SF

MGMT 5000 Management Without Borders: A Foundation Course for Masters Students in Management	Management	Management	This course places management in its broadest context and helps students from diverse disciplines understand the complex social, economic, ecological, political and technological forces shaping 21st century leadership in the public, private and non-profit sectors. Key themes explored in the course include systems thinking, responsible leadership, sustainable economic development, stakeholder theory, risk management and knowledge management. A significant portion of the course is devoted to interdisciplinary / inter-professional group work. Students from different programs are brought together to work with a Nova Scotia organization that has identified a relevant and timely project topic for the group. The project provide students with the opportunity to hone important skills in team dynamics, inter personal communication, project management, managing scope and ambiguity, information gathering, research and writing professional reports. The course is team taught by leading faculty from across the Faculty of Management as well as guest speakers. Learning opportunities are delivered in a mix of formats, including lectures, tutorials, readings, multidisciplinary cases and group discussions.	3		G		SI
MINE 2200 Introductory Geology for Engineers	Mineral Resource Engineering	Engineering	This course deals with the fundamental principles of geology. Topics include mineralogy, rock-forming processes, weathering, erosion, groundwater, glaciating, mass wasting, running water, deserts, shorelines, geologic structures, tectonism, and Earth's interior. The links between geology, engineering and the environment are explored through case studies. Laboratory exercises covering the identification and interpretation on minerals, rocks, landforms (using topographic maps and remote sensing images) and geologic map structures are an important part of the class.	3		UG	Tackley H.	SI
MINE 4815 Mining and the Environment	Mineral Resource Engineering	Engineering	This course covers environmental practices, problems and solutions in the mineral industry. Topics include regulations, reclamation, mine closure, acid rock drainage, surface subsidence, nuclear waste disposal and coal mine explosions. Case studies are used to highlight these topics. Class participation is emphasized through oral and written presentations.	3		UG		SF

NURS 2720 Health and Healing I: Pathophysiology and Therapeutics	Nursing	Health	Fundamentals of health and disease patterns, the role of genetics, developmental biology and environment are explored. Cellular mechanisms, inflammatory and infectious responses and cellular biology of cancer are investigated. Diagnosis and therapeutic concepts including preventative therapies and pharmacological and non- pharmacological interventions with consideration of age and cultural variations are introduced.	3		UG		SI
NURS 2720 Health and Healing I: Pathophysiology and Therapeutics	Nursing	Health	Fundamentals of health and disease patterns, the role of genetics, developmental biology and environment are explored. Cellular mechanisms, inflammatory and infectious responses and cellular biology of cancer are investigated. Diagnosis and therapeutic concepts including preventative therapies and pharmacological and non- pharmacological interventions with consideration of age and cultural variations are introduced.	3		UG		SI
NURS 2730 Foundation of Nursing Practice	Nursing	Health	Ethical, professional, legal concepts and theories guiding professional nursing practice are examined. Professional identity, collaboration, comportment, and reasoning related to nursing practices are developed. Theories and frameworks are used to investigate health and social care constructs and the impact of hierarchal structures on individual, communal and global health.	3		UG		SI
NURS 2730 Foundation of Nursing Practice	Nursing	Health	Ethical, professional, legal concepts and theories guiding professional nursing practice are examined. Professional identity, collaboration, comportment, and reasoning related to nursing practices are developed. Theories and frameworks are used to investigate health and social care constructs and the impact of hierarchal structures on individual, communal and global health.	3		UG		SI
NURS 4370 Women and Aging	Nursing	Health	This interdisciplinary nursing elective explores the issues related to socio-economic factors that are major determinants of the well-being of aging women. Topics include; aging as a process; menopause, violence against older women, older women and housing; self-image and sexuality; health and the aging woman; and older women and poverty.	3		UG		SI

NURS 4811 Indigenous Perspectives of Health and Healing	Nursing	Health	Indigenous peoples often experience greater health challenges and increased health disparities than non-Indigenous populations globally. Finding ways to enhance and expand the health and well-being of Indigenous populations through culturally-sensitive, culturally-appropriate, and culturally-safe healthcare should be a priority for those working in the healthcare sectors. This course will examine understandings of health and healing from a variety of Indigenous perspectives, with a specific focus on the Mi'kmaq of Cape Breton, in order to increase cultural awareness of how different Indigenous cultures understand and conceptualize wellness. This course will be framed around experiential hands-on learning opportunities, and will have a strong presence of guest speakers from various Indigenous perspectives and various health professionals. Planned activities are cultural talking circles, medicine walks, sweat lodges, Elder teachings, and tours of Mi'kmaq health centres on Cape Breton Island.	3		UG	Sheffer C.	SF
NURS 5140 Community-Based Research Methodologies for Addressing Health Disparities	Nursing	Health	This graduate course will examine Community-Based Participatory Research (CBPR) to understand how this paradigm can help address the social determinants of health. Students will become familiar with key epistemological underpinnings of CBPR, ethical challenges posed by CBPR, methodological CBPR considerations in building partnerships, and knowledge translation of CBPR findings.	3		G	Waldron I.	SI
NURS 5550 Marginalized Populations: Theoretical Insights and Applications	Nursing	Health	This seminar course involves an examination and analysis of theories, concepts, research, and practice knowledge regarding marginalized populations - those systematicaly pushed away from economic, social, political, and cultural participation and power. Students will be challenged to develop an of the unique health experiences and challenges faced by marginalized individuals who are relegated to, or find themselves on, the margins of society.	3	2	G	Waldron I.	SI

NURS 5850 Women and Aging	Nursing	Health	As women grow older the experience of aging is generally more difficult for them than for men. Somewhere in mid-life, anxieties about the aging process exacerbate the difficulties facing women in modern society. Disempowering older women is usually accomplished in small increments. “Old woman” is a pejorative label; the older a woman becomes, the less credibility she generally has; this is especially true for women of color, poor women, lesbians, and women who are physically challenged. While aging is a biological phenomenon, ageism is socially constructed. Specifically, under patriarchy, older women are seen as a burden, desexualized, and segregated by both men and younger women. They are usually not taken very seriously, nor seen as a threat. This course will explore the issues related to social, psychological, political, and economic factors that are major determinants to the well-being of aging women based upon race, gender, sexual orientation, disabilities, and class inequities.	3		G		SI
OCCU 5006 Wellness and Inclusion by Design and Technology	Occupational Therapy	Health	In this course students learn the principles and best-practice application of environmental design and technology to enable occupational well-being, participation and inclusion in the public and personal sectors. Through practical projects in environmental design, technology and community development, and application in laboratory sessions, students develop skills in evaluating, designing and promoting the reachability, usability and accessibility of the built and social environment which has a profound effect on the choice and opportunities we have in engaging in meaningful occupations in everyday life.TECHNOLOGY & SOFTWARE: Consult http://www.dal.ca/ilo for current technology requirements.	3		G	O'Keefe C.	SI
OCCU 6002 Social Influences on Occupational Performance	Occupational Therapy	Health	This course explores the ways occupational meaning, engagement and performance are shaped by 'social location' - the experiences, values, assumptions, expectations that arise out of such factors as our race, class, gender, sexual orientation, culture, age, ability/disability. We explore how these factors affect therapy and occupation for both clients and therapists.TECHNOLOGY: Consult http://www.dal.ca/ilo for current technology requirements	3		G		SI
OCEA 2002 The Blue Planet II	Oceanography	Science	This course provides a general survey of biological oceanography. Students learn about marine biology and marine ecosystems. Consideration is also given to human impacts.	3		UG	Hill P.	SI

OCEA 2800 Climate Change	Oceanography	Science	The workings of the Earth's climate system are examined and then applied to help understand contemporary climate change. The role of numerical climate models is discussed with the aim of interpreting climate change predictions for the coming decades. Finally the impacts of climate change are studied with a focus on the various mitigation and adaptation strategies needed.	3		UG		SF
OCEA 3004 The Last Billion Years	Oceanography	Science	This course examines major events in Earth history. The geological and geochemical evidence will be described, and the hypothesized causes of the events will be examined. The goal of this course is to develop an understanding of the functioning of the earth/ocean/atmosphere system, how it has reacted to perturbations in the past and how it will react to current perturbations in the future.	3		UG		SI
OCEA 4000 Oceans and Global Change	Oceanography	Science	This course examines the role and response of the Oceans to global change, including alterations in currents and circulation, increases in sea level and storm surges, changes in ocean chemistry, modification to the types and patterns of sediment deposition, alterations in the abundances and distributions of organisms, and overall productivity. The course will discuss means of predicting these changes and their effects.	3		UG	Kienast M.	SF
OCEA 4140 Biological Oceanography	Oceanography	Science	The goal is to describe how physical, chemical and biological processes interact to determine the species composition, biogeochemical activities, and trophic structure of marine communities. Outstanding problems currently facing biological oceanographers and earth systems scientists are discussed, as are current attempts and methodologies to address them.	3		UG	Algar C.	SI
OCEA 4402 Marine Management II	Oceanography	Science	Students focus on the linkages between ocean governance and ocean science to understand the role of marine science in informing and influencing decisions affecting coastal and marine space and resources at multiple geographic and jurisdictional scales. This course is restricted to 4th year students with a marine science background.	3		UG	Filgueira R.	SI
OCEA 4595 Atmospheric Chemistry	Oceanography	Science	A fundamental introduction to the physical and chemical processes determining the composition of the atmosphere and its implications for climate, ecosystems, and human welfare. Origin of the atmosphere. Nitrogen, oxygen, carbon, sulfur cycles. Climate and the greenhouse effect. Atmospheric transport and turbulence. Stratospheric ozone. Oxidizing power of the atmosphere. Regional air pollution: aerosols, smog, acid rain.	3		UG		SF

OCEA 4665 Hacking the blue planet: The scientific and social dimensions of ocean fertilization	Oceanography	Science	This course explores the biology, ecology, biogeochemistry and ethical and legal dimensions of purposeful ocean fertilization. Through lectures, discussion, case studies, and group projects, students consider the biological and oceanographic basis of ocean fertilization and its use as a 1) scientific tool and 2) controversial geoengineering strategy for climate change mitigation.	3		UG		SF
OCEA 5140 Biological Oceanography	Oceanography	Science	The goal is to describe how physical, chemical and biological processes interact to determine the species composition, biogeochemical activities, and trophic structure of marine communities. Outstanding problems currently facing biological oceanographers and earth systems scientists are discussed, as are current attempts and methodologies to address them.	3		G	Algar C.	SI
OCEA 5595 Atmospheric Chemistry	Oceanography	Science	A fundamental introduction to the physical and chemical processes determining the composition of the atmosphere and its implications for climate, ecosystems, and human welfare. Origin of the atmosphere. Nitrogen, oxygen, carbon, sulfur cycles. Climate and the greenhouse effect. Atmospheric transport and turbulence. Stratospheric ozone. Oxidizing power of the atmosphere. Regional air pollution: aerosols, smog, acid rain. CROSSLISTED: OCEA 4595.03, PHYC 4595.03/5595.03	3		G		SF
OCEA 5665 Hacking the Blue Planet: The scientific and social dimensions of ocean fertilization	Oceanography	Science	This course explores the biology, ecology, biogeochemistry and ethical and legal dimensions of purposeful ocean fertilization. Through lectures, discussion, case studies, and group projects, students consider the biological and oceanographic basis of ocean fertilization and its use as a 1) scientific tool and 2) controversial geoengineering strategy for climate change mitigation. PREREQUISITES: Instructor's permission	3		G		SF

