

# **Dalhousie University 2013/2014 sustainability course inventory**

## **Introduction**

This inventory was developed as a result of STARS requirement as Dalhousie is submitting its 2014 STARS report. The method used to develop the inventory is based on STARS definition of sustainability courses and courses that include sustainability.

## **Method**

The *sustainability courses* and *courses that include sustainability* inventory were put together using the definitions from STARS 2.0 manual. 2013/2014 academic year was used as the assessment year. Initial courses were identified from the academic calendar and cross-referenced using the academic timetable. The information provided is a solid assessment of courses. There will be some scenarios where actual instructors may have differed slightly compared to the published data.

## **Definitions**

*Sustainability Courses*: are courses in which the primary and explicit focus is on sustainability and/or on understanding or solving one or more major sustainability challenge. This includes:

- Foundational courses in which the primary and explicit focus is on sustainability as an integrated concept having social, economic, and environmental dimensions.
- Courses in which the primary and explicit focus is on the application of sustainability within a field. As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines.
- Courses in which the primary focus is on providing skills and/or knowledge *directly* connected to understanding or solving one or more major sustainability challenges. A course might provide knowledge and understanding of the problem or tools for solving it, for example Climate Change Science, Renewable Energy Policy, Environmental Justice, or Green Chemistry. Such courses do not necessarily cover “sustainability” as a concept, but should address more than one of the three dimensions of sustainability (i.e. social wellbeing, economic prosperity, and environmental health).

*Courses that include Sustainability:* A course that includes sustainability is primarily focused on a topic other than sustainability, but incorporates a unit or module on sustainability or a sustainability challenge, includes one or more sustainability-focused activities, or integrates sustainability issues throughout the course.

## SUSTAINABILITY COURSES

<b>COURSE</b>	<b>TITLE</b>	<b>DEGREE LEVEL</b>		<b>DEPARTMENT</b>	<b>FACULTY</b>	<b>FACULTY MEMBERS</b>	<b>COURSE DESCRIPTION</b>
SUST 1000.06	Introduction to Environment, Sustainability and Society 1	UG		Environmental, sustainability and society		Bingham J.	This course introduces students to the conceptual frameworks underlying understanding of the environment and sustainability. Topics include energy, water, climate change, human population, economics, policy, food, urbanization and equity.
SUST 1001.06:	Introduction to Environment, Sustainability and Society 2.	UG		Environmental, sustainability and society		Plug L. Hayden A.	Drawing on themes from across the disciplines, this course explores diverse conceptual frameworks and analytical methods underlying understanding of the environment and sustainability. Topics include energy, water, climate change, human population, economics, policy, food, urbanization and equity
SUST 2000.06:	Humanity in the Natural World: An Introduction to Problem Based Learning	UG		Environmental, sustainability and society		Tirone S.	This course introduces students to problem-based learning and examines the development of environmental thought, ideas of sustainability, and conflicting positions on humanity's place in the natural world.
SUST 2001.06:	Environment, Sustainability and Governance: a Global Perspective	UG		Environmental, sustainability and society		Staff	This course examines the interface between human development and the environment at the global level using a problem based approach. Various perspectives are used to explore the link between environmental issues, poverty, consumption, population, economic globalization, urbanization and international organizations.

SUST 3000.03:	Global Approaches to Environmental Decision-Making.	UG		Environmental, sustainability and society		Rainham D. Tyedmers P.	This course examines the historic and current context for environmental decision-making in terms of public policy, global and domestic economy, political and business agenda-setting, science, technology and ethics. Alternative solutions that support the goal of long-term ecological integrity are examined
SUST 3002.03:	Environment, Sustainability and Society Internship	UG		Environmental, sustainability and society		Mushkat P.	This course provides students with hands-on experience in the field of environment and sustainability
SUST 3502.03:	The Campus as a Living Laboratory.	UG		Environmental, sustainability and society		Wright T	In this course, students apply the skills and tools of interdisciplinary research and problem solving to current real-life problems on Dalhousie University's campus. Students use qualitative and quantitative research methods to evaluate and assess indicators of progress toward greater campus sustainability and make recommendations based on their analysis
SUST 3950.03:	Topics in Environment Sustainability and Society.	UG		Environmental, sustainability and society		Plug L.	This course addresses current interdisciplinary issues in sustainability with topics varying each semester
SUST 4000.06:	Environment, Sustainability and Society Capstone.	UG		Environmental, sustainability and society		Mushkat P.	Students work in multidisciplinary groups, with community partner organizations to identify real problems and develop meaningful strategies to address them
SUST 4800.03:	Environment Sustainability and	UG		Environmental, sustainability and society		Tirone S.	This Independent study course allows students to study a topic in Environment, Sustainability and Society not covered in other classes, or in more depth