PHIL 2475 Justice in Global Perspective	Philosophy	Arts & Social Sciences	In this course, we will explore answers to the central question in philosophical ethics "How should we live our lives and interact with others?" in the context of the international community or "Global Village" in which we now live. The course will involve close concentration on analyses of liberal and non-liberal theorists from around the world on the subjects of: moral rights, the nature of justice, social welfare, human diversity and equality, and the nature of social responsibility. Specific topics may include: the impact of globalization on understanding of moral rights (human rights, labour rights, language rights, etc.), developing world responses to western conceptualizations of rights, new conceptions of justice and social transformation including conceptions of restorative justice, conceptualizations or race and ethnicity and sources of personal and communal identity, the nature and importance of autonomy, the importance of different cultural constructions of gender and the problem of sexual violence in a global perspective, and frameworks for understanding shared agency and shared responsibility for poverty and environmental degradation.	3		UG		SF
PHIL 2480 Environmental Ethics	Philosophy	Arts & Social Sciences	This course examines humanity's relation to nature from a philosophical perspective. Of particular importance will be the moral or ethical obligations humanity may have towards the natural environment. Attention will be given to the historical sources of the attitudes and values that have given rise to current ecological problems in the environment, as well as to the question of how to remediate our relationship to nature. We will read from environmental holists, biocentrics, ecofeminists, deep ecologists, and others, and discuss issues concerning animal rights, environmental justice, and activism.	3		UG	Miller S.	SF
PHIL 3106 Animal Ethics	Philosophy	Arts & Social Sciences	How should we treat the other animals with whom we share this planet? This question frames the issues we explore in this course. Answering it will require examining some points of contact between our understanding of the minds of other animals and challenges or insights offered by central approaches in ethics. Topics will typically include how other animals should be treated in our homes, on our farms, in our zoos or aquaria, in our laboratories, and - among free-living (wild) populations - in their home territories.	3		UG	Fenton, A.	SI

PHIL 3476 Liberalism and Global Justice	Philosophy	Arts & Social Sciences	This is a course in normative political theory. We will critically examine some recent normative political theory, and then examine the prospects and perils of attempts by recent liberal theory to articulate a principled vision of global justice. We will consider Rawls' original bounded theory of justice and examine some challenges it faces from both cosmopolitan theories of justice and proponents of nationalism. Next we'll consider rival political conceptions of liberal international justice, and Rawls' response in the form of his recent "The Law of Peoples." Concluding, we will examine specific issues of applied political justice (namely, human rights and immigration) as well as issues of economic and social justice and poverty.	3		UG		SI
PHIL 5476 Liberalism and Global Justice	Philosophy	Art & Social Sciences	This is a course in normative political theory. We will critically examine some recent normative political theory, and then examine the prospects and perils of attempts by recent liberal theory to articulate a principled vision of global justice. We will consider Rawls' original bounded theory of justice and examine some challenges it faces from both cosmopolitan theories of justice and proponents of nationalism. Next we'll consider rival political conceptions of liberal international justice, and Rawls' response in the form of his recent "The Law of Peoples." Concluding, we will examine specific issues of applied political justice (namely, human rights and immigration) as well as issues of economic and social justice and poverty.	3		G		SI
PHLA 3001 Animal Ethics (H)	Philosophy	Agriculture	This course will survey the main ethical approaches to the human treatment of non-human animals. It will apply these approaches to human interactions with food animals, companion animals, laboratory animals, zoo animals, and wild animals. The course will look at the capacities of various species of animals for sentience, emotion, conation, cognition, self-consciousness and cooperation as a way of giving appropriate ethical consideration to the interests of different types of animals. Students will discuss case studies, complete projects, or make presentations concerning the treatment of animals in agriculture, scientific research, and veterinary practice.	3		UG		SI

PHYC 2310 Energy and the Environment	Physics & Atmospheric Science	Science	The physical principles and limitations of renewable energy source utilization and energy conversion. A quantitative introduction to energy conversion and storage systems, including solar power and heating, wind, tidal, geothermal, hydroelectric, nuclear power, hydrogen technology, electrical and mechanical energy storage. The input of these energy options on the global climate and environment will be discussed.	3		UG	Rahali G.	SF
PHYC 2800 Climate Change	Physics & Atmospheric Science	Science	The workings of the Earth's climate system are examined and then applied to help understand contemporary climate change. The role of numerical climate models is discussed with the aim of interpreting climate change predictions for the coming decades. Finally the impacts of climate change are studied with a focus on the various mitigation and adaptation strategies needed.	3		UG		SF
PHYC 2850 The Science and Economics of Climate Change	Physics & Atmospheric Science	Science	This course examines how climate change will impact the environment and human activities, and how to formulate and implement economically realistic solutions. It integrates the physical and biological science with economics in order to analyze the response options as we move towards a carbon-neutral society. PREREQUISITES: ECON 1101.03 or ECON 1102.03 or any first year science or math course or permission of the instructor.	6		UG		SF
PLAN 1001 Introduction to Community Design 1	Planning	Architecture & Planning	This course introduces community design by exploring the characteristics of human and natural communities, the connections between them, and the types of interventions designers and planners can make to help people create good living environments. Community design involves applying scientific and creative approaches to helping communities accommodate human needs while respecting the environment.	3		UG		SI
PLAN 2001 Landscape Analysis	Planning	Architecture & Planning	Designers and planners need to understand the influence of physical, biological, and cultural systems in landscape evolution, and the relevance of that information in analyzing land capability. Students develop inventory and analysis tools for understanding environmental processes and their implications for design and planning. There will be field trips and a lab component.	3		UG		SF
PLAN 2010 Sustainable Community Design	Planning	Planning & Architecture	Through case studies and collaborative design projects, this course explores how the form of communities can change in response to new environmental awareness, shifting economic conditions, emerging technologies, and a focus on sustainable local action.	3		UG	Hostovsky C.	SF

PLAN 3100 Transportation and Land Use Planning	Planning	Planning & Architecture	This course explores the interactions between transportation and land use systems. The main aim of the course is to introduce the fundamental concepts of transportation and land use linkages, planning cities for people and places, case studies of urban and suburban transformations, transit-oriented developments, micro-design of road contractions, complete Street, corridor planning, and land use consideration for future mobility needs. It will also discuss tools, methods and approaches of accessibility measurements and integrated land use and transportation modelling. By the end of the course, the students should have a basic understanding of the transportation-land use interactions, and integrated transportation and land use planning processes, methods and applications.	3		UG	Habib M.	SI
PLAN 3110 Planning for Healthy Communities	Planning	Architecture & Planning	Planning plays a crucial role in creating the built and social environments in our communities that facilitate healthy lifestyles while minimizing health risks. Drawing broadly from planning and health fields, this course will explore principles, theories and planning tools that guide creation of such healthy communities. CALENDAR NOTES: Must have completed 60 credit hours	3		UG		SI
PLAN 3115 Social Justice	Planning	Planning & Architecture	This is a seminar exploring principles and theories of social justice as they apply to planning practice and research. The course is designed to develop an understanding of how theoretical understandings of equity, diversity, inclusiveness, affordability and social justice influence planning processes, plans, and policies. Students will study specific tools and strategies that municipalities, non-profit and community-based organizations and other actors use to address complex and long-standing issues of social justice. Students will engage with and respond to a variety of guest lecturers, videos, films and other resources.	3		UG	Thomas R.	SF
PLAN 3225 Plants in the Human Landscape	Planning	Planning & Architecture	The course covers use of plants for human recreation and aesthetics; in gardens, public parks, suburban and urban landscapes. Topics include: garden design, choice of plant materials, management and maintenance, edible landscaping, use of horticulture as therapy and plants and human health. Course will involve field trips and group projects. Students will be expected to complete a design project as part of the coursework	3		UG	Rajaselvam R.	SI

PLAN 4106 Transportation Planning	Planning	Planning & Architecture	The course considers transportation trends, the transport needs associated with different activities, and the impact of transport facilities on land development to offer a critical analysis of the interplay between land uses and transportation. Technology, the costs of supplying transport facilities and the demand outlook for different modes are examined. The emphasis is on urban transportation, mobility demands and the supply of efficient and environmentally sound transport facilities.	3		UG	Khan M.	SI
PLAN 5500 Planning Studio 2	Planning	Planning & Architecture	The studio continues the lessons of Studio 1. The studio adopts an environmental perspective in approaching planning issues and challenges. The course will concentrate on techniques of evaluating the suitability of land for proposed land uses, and methods of assessing the impacts of proposed planning policies and developments on landscapes.	6		G	Berglund L.	SI
PLAN 6106 Transportation Planning	Planning	Planning & Architecture	This course analyses transportation trends, the transport needs associated with different activities and the impact of transport facilities on land development to offer a critical analysis of the interplay between land uses and transportation. Technology, the costs of supplying transport facilities and the demand outlook for different modes are examined. The emphasis is on urban transportation, mobility demands and the supply of efficient and environmentally sound transport facilities.	3		G	Khan M.	SI
PLSC 0100 Utilization of Plant Resources	Plant Science	Agriculture	Using an integrated systems approach, students are introduced to the principles and practices involved in the sustainable production of crop plants. Practical exercises will give the students an opportunity to gain knowledge and skills involved in economic and environmental growing of agronomic and horticultural crops. CALENDAR NOTES: Fall semester	2		UG		SF
PLSC 1000 Farm Woodlot Management (A)	Plant Science	Agriculture	This course will focus on the importance of privately owned woodlands to the landowner, the forest industry, and the agricultural sector. It will examine forest ecology, tree identification, forest measurement, aerial photo interpretation, and forest management practices including silviculture. The course will review Christmas tree and maple syrup production. The role of appropriate equipment and machinery in the woods will also be discussed. A field lab will be held weekly. Steeltoed boots and hard hats are required.	3		UG		SI

PLSC 4002 Plant Ecophysiology (A)	Plant Science	Agriculture	This course is designed to stimulate interest, critical thinking, and investigative processes for the understanding of growth, development, distribution, acclimation, and adaptation of crop plants that are influenced by their physiological ecology; the interaction with the climatological, physical, chemical, and biological environments; and the ecophysiological responses that are modulated by input and crop management factors. This course will also enhance knowledge of crop stress diagnostics, physiological mechanisms of acclimation, and adaptation to various challenging abiotic and biotic stress factors. Agricultural practices and agroecosystem management will be related to the economic and environmental responsibilities. This course will use several "Participatory Learning" techniques.	3		UG		SI
POLI 1065 Political Worlds: the Global Domain	Political Science	Arts & Social Sciences	This course, which builds on Political Science 1060, introduces you to key approaches, actors, and issues in the study of global politics. After discussing the role of theory and history in understanding contemporary global politics, it considers the role of national governments, international and regional organizations (like the United Nations, the European Union, or the African Union), Non-governmental organizations (like the Red Cross or Greenpeace), and Multinational Corporations. It then looks at the Politics of Global Security and Human Rights, and the Politics of Global welfare (including trade, poverty alleviation, and environmental stress). The objective is to increase your global political 'literacy', to better understand contemporary global challenges and to prepare you for further study of international relations and comparative politics.	3		UG	Black D.	SI
POLI 2520 World Politics	Political Science	Art & Social Science	Why do states fight wars? Commit genocide? Sign treaties? Acquire and sell ballistic missile and nuclear technologies? Join economic and military alliances? Enforce and/or dismantle sanctions against states like Iraq, Iran or North Korea? Why can't we enforce international law as effectively as we enforce domestic law? Can we identify (and enforce) an objective set of universal moral values to guide relations between states and peoples? Is the U.N. a useful institution or is it destined to fail? Should NATO have intervened in conflicts in Bosnia, Kosovo, Rwanda or Afghanistan? What were the factors that led to the US-UK invasion of Iraq in 2003, and what does this tell us about US foreign policy and the origins of major conflict? These are some of the questions the course is designed to answer.	3		UG		SI

POLI 3208 Canadian Provincial Politics	Political Science	Arts & Social Sciences	An analysis of the dynamics and structures of provincial governments. Topics may include: Political parties, voting behaviour, legislatures, electoral systems, bureaucracies and the formulation of economic, energy, environmental, and other policies. Attention is also paid to interprovincial and intergovernmental relations.	3		UG	Carbert L.	SI
POLI 3385 Politics of the Environment	Political Science	Arts & Social Sciences	This course examines competing perspectives on the political, social, and economic forces driving environmental degradation, as well as differing visions of the types of political change required for ecological sustainability. Topics include: competing perspectives on ideas of limits to growth and sustainable development; the links between poverty, North-South inequality, and environmental degradation; population growth; the promise and limits of technological solutions; consumerism and ecological degradation; market-based environmentalism; ecological modernization; and ecological critiques of capitalism.	3		UG		SF
POLI 3390 Politics of Consumption	Political Science	Arts & Social Sciences	The course examines the political and economic importance of consumption and critical perspectives on the ecological, social, and wellbeing impacts of consumer society. Topics include: the emergence of consumer society, consumption during the Depression and war years, the central role of expanded consumption in the post- war "golden age" of capitalism, the struggles of marginalized groups to participate in consumer society, growing inequalities of consumption in the neoliberal era, consumption in communist and post-communist societies, and political and ethical consumerism. The environmental impacts of consumer society are a prominent theme in the course, along with competing perspectives on how to achieve "sustainable consumption."	3		UG		SF
POLI 3531 The United Nations in World Politics	Political Science	Art & Social Sciences	The evolution of the United Nations from its early concentration on problems of collective security, through the period of preventive diplomacy and anti-colonialism, to its present role as a forum for the aspirations and demands of the Less Developed Countries is reviewed. The more distant future, and the continuing relevance of the United Nations in world politics, and how its role and objectives should be determined, are considered.	3		UG		SI

POLI 3535 Wealth, Power and Poverty in the Global South	Political Science	Arts & Social Sciences	This seminar provides an overview of the global political economy in the current post-Bretton Woods, post-Cold War period. It considers various issues pertaining to wealth, power and poverty, from several theoretical and political perspectives, from global frameworks to feminism. Issues addressed include the rise of the BRICs, the Fourth World, international development organizations, transnational civil society, democracy and popular participation, and alternative futures.	3		UG		SI
POLI 4340 Approaches to Development	Political Science	Arts & Social Sciences	A survey of theories of and policies about dependence, underdevelopment and peripheral social formations. Particular emphasis on modernization, materialist, and alternative modes of analysis, and on orthodox and radical strategies of development. Topics include social contradictions (e.g. class, race and ethnicity), debt, structural adjustment, human development, human security, gender, technology, civil society, informal sectors, democratization and ecology.	3		UG	Arthur P.	SI
POLI 4380 Politics of Climate Change	Political Science	Arts & Social Sciences	This course examines the interactions between politics and a changing climate. Core questions include: What lies behind political disagreements over how to respond to climate change? What does climate change mean for various political, social, and economic projects? Topics include: the role of science and economics in climate politics; the new "climate capitalism"; non-capitalist alternatives that question growth and consumerism while emphasizing "climate justice"; Canada's particular difficulties in addressing climate change; climate politics at the personal level; international climate negotiations; and the politics of geo-engineering.	3		UG	Hayden A.	SF
POLI 4390 Practicum in Public Policy: NGOs and Government Services	Political Science	Arts & Social Sciences	This course is designed to provide students who have fourth-year standing in Political Science the opportunity to gain practical experience by working at a government or non-government, research, or advocacy organization that is instrumental in shaping public policy or advancing human rights; to learn about the services, projects, and campaigns undertaken by specific organizations; to apply and share the knowledge that they have gained from their academic studies in political theory, public policy, international relations, and/or human rights advocacy; and to become familiar with the day-to-day challenges of employment in government and non-government organizations and public services.	3		UG	Denike M.	SI

POLI 4505 Human Rights Legal Issues	Political Science	Arts and Social Sciences	This course focuses on the legal issues and debates that are implicated in the development and enforcement of domestic and international human rights. It will address the changing legal status of international human rights treaties and conventions, with attention to the work of international treaty bodies, courts, tribunals, and the implications of their decisions and recommendations in domestic contexts. It will look at the impact of the development of international criminal courts and tribunals – with attention to the debates concerning state sovereignty and accountability, and what enables or restricts intervention in human rights crises. A central theme of the course will be theories and approaches to justice, and their relation to the force of law and the challenges of legal systems and obligations.	3		UG		SF
POLI 4561 Security-Development Nexus: Theory, Policy and Complex. Operations	Political Science	Arts & Social Sciences	Security and development are indissolubly linked: development is compromised when security remains problematic, while a secure environment requires some form of sustainable development. Two of the principle manifestations of this 'security-development nexus' have been intrastate wars and collapsed states. In 2011 for example, none of the states emerging from civil war had reached any of the Millennium Development Goals set by the United Nations. Moreover, the security-development relationship conditions our capacity to develop effective policies on how and whether to intervene in 'fragile' or 'collapsed' states where the security environment is highly problematic, and our capacity to contribute to the economic and human development of these countries. This course aims, first, to give students a broad understanding of the various dimensions of the security-development nexus; and second, to address significant practical implications of this nexus. An important portion of the course will examine specific case studies, and feature an interagency simulation to provide students with a sense of what it is like to grapple these concepts beyond the classroom.	3		UG	Baechler J.	SF
POLI 5589 Politics of the Sea II	Political Science	Arts & Social Sciences	The course will examine environmental, political and economic forces which affect contemporary ocean governance and management. Contemporary issues will be used to explore the geo-political ocean on a sectoral basis (transportation, fisheries and resources, military, etc), as well as analyzing the evolution of national and international oceans policies and institutions.	3		G	Williamson H.	SI

POLS 2000 Global Politics of Agriculture and Conservation (A) (H)	Political Science	Agriculture	Students will study the legislative and executive aspects of the Canadian state in relation to the major global institutions and multi-national organizations connected to food, agriculture and natural resources. This course will further provide students with the basic knowledge of how the agri-food system operated internationally and historically. Specific themes to be covered include governance issues, the rise of global food corporations, the WTO trade regime, agricultural subsidies, political economy of tenure and property rights (e.g., for land, forest, genetic resources), debates surrounding, for example, food security and food sovereignty, technology and GMOs. Animal conservation issues will also be covered including natural resource conservation, issues in world wildlife preservation and community and international responses to these issues.	3		UG	Cameron G.	SF
PEAS 6020 Biomass Valorization	Process Engineering & Applied Science	Engineering	This course will provide a broad overview of biomass valorization, which involves the transformation of biomass to useful products by extraction or conversion processes. The focus will be mainly on food waste and recovery strategies for obtaining several compounds to maximize the value of the processing by-products and improve the sustainability of food production. Examples of high added-value biomolecules from typical food industries will be discussed, as well as processing technologies and techniques that can be used for recovering target compounds, and commercial considerations.	3		G	Brooks S.	SF

PEAS 6040 Life Cycle Assessment	Process Engineering & Applied Science	Engineering	Current approach of solving environmental issues is often focused on the individual problem, which may result in transferring the environmental impact from one sector to the other. System thinking enables understanding the complexity of environmental issues and helps with informed decision to address these issues from system perspective. This course aims to introduce the concept of life cycle assessment (LCA) and system thinking. The scope of the course extends to develop critical thinking for the assessment of the environmental impact of products and processes. Qualitative and quantitative analysis required to conduct life cycle assessment, life cycle cost analysis, major phases in LCA and analysis of multiple output processes and multifunctional product systems will be covered. Four major phases involved in LCA including "Goal and Scope", "Inventory Compilation", "Impact Assessment" and "Interpretation" will be examined through assignments, term project and various in-class activities.	3		G	Kermanshahi pour A. (P) Colicchio P.	SF
PUAD 6020 Food Policy and Sustainability	Public Administration	Management	This course explores the theories, concepts and conundrums of food policy development in Canada. This course offers a critical analysis of agricultural income, marketing, adjustment and trade problems and policies in the developed countries, with emphasis on Canadian agricultural policies. Using a seminar style, the course examines policy and program options to create a sustainable, equitable and health promoting food system for Canada. Specific course topics will be determined at the beginning of the course based on the specific needs of registered students. The emphasis will be on addressing current challenges and knowledge gaps faced by students in their food and related studies. Sessions will make use of lecture formats, student presentations, discussion and guest speakers.	3		G	Charlebois S.	SF

PUAD 6561 Security-Development Nexus: Theory, Policy & Complex Operations	Public Administration	Management	Security and development are indissolubly linked: development is compromised when security remains problematic, while a secure environment requires some form of sustainable development. Two of the principle manifestations of this 'security-development nexus' have been intrastate wars and collapsed states. In 2011 for example, none of the states emerging from civil war had reached any of the Millennium Development Goals set by the United Nations. Moreover, the security-development relationship conditions our capacity to develop effective policies on how and whether to intervene in 'fragile' or 'collapsed' states where the security environment is highly problematic, and our capacity to contribute to the economic and human development of these countries. This course aims, first, to give students a broad understanding of the various dimensions of the security-development nexus; and second, to address significant practical implications of this nexus. An important portion of the course will examine specific case studies, and feature an interagency simulation to provide students with a sense of what it is like to grapple these concepts beyond the classroom.	3		G	Baechler J.	SF
RELS 3211 Ecology and Religion	Religious Studies	Arts & Social Sciences	This course examines the relationship between spirituality and the human encounter with the environment in history and today. Beginning with an examination of some of the ancient, Medieval and early modern religious foundations of ecology and the environmental movement, the course moves on to focus on contemporary green theology, the practice of religious environmentalism and the interaction between religious traditions and the environmental sciences and technologies. It engages with primary sources from and scholarship about Western (Abrahamic), Eastern (Dharmic) and indigenous religions, along with twenty-first-century green theology, religious environmentalism, ecofeminist perspectives and Dark Green Religion. Grounded in the history of science and technology, this course takes an interdisciplinary approach to its themes, incorporating historical, literary, theological, political, sociological and philosophical perspectives.	3		UG	Snobelen S.	SF

SLWK 2222 Advancing Social Justice	Social Work	Health	This course introduces students to the central concepts of a social justice perspective through a deconstruction and reconstruction of various assumptions, practices, and positionalities that advance and/or impede social justice. Rooted in processes of critically reflective analysis this course attends to cognitive, affective, and spiritual learning processes.	3		UG		SF
SLWK 3012 Perspectives on Social Welfare Policy	Social Work	Health	As an introduction to social policy analysis, this course surveys a variety of perspectives on social problems and social policy issues, with a focus on contemporary debates. The impact of policy on service users is a central theme of the course.	3		UG		SI
SLWK 3220 Cross-Cultural Issues and Social Work Practice	Social Work	Health	This course provides an opportunity to critically examine theoretical frameworks for viewing marginalized racial, ethnic and cultural groups in society, to examine personal values as they relate to the above groups, to develop skills in working effectively with these groups, and to understand related social policies.	3	3	UG	Pothier J. & Breen T.	SI
SLWK 5110 Africentric Perspectives in Social Work.	Social Work	Health	The course provides students with an opportunity to engage in critical dialogue, reflection and action about historical and contemporary experiences of African Nova Scotians and Africans in the Diaspora. The course also focuses on awareness of Africentric theory, and its application in social work practice with Africans and non-Africans.	3		G	Thomas Bernard W.	SI
SLWK 5160 Aboriginal Perspectives on Service Delivery and Practice.	Social Work	Heath	This course is offered to MSW students enrolled at the School of Social Work, Dalhousie University. Aboriginal Perspectives will be explored through both historical and contemporary perspectives. Students will have an opportunity to explore historical, social and political realities and perspectives from Aboriginal peoples including Aboriginal perspectives on Indigenous social work practice. Through critical reflection and analysis students will have the opportunity to re(articulate) their own framework of social work practice in relation to Aboriginal perspectives on service delivery and social work practice.	3		G	Baikie G.	SF

SLWK 6001 Theory and Practice of Anti-Oppressive Social Work in Diverse Communities	Social Work	Health	Note: SLWK 6001 must be the first course taken in the MSW program.The principles of cross-cultural and ethnic-specific social work practice are now widely accepted in social work education, training and practice. The more recent challenge has been to develop anti-racist and anti-oppressive theory and practice. Racism and oppressive practices are in conflict with the "caring" notion of social work as a profession. Multiple forms of oppression frame everyone's life. Social work intervention either adds to oppression, condones it through non-action, or does something to ease or break oppression. The aim of this course is to unravel the underlying thread of multiple oppression, and the interaction of various sources and forms of oppression, and to develop practice strategies that seek to challenge and break oppression.	3		G		SI
SLWK 6381 Social Policy Issues and Analysis for Practice.	Social Work	Health	The course critically examines the policy-making process and its social work practice implications. The interplay between economic and social policy in an age of globalization and neoliberalism will cultivate a deeper understanding of the limitations of current social welfare programs. This course provides students with theoretical interpretations of the welfare state in advanced industrial societies, consideration of the economic, political, social and demographic factors that lead to change in social policy and their implications for social work practice.	3		G	Schofield W.	SI
SLWK 6385 Community and Social Change Analysis	Social Work	Health	There are tensions within the concept of community between marginalization and/or self-determination. Through case studies, the course explores these tensions as they occur in the field of community "care", and expanding field of social work practice. The theoretical base for the course draws on a variety of perspectives such as communitarianism, eco-feminism, social ecology, managerialism, neo-liberalism, and new" social movement theory.	3		G		SI
SLWK 6510 Women, Social Policy and Social Citizenship	Social Work	Health	The course examines the shifting terrain of women's social citizenship in Canada. An examination will be done of women's relationship to the Canadian welfare state, the nature of the new social policy regime and the impact that recent changes are having on women and gender equality.	3		G		SI