	Society Independent Study						
SUST 4900.06:	Honours Thesis Project	UG		Environmental, sustainability and society		Ross T.	Independent research project carried out in Environment, Sustainability and Society under the supervision of an approved faculty member or affiliated professional
SUST 4950.03:	Advanced Topics in Environment Sustainability and Society.	UG		Environmental, sustainability and society			This course addresses current interdisciplinary issues in sustainability with topics varying each semester
AGRI 2000.03:	Transition to Organic Agriculture	UG		Agriculture	Agriculture	D.Sans	This course is 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
AGRN 2000.03:	Organic Field Crop Management	UG		Agronomy	Agriculture	D.Sans	This course introduces 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
AGRN 2001.03:	Cereal-Based Cropping Systems	UG		Agronomy	Agriculture	Hammermeister A. Main M	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
ANSC 2004.03:	Organic Livestock Production	UG		Animal Science	Agriculture	S. Fernandez	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
ANSC 4004.03:	Ecology of Milk Production in Ruminants	UG		Animal Science	Agriculture	Prof. Fredeen	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
ANSC 4007.03:	Pastures in Sustainable Livestock Systems	UG		Animal Science	Agriculture	Profs. Papadopoulo s, Fredeen and J. Duynisveld	An advanced course that provides students with an overview of current sustainable pasture management practices in northern latitudes, with a focus on grassland ecology, the environmental impacts of livestock production, and applied pasture management
APSC 2000.03:	Environmental Impacts and Resource Management	UG		Applied Science	Agriculture	MacKenzie T.	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
APSC 2012.03:	Introduction to Bioresource Science	UG		Applied Science	Agriculture	Prof. France	This course is an introduction to environmental science and engineering technology. Topics to be covered include: overviews of green-collar jobs and the new bioresource economy, and of sustainable

							agroecosystem management; introductions to the management of sustainable water and energy resources, including alternative waste water, biosolids, and biofuels; introductions to materials life-sourcing; geographic information systems and precision agriculture
APSC 4005.03:	Waterscape Ecology and Management	UG		Applied Science	Agriculture	Prof. France	This course focuses on selected basic attributes of land-water interactions and aquatic degradation as they relate to issues of waterside and watershed development in rural and suburban environments
APSC 4006.03:	Wastewater Management	UG		Applied Science	Agriculture	Niu H.	This course gives an overview of sources of water pollution, particularly in the rural situation, and standard methods of treatment
APSC 0200.02:	Environmental Management	UG		Applied Science	Agriculture	Niu H.	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
BIOA 3001.03:	Ecology	UG		Biology	Agriculture	Prof. Nams	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.
BIOA 3004.03:	Environmental Physiology	UG		Biology	Agriculture	Prof. Rouvinen- Watt	A study of animals in relation to their environment. The influence of environmental factors on body processes and their relationship to productive efficiency and animal well-being are examined
BIOA 3006.03:	Aquatic Ecology	UG		Biology	Agriculture	Stewart- Clark S. McConkey A	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
BIOA 4002.03:	Conservation Biology	UG		Biology	Agriculture	Prof. Nams	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
CHMA 3009.03:	Environmental Chemistry	UG		Chemistry	Agriculture	Prof. Hoyle	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
EOCA 2004.03:	Issues in Environmental Economics	UG		Economics	Agriculture	Clark S.	This course is designed as an introduction to environmental and resource economics issues and policy. Students will learn how economic analysis is applied to questions concerning use, management and conservation of natural resources, as well as market failures
EOCA 3007.03:	Environmental and Resource Economics	UG		Economics	Agriculture	Prof. Clark	This course is designed to give students a basic introduction to the area of Resource Economics and an understanding of how economists view environmental problems. Specific topics will then be covered, including environmental policy surrounding water pollution, air pollution, and climate change. Issues related to non-renewable and renewable economies and sustainable development will be discussed
ENGN 3021.03:	Ecohydrology	UG		Engineering	Agriculture	Prof. France	This course deals with the emerging green science and technology management tool of ecohydrology