SLWK 7400 Integrated Approaches for Social Work Practice	Social Work	Health	This course examines theory, policy and direct intervention as interrelated forms of social work practice. Through this integrated approach, students explore politicized approaches to transformative social work by examining social welfare settings including health environments, child welfare, government, non-government, not-for-profit organizations and social movements. Students will develop an intersectional lens and critical analysis of integrated approaches to practice in chosen areas of interests within diverse communities.	3		G	Brown M.	SI
SOIL 0201 Introduction to Soil and Soil Management	Soil Science	Agriculture	This course is designed to give students a basic understanding of soil and soil management. Designed to form a basis for the understanding of soil productivity, the course investigates soil development and soil types, and the physical, chemical and biological properties of soils. It also provides students with an introduction to how management practices affect these qualities and overall soil health. Laboratory exercises, using soils from the Atlantic Region, illustrate the lecture material and introduce methods of soil analyses.	2		UG		SI
SOIL 2000 Introduction to Soil Science (A)	Soil Science	Agriculture	Soil is a dynamic living entity upon which all terrestrial life depends. This course will examine the general principals of soil science relating to the origin, development, and classification of soils; and the biological, physical, and chemical properties of soils and their relation to proper soil management, land use, and soil conservation. CALENDAR NOTES: Fall semester	3		UG		SI
SOIL 3000 Soil Fertility and Nutrient Management (A)	Soil Science	Agriculture	The study of the soil chemical environment as it affects crop production. The course investigates the biogeochemical cycling of nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, and micronutrients in crop production. It considers the use and management of supplemental nutrients in both conventional and certified organic production. Soil pH and other factors that influence soil fertility, directly or indirectly, are also discussed. Labs take the form of problem-solving tutorials on nutrient management.	3		UG	Burton D.	SI

SOCI 1001 Introductory Sociology II (H)	Sociology	Agriculture	The study of social issues uses sociological theory and research to examine social dynamics and social consequences associated with various current concerns. The topics covered will vary from year to year, but may well include problems such as gender and race relations, child and spousal abuse, substance abuse, poverty, work and alienation, and environmental issues. There will be a focus on issues of interest to rural Canada.	3		UG	Dukeshire S.	SI
SOSA 2005 Introduction to African Canadian Studies: Society, History and Culture	Sociology & Social Anthropology	Arts & Social Sciences	There has been a presence of African peoples in Canada for over 400 years; however, the rich histories of African-Canadian people have been often ignored. This course examines African Canadian society and culture from the historical to contemporary period. Topics will include patterns of immigration and settlement, slavery, family, continental African and diasporic connections, identity, arts and culture, education, religion, employment, justice and the law, the media, diasporic debates, Black struggles and resistance, and African Canadian achievements. The course will be taught from a critical race and gender perspective, and will include readings about the diverse Black communities across Canada.	3		UG	Saney I.	SI
SOSA 2042 Explaining Social Inequality.	Sociology & Social Anthropology	Arts & Social Sciences	This course examines various perspectives on inequality. It will examine how various forms of social inequality emerge and persist. The focus will be on the unequal distribution of wealth and sources of social power. Readings and assignments will focus on theories and explanations of inequality as well as historical and contemporary cases, including class, ethnicity, race, nation, region, gender, orientation and other manifestations of inequality.	3		UG	DuBois L.	SI
SOSA 2052 Contemporary Issues in Indigenous Studies	Sociology & Social Anthropology	Arts & Social Sciences	This course offers an interdisciplinary introduction to contemporary challenges faced by Indigenous peoples in Canada. Topics may include language and culture, land rights, economics, governance and treaty relationships, child welfare and education, health, social services, environmental issues, violence, criminal justice and self-determination, political mobilization and resistance, and decolonization.	3		UG	Doyle-Bedwell P.	SF
SOSA 2503 Health and Society	Sociology & Social Anthropology	Arts & Social Sciences	This course examines the social foundations of health and illness, community responses to health problems, and the structure of health care in Canada and internationally. Topics to be covered include: morality and health, social inequality and the political economy of health and health care, the multinational pharmaceutical industry, environmental health, and the development of and 'crisis' in the Canadian Medicare system.	3		UG	Halpin M.	SI

SOSA 3052 Indigenous Social Health and Environmental Issues	Sociology & Social Anthropology	Arts & Social Sciences	This course offers an interdisciplinary overview of contemporary social, health, and environmental issues impacting Canada's Indigenous Peoples. Topics will include an exploration of the human rights of Indigenous Peoples in Canada, social statistics, food security in northern communities, health and well-being in Indigenous communities, connection to place, impact of environmental degradation and land dispossession, Indigenous knowledge and the environment, politics and political activism, and the role of media.	3		UG	Doyle-Bedwell P.	SF
SOSA 3200 Environment and Society	Sociology and Social Anthropology	Arts & Social Sciences	Humans are aware as never before of their impacts on the environment, and their dependence on the other things and beings with which they coexist. In this course we explore the ways that Social Scientists are rethinking the relationship between humans and the non-humans, whether they are carbon atoms, computers, amphibians, mushrooms or ecosystems.	3		UG		SF
SOSA 3206 Ethnicity, Nationalism and Race	Sociology and Social Anthropology	Art & Social Sciences	This course looks at the social construction and present relevance of the categories “ethnicity”, “nation”, and “race”. The current prevalence of identity politics and ethnic nationalism suggest the extent to which these categories are both profoundly political and deeply personal. By looking at case studies from Canada and around the world we examine these ideas and their implications. Topics will vary from year to year, but may include Quebec nationalism, multiculturalism, “ethnic” warfare in Rwanda or Bosnia, and race politics. Approved with International Development Studies.	3		UG		SI
SOSA 3245 Women and Aging	Sociology and Social Anthropology	Arts & Social Sciences	As women grow older, the experience of aging is difficult. This course will explore the issues related to socio-economic factors that are major determinants of the well- being of aging women. Topics will include: aging as a process; menopause; violence against older women; older women and housing; self-image and sexuality; health and the aging woman; and older women and poverty.	3		UG		SI

SUST 1000 What is Sustainability?	College of Sustainability	N/A	Learning to live sustainably is humanity's greatest and most exciting challenge. The first step is seeing ourselves clearly – our histories, perceptions, intentions, and impacts – as integral to life on Earth. Using an interdisciplinary approach, we investigate the many conceptual frameworks that inform our understanding of sustainability. Through topics such as energy, water, land use, food, urbanization and social equity, we explore what sustainability means in our lives and to the planet. CALENDAR NOTES: One full credit in fall term.	6		UG		SF
SUST 1001 A Sustainable Future	College of Sustainability	N/A	We explore pathways towards living in a sustainable world. Drawing from diverse perspectives and applying a sustainability lens, we analyse and assess assumptions and practices in the past and present, in order to propose new approaches and solutions to the environmental, economic, cultural and societal challenges of the future.	6		UG	Lesins G. (P) Patten S.	SF
SUST 1400 Exploring Sustainability	College of Sustainability	N/A	This online course explores ideas of sustainability using many, sometimes conflicting, perspectives and frameworks. Academics, change-makers in the community, politicians, farmers, and non-profit leaders share their stories with us. We explore the three pillars of sustainability and hear from individuals in Halifax and beyond.	3		UG	Langford W.	SF
SUST 2000 Local Governance, Citizen Engagement and Sustainability	College of Sustainability	N/A	People make decisions that influence the way the world changes and the way in which it stays the same. This course is about people and how their roles and actions affect social and natural environments at the local level. We explore the roles and actions of individuals as consumers, citizens and as activists, and groups of people who work in local government, the legal system, the corporate and entrepreneurial sectors and with non-governmental organizations. The course uses a Problem Based Learning (PBL) approach to help us think critically as we explore the connections between people, their actions, and the complex issues associated with environmental and social sustainability.	6		UG		SF
SUST 2001 Global Environmental Governance	College of Sustainability	N/A	The course examines the interface between global governance, political economy, and the environment. Various theories explore links between: international law and institutions, globalization, financial markets, consumption, population growth, conflict, and civil society. Issues are framed to explore efforts towards global sustainability, ending in a simulated international negotiation.	6		UG	Bergel A.	SF

SUST 3000 Environmental Decision Making	College of Sustainability	N/A	The world is a product of countless individual and collective choices. Making decisions for a sustainable future requires that these decisions account for the uncertainty and complexity inherent to human development and be sensitive to ecological constraints and associated, often competing, human values. This course explores the key challenges and tools associated with environmental decision making.	3		UG		SF
SUST 3002 ESS Engagement Project	College of Sustainability	N/A	Students gain hands-on experience while addressing a question of personal and academic interest relevant to the field of environment and sustainability. Students work as interns for 6-8 hours per week over one semester on an approved project with a sponsoring agency.	3		UG		SF
SUST 3002 ESS Engagement Project	College of Sustainability	N/A	Students gain hands-on experience while addressing a question of personal and academic interest relevant to the field of environment and sustainability. Students work as interns for 6-8 hours per week over one semester on an approved project with a sponsoring agency.	3		UG	Mushkat P.	SF
SUST 3039 Indigenous Perspectives on Resource and Environmental Management	College of Sustainability	N/A	This course explores Indigenous peoples' relationships with natural resources and settler populations within a broad socio-politico-environmental context. We review legislation affecting Indigenous participation and leadership in resource and environmental management, and consider approaches to Indigenous community-partnered research. Course includes guest lectures by Elders and Indigenous leaders, readings by Indigenous scholars, and a field trip.	3		UG		SF
SUST 3102 Coastal Change & Adaptation	College of Sustainability	N/A	Human activities alter coastal environments directly and by influencing natural processes. We analyse the drivers of change and impacts on environment, economy and society. Mitigation and management strategies for sustainable adaptation are investigated. Lectures are integrated with student presentations, guest lectures and discussion of current coastal and marine research.	3		UG		SF
SUST 3102 Coastal Change & Adaptation	College of Sustainability	N/A	Human activities alter coastal environments directly and by influencing natural processes. We analyse the drivers of change and impacts on environment, economy and society. Mitigation and management strategies for sustainable adaptation are investigated. Lectures are integrated with student presentations, guest lectures and discussion of current coastal and marine research.	3		UG	Klein G.	SF

SUST 3103 Effective Argument in Sustainability	College of Sustainability	N/A	This collaborative seminar challenges students to engage in argument and persuasion. Learn about the argumentative process and how to separate facts from opinions. Discussion topics emerge from the ESS Lecture Series. Contemplate multiple views on these controversial issues and become more confident and comfortable responding to the views of others.	3		UG	Klein G.	SF
SUST 3104 Sustainability and the Non-Profit Sector	College of Sustainability	N/A	This course introduces the Canadian non-profit sector and its role in driving social change towards sustainability, equity and social justice at local, regional, national and international levels. It examines the particular role and contributions of NGOs in relation to state and private actors, in achieving social, economic and ecological sustainability.	3		UG		SF
SUST 3106 The Canadian North: Environmental Change and Challenges	College of Sustainability	N/A	This course introduces the Canadian North through an examination of the challenges faced by northern peoples. Emphasis is placed on the causes and consequences of global environmental change, and interactions with ecological processes and challenges for the human environment. Inuit perspectives of ecological knowledge will complement discussions on planning and development in a warming future. Principles of ecosystem management and emergent challenges for a sustainable future will also be addressed.	3		UG	Medeiros A.	SF
SUST 3502 The Campus as a Living Laboratory	College of Sustainability	N/A	In this course the campus serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater campus sustainability. Working in groups, students apply problem solving models to case studies using qualitative and quantitative research methods and make recommendations for improvements on campus based on their analyses.	3		UG	Cray H.	SF

SUST 3701 The Community as a Living Laboratory	College of Sustainability	N/A	This course introduces students to research, concepts and methods for analyzing community sustainability across a spectrum of perspectives. In this course, the Halifax community serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater environmental, social and economic sustainability. Working in groups, students apply problem-solving models to case studies using qualitative and quantitative research methods to help community-based organizations grapple with real world problems. A variety of tools may be used including systems analysis, environmental audits, field surveys, questionnaires, interviews, and statistical analysis. Students then draw conclusions and make recommendations for improvements on the basis of their analysis.	3		UG		SF
SUST 3702 Sustainable Industries	College of Sustainability	N/A	The course introduces students to concepts and methods for analyzing industrial sustainability through an interdisciplinary lens that highlights the necessity of including economic, social and environmental considerations. It also intends to deepen their understanding of: a) the business case (short term and long term) for industrial/corporate sustainability; b) the tools, techniques and strategies necessary to decouple economic growth of our business sectors from resource use and environmental degradation; and c) the key role that business and industry play in the sustainable development agenda. Using examples from various industrial settings, a range of management and policy mechanisms for ensuring resource sustainability are explored.	3		UG	Adams M.	SF
SUST 4000X/Y Environment, Sustainability and Society Capstone	College of Sustainability	N/A	Students work in multidisciplinary groups, with community partner organizations to identify real problems and develop meaningful strategies to address them. Groups work with advisors and experts to create detailed plans of action based on strong research and analysis, working in a studio environment.	6		UG	Mushkat P. (P) Klein G.	SF
SUST 4004 Pathways to Sustainable Energy	College of Sustainability	N/A	Students gain a practical understanding of how to move towards a low-carbon energy future. Students learn about international, national, and subnational policies that drive adoption of renewable energy, energy efficiency, and carbon capture and storage technologies and how the technologies work. The technological barriers to their widespread adoption and how to overcome these barriers are also discussed.	3		UG		SF

SUST 4125 Conflict Negotiation & Sustainability	College of Sustainability	N/A	This course looks at local and global conflicts driven by: climate, politics, resource extraction, land use, and development. The class offers preparatory lectures followed by team-based simulated negotiations. Students learn techniques related to de-escalation, negotiation and debate tactics, through assuming and advocating various stakeholder perspectives.	3		UG		SF
SUST 4800 Environment Sustainability and Society Independent Study	College of Sustainability	N/A	This Independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Student must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Director of the College of Sustainability.	3		UG		SF
SUST 4800 Environment Sustainability and Society Independent Study	College of Sustainability	N/A	This Independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Student must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Director of the College of Sustainability.	3		UG	Mannell S.	SF
SUST 4801 Environment, Sustainability and Society Independent Study	College of Sustainability	N/A	This Independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Student must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Director of the College of Sustainability.	3		UG		SF
SUST 4801 Environment, Sustainability and Society Independent Study	College of Sustainability	N/A	This Independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Student must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Director of the College of Sustainability.	3		UG	Mannell S.	SF

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Cross Listing/Exclusions

SDGs

SDGs

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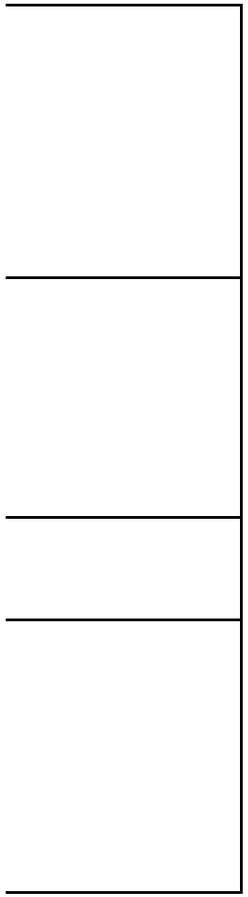
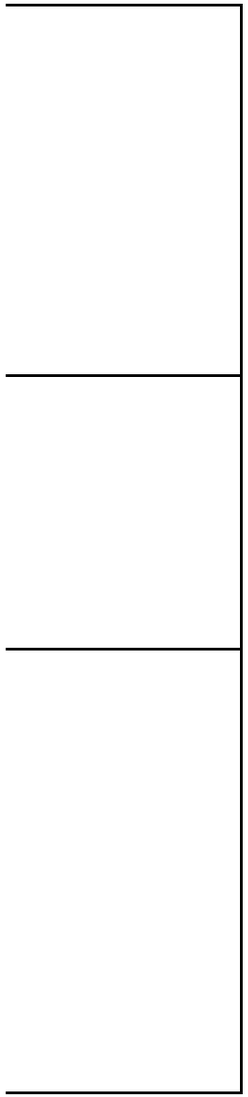
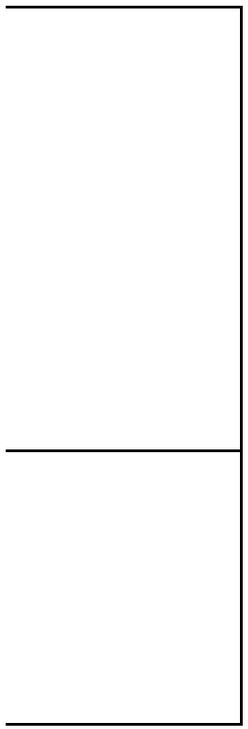
SDG

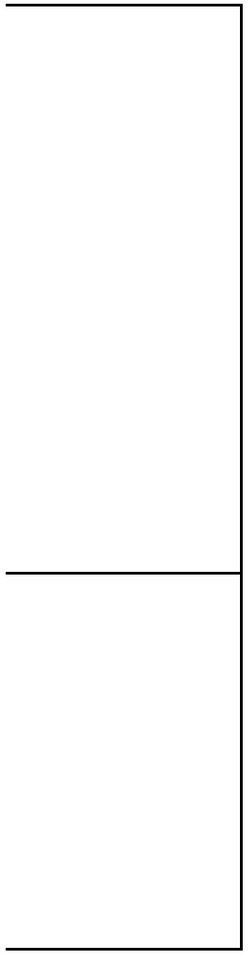
CROSSLISTED: MTHA 4000.03

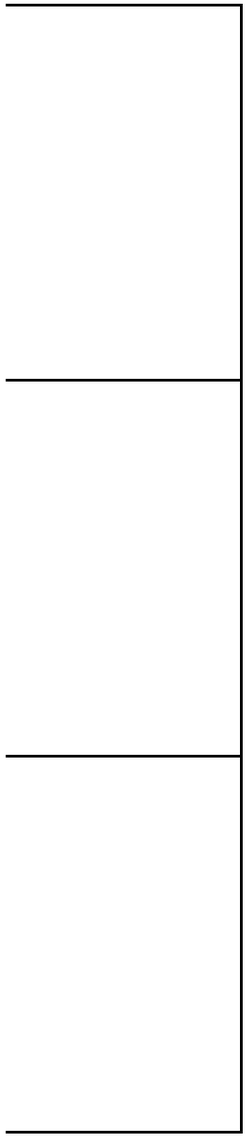
CROSS-LISTING: AGRI 4001.03

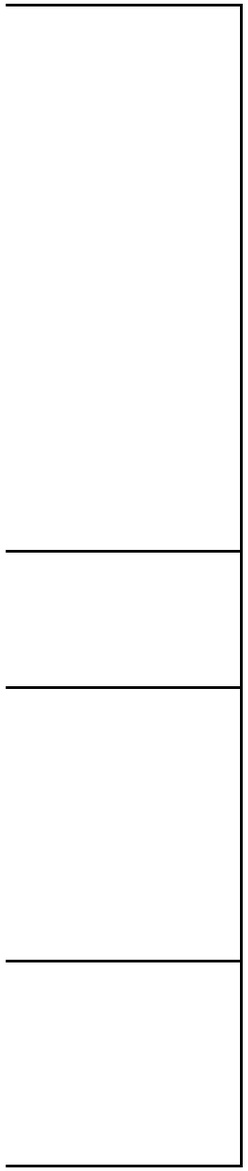












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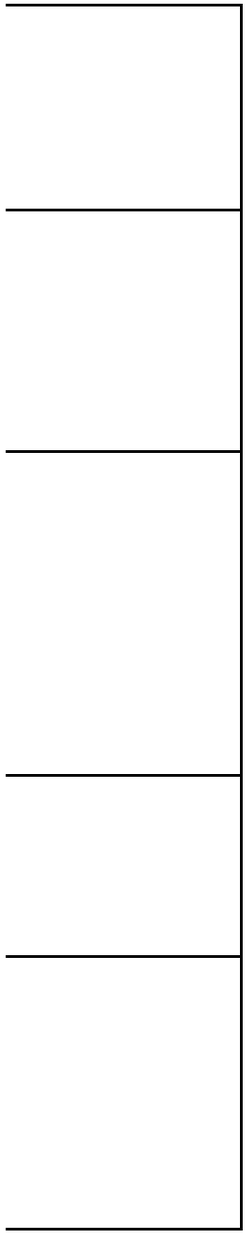
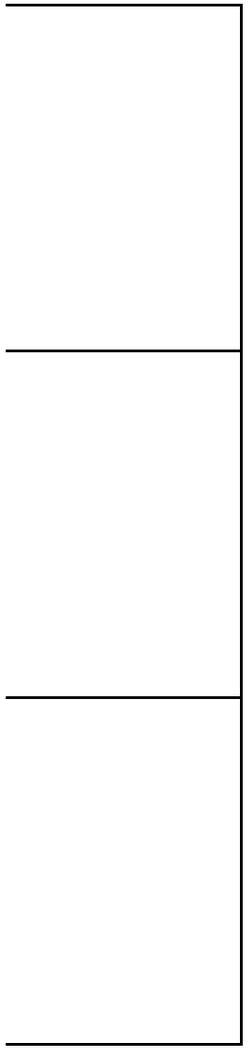
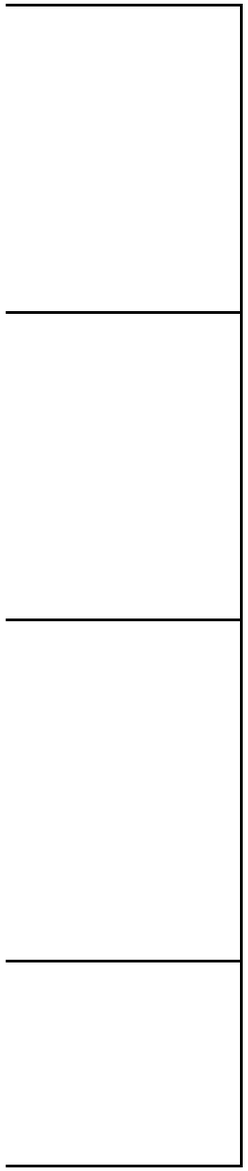
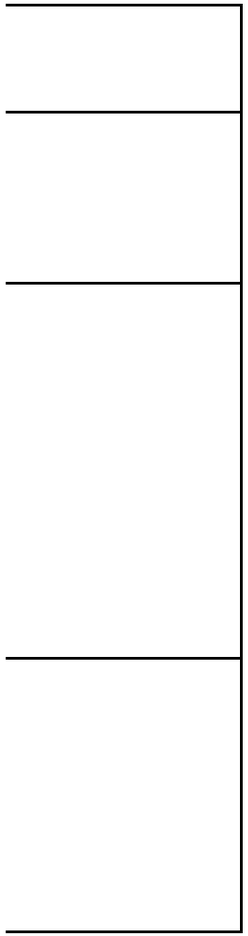
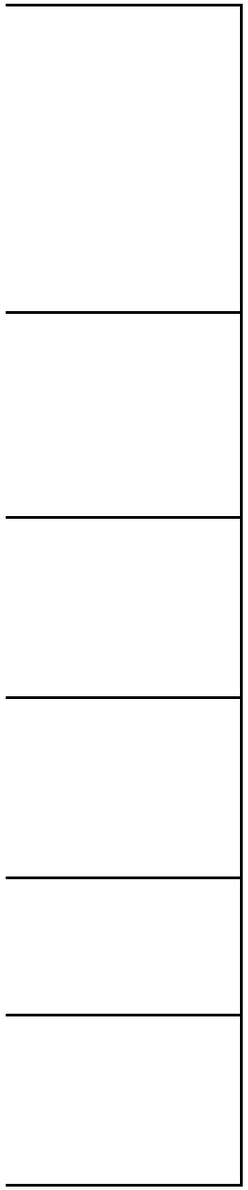
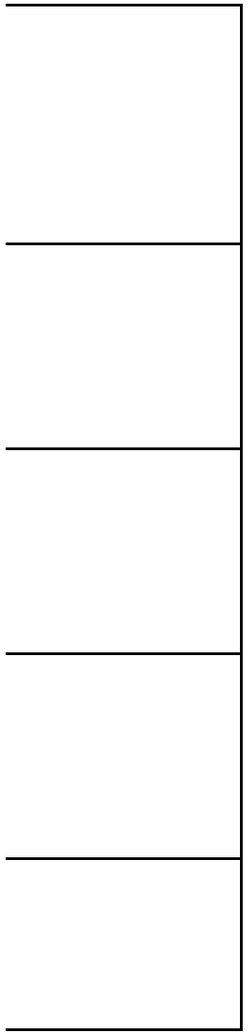