							and the design of best management practices (BMPs) for water resource protection and use
ENVA 2000.03:	Environmental Studies I	UG		Environmental Sciences	Agriculture	Prof. Brewster	This course deals with environmental issues from both an agricultural and a socio-economic basis. The topics to be emphasized in this course will include issues associated with population growth, the atmosphere, and the hydrosphere
ENVA 2001.03:	Environmental Studies II	UG		Environmental Sciences	Agriculture	Prof. Brewster	This course deals with environmental issues from both an agricultural and a socio-economic basis. The topics to be emphasized in this course will include issues associated with biodiversity, the lithosphere, waste management, and legal aspects of the environment.
ENVA 2002.03:	Composting and Compost Use	UG		Environmental Sciences	Agriculture	Prof. Price	The objective of this 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.
ENVA 3000.03:	Environmental Impact Assessment	UG		Environmental Sciences	Agriculture	Murray G.	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
ENVA 3001.03:	Environmental Sampling and Analysis	UG		Environmental Sciences	Agriculture	Prof. Nams	This course will introduce students to the proper methods of sampling and experimental design for biological and chemical analyses, as well as for environmentally oriented surveys
ENVA 3002.03:	Waste Management and Site Remediation	UG		Environmental Sciences	Agriculture	Prof. Price	This course examines 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.

ENVA 3003.03:	Environmental Studies Field Course	UG		Environmental Sciences	Agriculture	Prof. Hoyle	This course is designed to provide students with an opportunity to pursue a holistic approach to solve real environmental problems
ENVA 4003.03:	Advanced Weed Science	UG		Environmental Sciences	Agriculture		Deals with principles of weed science from an ecological perspective. Included are discussions on ecology and management of weeds in traditional agro-ecosystems as well as in low-input sustainable agricultural systems
ENVA 4006.03:	Air, Climate and Climate Change	UG		Environmental Sciences	Agriculture	Prof. Burton Prithiviraj K	This course examines the composition of our atmosphere, how it functions to create weather and climate, and its role in agricultural production. 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
ENVA 4007.03:	Directed Studies in Environmental Science	UG		Environmental Sciences	Agriculture	Cutler G.	Directed studies involve a suitable combination of directed reading, written assignments, individual study or laboratory research projects in the area of environmental sciences
IAGR 4000.03:	Global Seminar on Rural Sustainability	UG		International Development	Agriculture	Prof. Goodyear	An international course which brings together students from around the world to investigate and discuss local and global issues
INFB 1000.03:	International food Policy & Environment	UG		International Food Business	Agriculture	Dunlop D.	Students will successfully complete a series of practical tasks/assignments while learning about the global food environment. Topics will include study of emerging country markets, policy formulation, and multilateral agreements

PLSC 0100.02:	Utilization of Plant Resources	UG		Plant Science	Agriculture	Prof. Mapplebeck	Using an integrated systems approach, students are introduced to the principles and practices involved in the sustainable production of crop plants
RESM 4000.03:	Bio- Environmental Systems Management Project-Seminar I	UG		Research methods/Project seminars	Agriculture	Zaman Q. Niu H.	Students will study an operation (information gathering) and review management of technological, human, financial, and environmental resources.
RESM 4001.03:	Bio- Environmental Systems Management Project-Seminar II	UG		Research methods/project seminar	Agriculture	Prof. Price	This is a continuation of RESM 4000, with a study and examination of identified problems within the operation.
RESM 4006.03:	Environmental Sciences Project- Seminar I	UG		Research methods/project seminar	Agriculture	Profs. Burton and France	A research course where students choose a research project
RESM 4007.03:	Environmental Sciences Project- Seminar II	UG		Research methods/project seminar	Agriculture	Profs. Nams and France	A continuation of RESM 4006. Students will continue with their research project
SOIL 4000.03:	Environmental Soil Chemistry	UG		Soil	Agriculture	Prof. Hoyle	A study of chemical composition of soils (soil acidity, oxidation-reduction, ion exchange, adsorption-desorption reactions, clay mineralogy and organic matter transformations) in the context of environmental soil chemistry. Labs and seminar-discussions integrate basic soil chemical principles with problems in waste disposal, metal