EXCLUSIONS: BIOL 1021.03, SCIE 15XX, BIOA 1003.03
EXCLUSIONS: BIOL 1011.03 or SCIE 15XX, BIOA 1003.03
EXCLUSIONS: BIOL 1011.03 or SCIE 15XX, BIOA 1003.03
EXCLUSIONS: BIOA 3001.03

EXCLUSIONS: BIOL 3219.03
CROSS-LISTING: MARI 3080.03
CROSS-LISTING: MARI 3101.03

EXCLUSIONS: BIOL 2601.03
CROSSLISTED: MARI 3221.03
CROSS-LISTING: ENVS 3225, PLAN 3225
EXCLUSIONS: BIOA 3000.03

CROSSLISTED: ENVS 3226.03
CROSSLISTED: ENVS 3623.03, MARI 3623.03
CROSSLISTED: MARI 3626.03
CROSSLISTED: ENVS 3633.03, GEOG 3633.03, MARI 3633.03, EXCLUSIONS: PLAN 2006.03, GEOG 2006.03

CROSSLISTED: ENVS 4001.03

CROSS LISTING: BIOL 5501
BIOL 5510
CROSS-LISTING: OCEA 5140.03, OCEA 4140.03, 5661.03, MARI 4661.03
CROSS-LISTING: BIOL 4230.03, OCEA 5230.03, MARI 4662.03
CROSS LISTING: BIOL 4500

EXCLUSIONS: BIOL 4510.03
EXCLUSIONS: MARI 3602
CROSS-LISTING: MARI 4600.03

CROSSLISTED: OCEA 5665; EXCLUSIONS: OCEA 4665 and MARI 4665

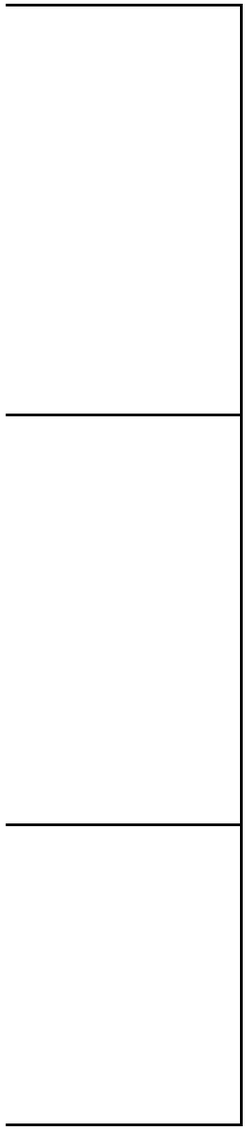
CROSSLISTED: INTD 1102.03;
EXCLUSIONS: INTD 1100, INTD 1101

EXCLUSIONS: CANA 2000X

CROSS-LISTING: SOSA 2005.03

CROSSLISTED: INDG 2050.03, HIST 2205.03
CROSSLISTED: ECON 2218.03
CROSSLISTED: ECON 2233.03

CROSSLISTED: HIST 2280.03

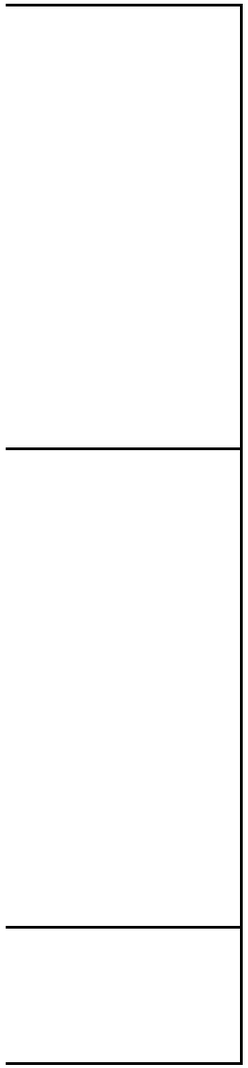


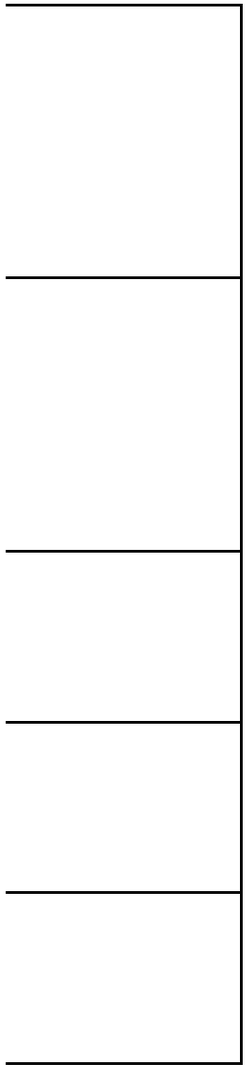
CROSSLISTED: ECON 2213.03

EXCLUSIONS: PEAS 2202

CROSSLISTED: MGMT 2305.03 EXCLUSIONS: PHIL 2081.03

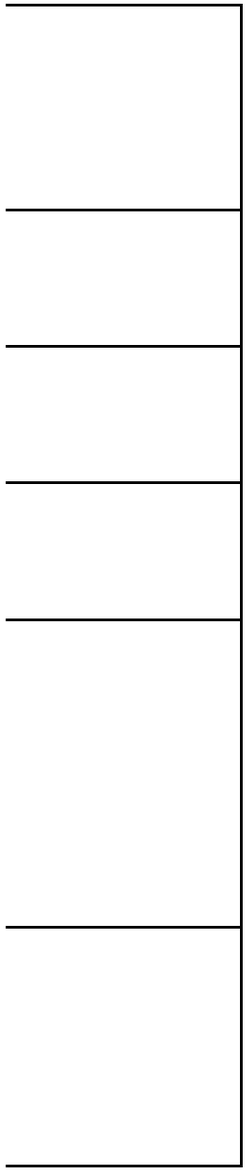
CROSSLISTED: MGMT 2305.03 EXCLUSIONS: PHIL 2081.03





CROSSLISTED: CHIN 2290.03			
CROSSLISTED: GWST 2217.03			
CROSSLISTED: CANA 2218.03			

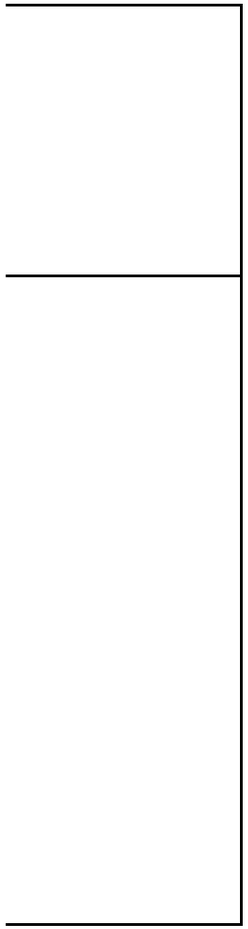
CROSSLISTED: PHYC 2850.06

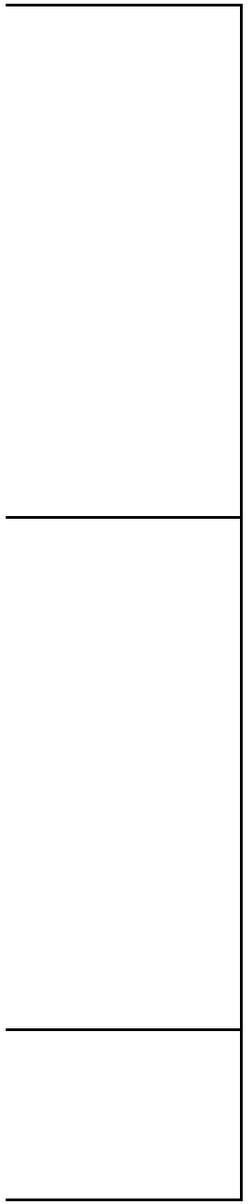


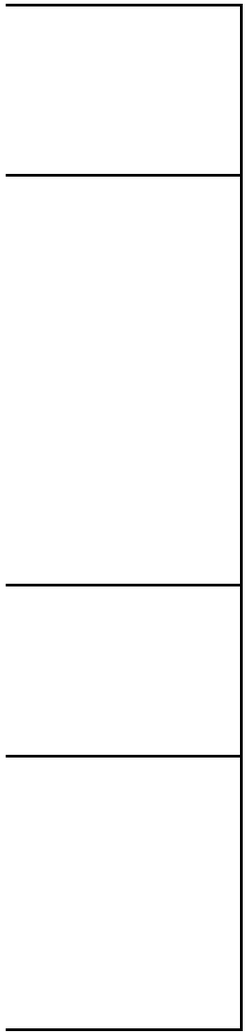
EXCLUSIONS: ECON 3317.03; ECON 5317.03 FORMATS: Lecture

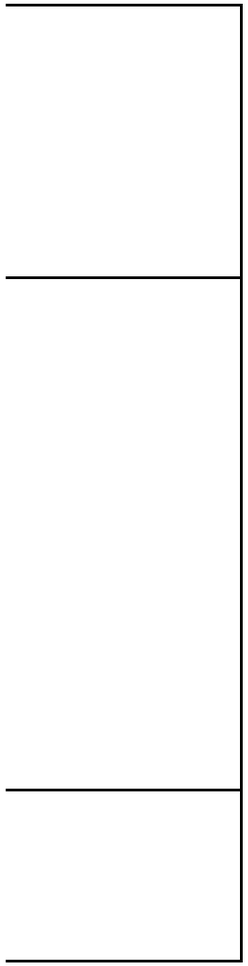
EXCLUSIONS: ECON 3317.03; ECON 4317.03			

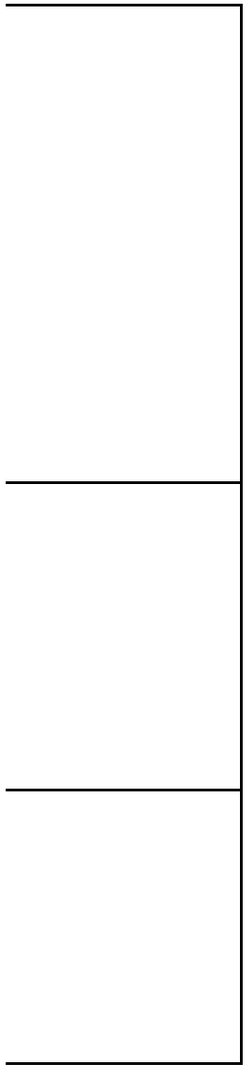
CROSS-LISTING: ENGM 6675.0
CROSS-LISTING: ENGM 4675
EXCLUSIONS: APSC 2012











CROSSLISTED: MGMT 4705.03

CROSS-LISTING: CH&E 6001.03

CROSSLISTED: MARA 5021.03
CROSSLISTED: MGMT 4031.03
CROSSLISTED: MGMT 4039.03

CROSSLISTED: MGMT 4041.03
CROSS-LISTING: MGMT 4047.03

CROSS-LISTING: MGMT 4205.03
CROSS-LISTING: MGMT 4500.03
CROSSLISTED: MGMT 4504.03

CROSS-
LISTING: MGMT
4505.03

CROSSLISTED: MGMT
4507.03

EXCLUSIONS: ENVI 1100.06, ENVS 1000.06, MGMT 1702.03
CROSS-LISTING: PHYC 2310.03
CROSS-LISTING: CANA 2410.03, ERTH 2410.03

CROSS-LISTING: PLAN 3225, BIOL 3225
CROSSLISTED: BIOL 3226.03

CROSSLISTED: ERTH 5600, GEOG 3500, ERTH 3500
CROSS-LISTING: SUST 3502.03
CROSS-LISTING: ERTH 3601.03

CROSSLISTED: BIOL 3623.03, MARI 3623.03
CROSSLISTED: BIOL 3633.03, GEOG 3633.03, MARI 3633.03
CROSS-LISTING: MGMT 3702.03
CROSSLISTED: BIOL 4001.03
CROSSLISTED: MARI 4003
CROSSLISTED: SUST 4004.03

CROSSLISTED: GEOG 1060.03
CROSS-LISTING: PHYC 2270.03

CROSSLISTED: ERTH 5600, GEOG 3500, ENVS 3500

CROSSLISTED: ERTH 5600, GEOG 3500, ENVS 3500

CROSS-LISTING: GEOG 4520.03, ERTH 5520.03

CROSS-LISTING: ERTH 4520 , GEOG 4520

CROSSLISTED: ERTH 3500.03, GEOG 3500.03

CROSSLISTED: ERTH 1060.03

CROSSLISTED: PLAN 2001.03

CROSSLISTED: HIST 2383.03. SPAN 2070.03
CROSSLISTED: INTD 2001.03
CROSS-LISTING: SUST 3102.03

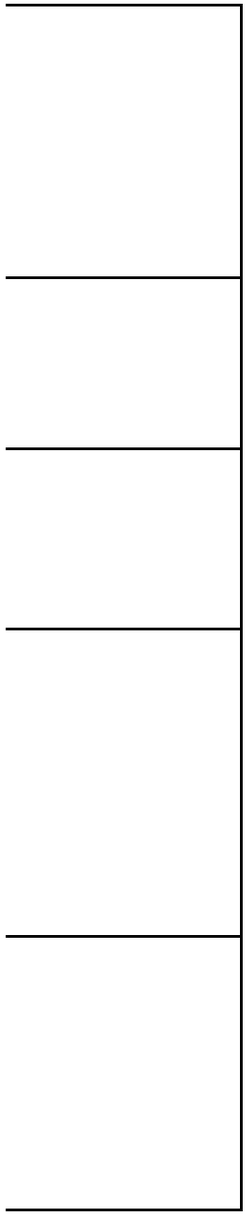
CROSSLISTED: PHYC 2800.03 and OCEA 2800.03
CROSSLISTED: ERTH 3500, ERTH 5600, ENVS 3500
CROSSLISTED: ENVS 3633.03, BIOL 3633.03

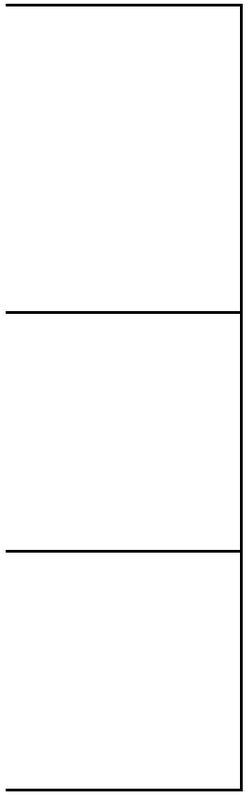
CROSS-LISTING: ERTH 4520.03, ERTH 5520

CROSSLISTED: SOSA 2192.03
CROSSLISTED: ECON 2217.03
CROSS-LISTING: POLI 4390

CROSSLISTED: SPAN 2070.03, GEOG 2070.03
CROSSLISTED: CANA 2050.03
CROSSLISTED: CANA 2280.03

CROSS-LISTING: HORT 0203





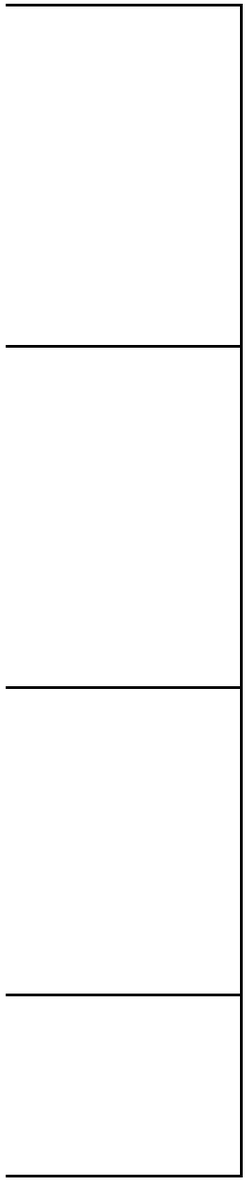
CROSS-LISTING: JOUR 2400.03

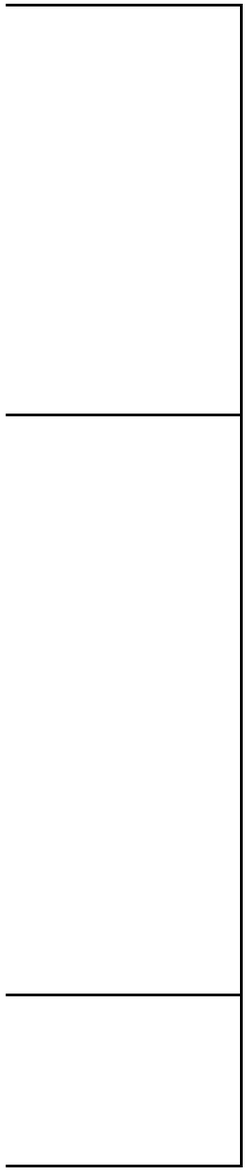
CROSS-LISTING: RELS 3211.03

CROSSLISTED: HIST 2205.03; CANA 2050.03
CROSS-LISTING: SOSA 2052.03
CROSS-LISTING: CANA 3050.03
CROSS-LISTING: SOSA 3052.03; CANA 3052.03

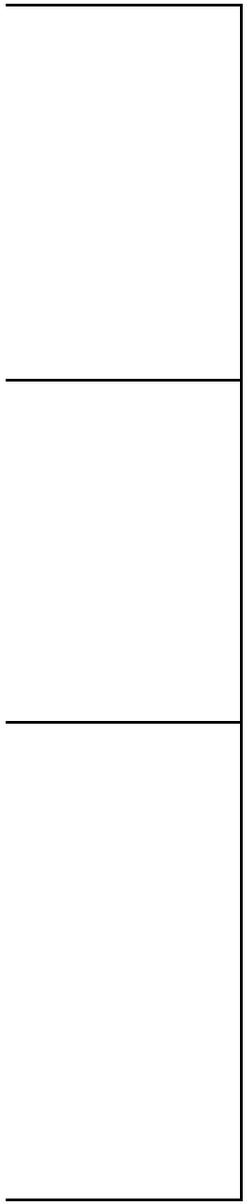
CROSSLISTED: CANA
1102.03

CROSS-LISTING: CANA 1103.03
CROSSLISTED: GEOG 2201.03
CROSSLISTED: GEOG 2201.03

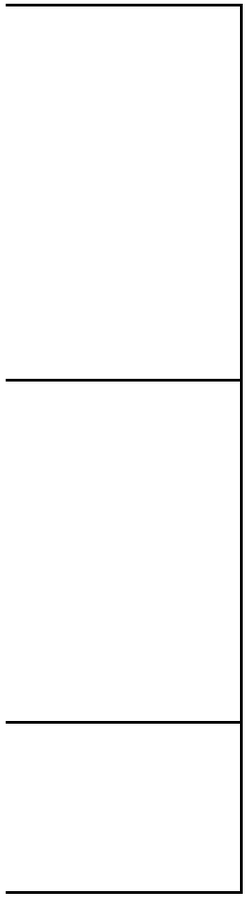


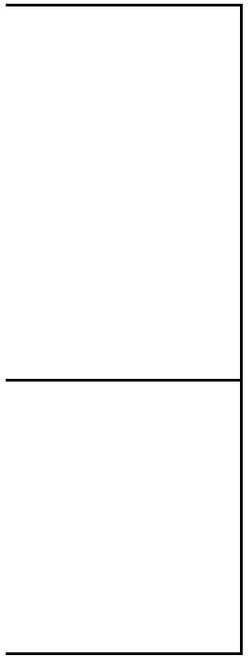


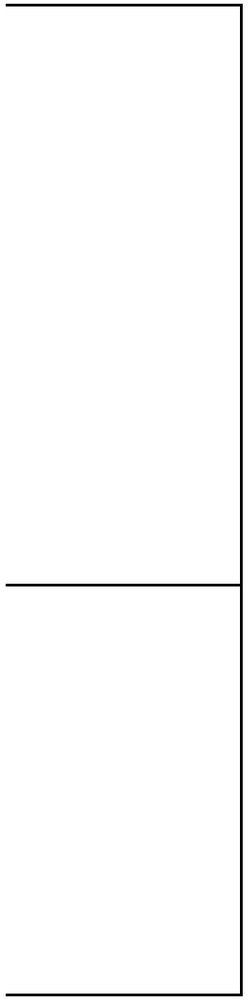
CROSS-LISTING: HSTC 2400.03

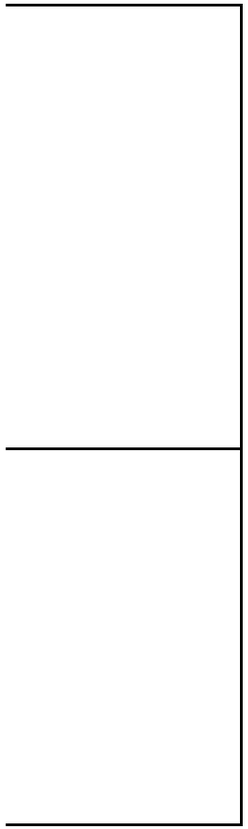


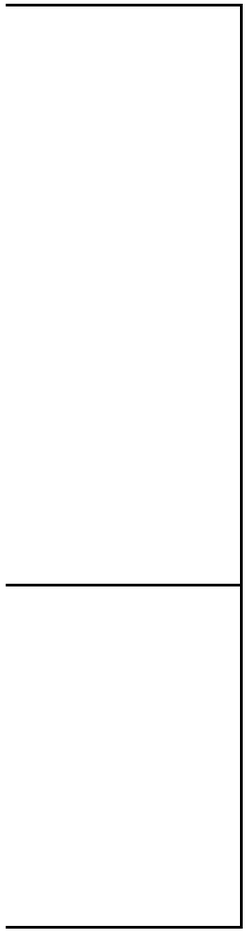
CROSSLISTED: ENVI 5204.03,MARA 5009.03	

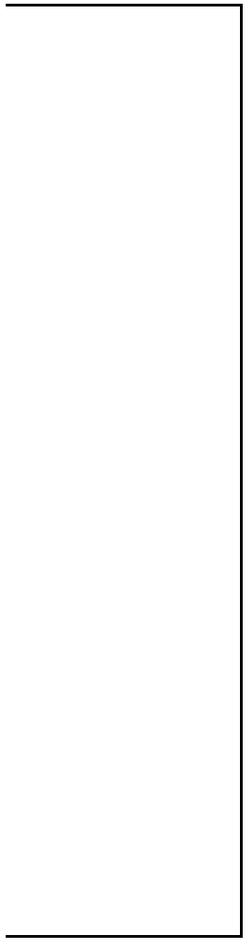


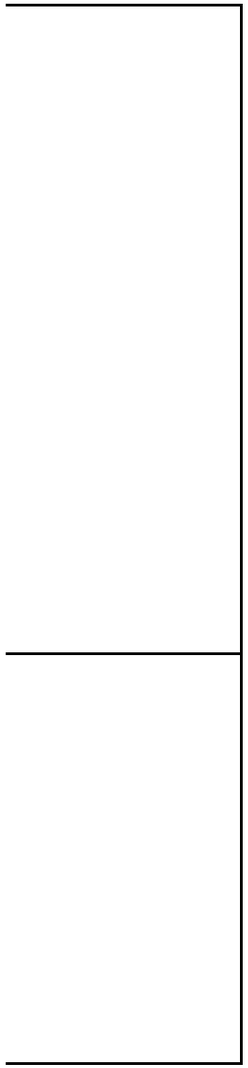












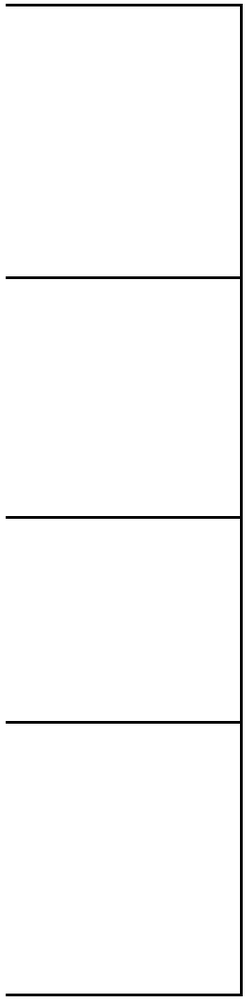
CROSSLISTED: ENVI 5204.03, LAWS 2041.03	

CROSSLISTED: ENVI 5021.03
CROSS-LISTING: POLI 5589.03

CROSS-LISTING: BIOL 3080.03
CROSSLISTED: BIOL 3221.03
EXCLUSIONS: BIOL 3600.03, MARI 3600.03
CROSSLISTED: BIOL 3623.03, ENVS 3623.03

CROSSLISTED: BIOL 3626.03
CROSSLISTED: ENVS 3633.03, GEOG 3633.03, BIOL 3633.03
CROSSLISTED: ENVS 4003
CROSS-LISTING: MARI 5350.03

CROSS-LISTING: BIOL 5661 , OCEA 5140 , OCEA 4140 , BIOL 4661
CROSSLISTED: OCEA 4665.03
CROSS-LISTING: MARI 4350.03
CROSSLISTED: AGRI 5250



CROSSLISTED: MECH 4340.03

EXCLUSIONS: COMM 2603.03, MGTA 2001.03

EXCLUSIONS: COMM 2202.03 and COMM 2203.03

CROSSLISTED: SUST 3701.03
CROSS-LISTING: ENVS 3702, SUST 3702

CROSSLISTED: ENVI 5031.03

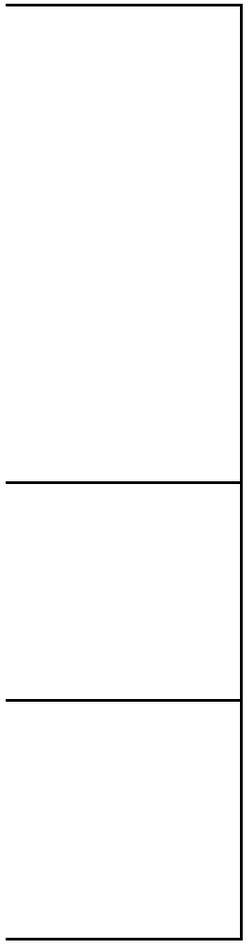
CROSSLISTED: ENVI 5041
CROSS-LISTING: ENVI 5047.03
CROSSLISTED: SUST 4125.03, PLAN 4125.03, EXCLUSIONS: PLAN 6125.03
CROSS-LISTING: ENVI 5205.03

CROSS-LISTING: COMM 4340.03
CROSS-LISTING: ENVI 5500.03
CROSSLISTED: ENVI 5504.03

CROSS-LISTING: ENVI 5505.03
EXCLUSIONS: ENVI 5507.03, INFO 6681.03
CROSSLISTED: ENVI 5001.03

CROSSLISTED: MINE 6014

CROSSLISTED: SOSA 3245.03/5245.03, GWST 3810.03, NURS 5850.03



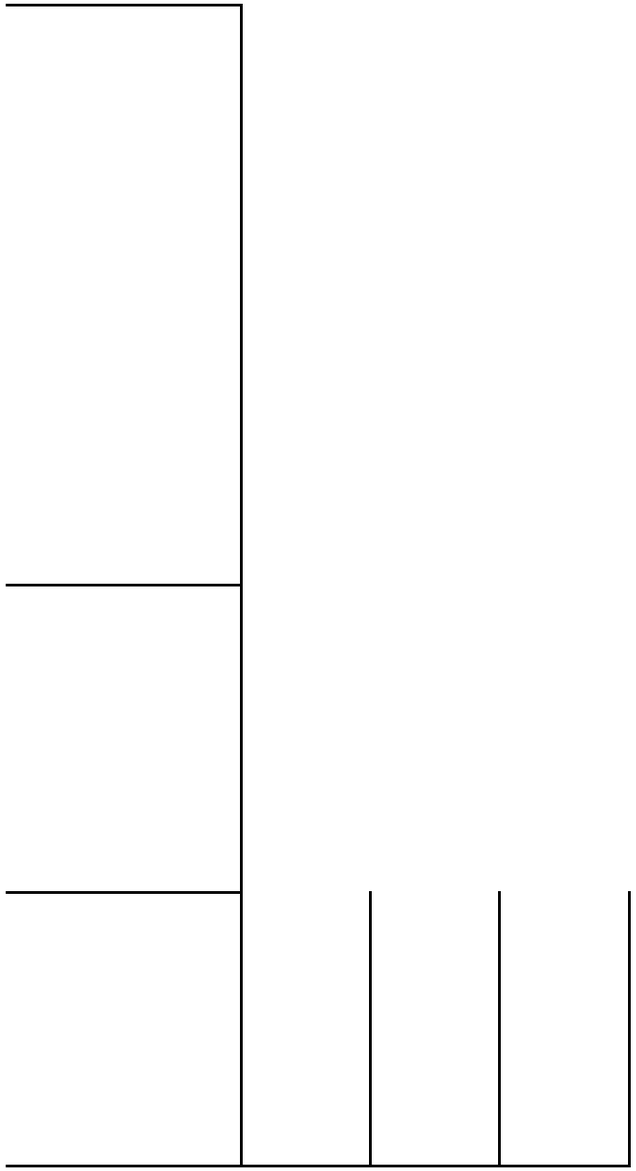
CROSSLISTED: NURS 4370.03, SOSA 3245.03, SOSA 5245.03, GWST 3810.03

EXCLUSIONS: ECON 2850.06, PHYC 2850.06
CROSS-LISTING: OCEA 5140.03, BIOL 4661.03, 5661.03, MARI 4661.03
CROSSLISTED: OCEA 5595.03, PHYC 4595.03, PHYC 5595.03, CHEM 4595.03

EXCLUSIONS: BIOL 5665.03, OCEA 5665.03

CROSS-LISTING: OCEA 4140.03, BIOL 4661.03, 5661.03, MARI 4661.03

CROSSLISTED: BIOL 5665



CROSSLISTED: POLI 3476.03, INTD 'Approved List,' PHIL 5476.03
EXCLUSIONS: PHIL 3476, POLI 3476.03 (co-located)

CROSS-LISTING: ENVS 2310.03
CROSSLISTED: GEOG 2800.03, OCEA 2800.03
CROSSLISTED: ECON 2850.03, EXCLUSIONS: PHYC 2800, ECON 2216
CROSSLISTED: GEOG 2001.03

CROSS-LISTING: PLAN 5115

CROSS-LISTING: BIOL 3225.03, ENVS 3225.03

CROSS-LISTING: PLAN 6106.03

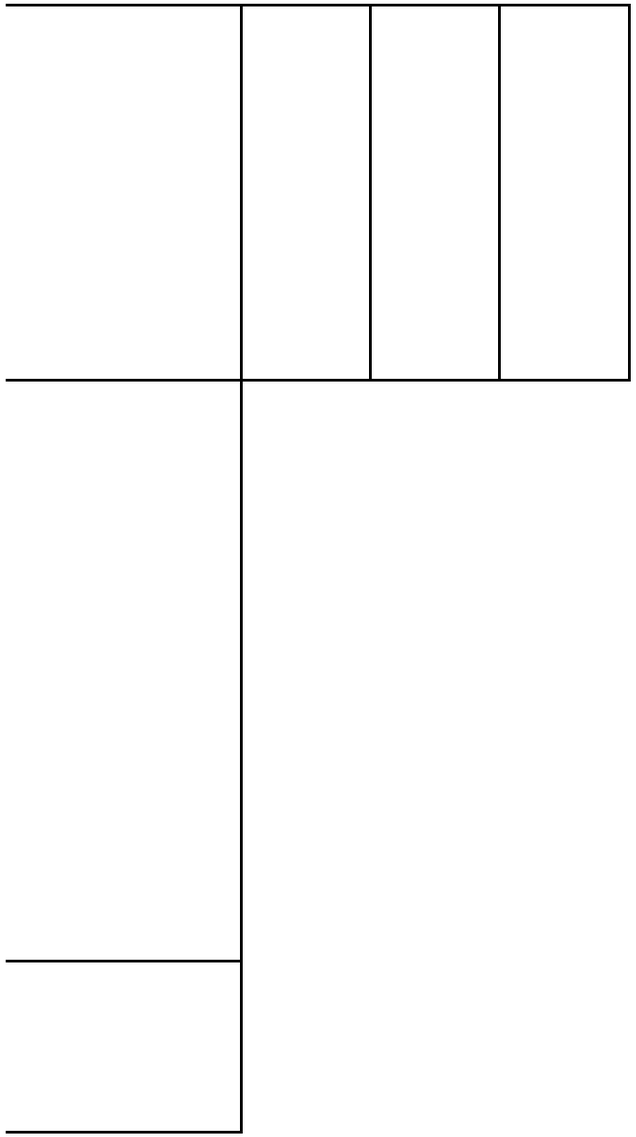
CROSS-LISTING: PLAN 4106.03

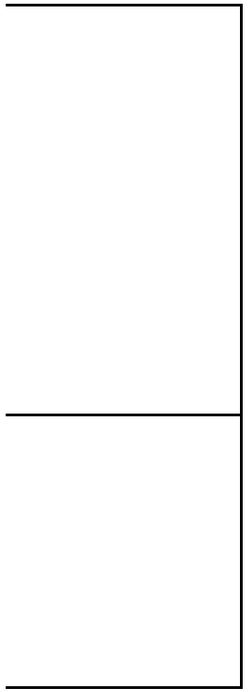
EXCLUSIONS: POLI 2500X/Y.06

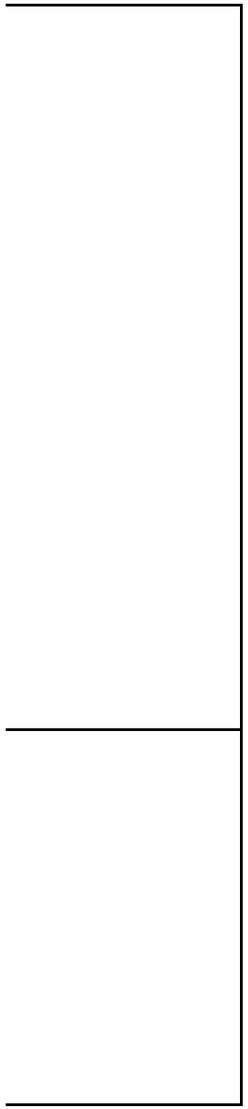
EXCLUSIONS: POLI
3585.03

CROSS-LISTING: POLI 5380.03

CROSS-LISTING: GWST 4390







CROSS-LISTING: POLI 5561.03
CROSS-LISTING: HSTC 3202.03

CROSS-LISTING: SLWK 3110.03

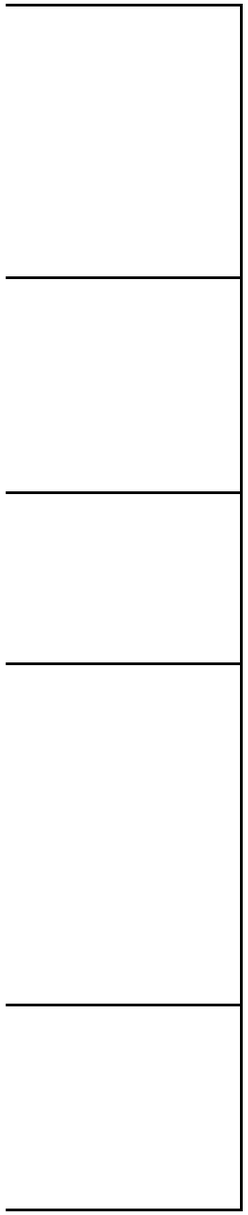
EXCLUSIONS: SOIL 0100.02

EXCLUSIONS: SOIL 0201.02

CROSS-LISTING: CANA 2005

CROSS-LISTING: CANA 2052.03, INDG 2052.03

CROSS-LISTING: CANA 3052.03, INDG 3052.03
CROSSLISTED: GWST 3810.03, NURS 4370.03



CROSSLISTED: ENVI 5039.03 EXCLUSIONS: SUST 3955.03 (Offered in Winter 2019)
EXCLUSIONS: SUST 3952.03 (winter 2016 and winter 2017)
CROSS-LISTING: GEOG 3102.03

EXCLUSIONS: SUST 3954
CROSS-LISTING: GEOG 3106.03, ENVI 5052.03
CROSS-LISTING: ENVS 3502.03

EXCLUSIONS: SUST 3502.03/ENVS 3502.03
CROSS-LISTING: MGMT 3702 and ENVS 3702
CROSSLISTED: ENVS 4004.03

CROSSLISTED: PLAN 4125.03, MGMT 4125.03 EXCLUSIONS: SUST 3951.03 (fall 2015 and fall 2016), PLAN 6125.03