							contamination, nutrient leaching and pesticide degradation
ARCH 5106.03:	International Sustainable Development		G	School of Architecture	Architecture and planning	R. Kawar	This class examines sustainable development in developed and developing Countries. Local building practices and cultural appropriateness are studied through case studies. It considers how architects have handled materials and technology to engender patterns of living in a reflective and symbiotic manner
ARCH 5209.03:	Energy Efficient Design		G	School of Architecture	Architecture and planning		This class focuses on sustainable building services. It studies building energy codes and rating systems - specifically LEED - in the Atlantic region. It also examines international strategies for low-energy building; passive systems in ventilation, heating, and cooling; renewable energy systems; and the integration of engineering systems into architectural design
ARCH 5210.03:	Life Cycle Analysis		G	School of Architecture	Architecture and planning	A. Parsons	This class 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
PLAN 2010.03:	Sustainable Community Design	UG		School of planning	Architecture and planning	Staff	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
PLAN 3001.03:	Landscape Ecology	UG		School of planning	Architecture and planning	P. Manuel	This course introduces the principles of ecology to landscape analysis. It explores relationships

							between environmental components in the landscape to inform community design and land use planning applications
PLAN 3005.03:	Cities and the Environment in History	UG		School of planning	Architecture and planning	J. Grant	This course examines the relationship of cities with the environment to enhance our understanding of landscape change, urban form and patterns in human settlements through the ages
PLAN 3010.03:	Urban Ecology	UG		School of planning	Architecture and planning		This course treats the urban system as habitat made by and for people, and takes an ecological approach to the flows of energy and materials which make urban life possible. This leads to discussions about the health and sustainability of urban communities
PLAN 4001.06:	Environmental Planning Studio	UG		School of planning	Architecture and planning	J. Zuck or P. Manuel or E. Rapaport	This course provides an applied context for analyzing landscape issues and exploring environmental planning options
ARCH 4212.03:	Building Systems Integration	UG		School of Architecture	Architecture and planning	Kroeker, R. Hudson, R.	This class 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
GEOG 2100X/Y. 06:	Environment and Culture	UG		Geography	Arts and social sciences		This course explores key relationships between human culture and the physical environment. Topics to be examined include: historical, social, and legal aspects of contemporary

							environmentalism, food and agriculture, environmental ethics, health, traditional ecological knowledge, sustainable forestry, waste management, public participation and environmental movements
GEOG 2800.03:	Climate Change	UG		Geography	Arts and social sciences	G. Lesins	This course discusses, 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
GEOG 3114.03:	Environment and Development	UG		Geography	Arts and social sciences		This course examines the interconnections between the natural environment and different forms of social and economic development with a specific focus on developing countries
GEOG 3400.03:	Human Health and Sustainability	UG		Geography	Arts and social sciences	Rainham D.	This course examines the relationships between the health of populations and health determinants in the context of environmental sustainability
GEOG 3633.03:	Spatial Information and GIS in Ecology	UG		Geography	Arts and 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
GEOG 4520.03:	GIS Applications to Environmental and Geological Sciences	UG		Geography	Arts and social sciences	C. Walls	This class builds on the fundamentals of GIS taught in EARTH 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

INTD 3012.03:	Sustainability, Development, Economy	UG		International development studies	Arts and social sciences		This class offers an introduction to principles of sustainability and equitable distribution of benefits oriented towards issues of economy. In addition, the class will consider how these issues apply to managing real world issues in environmental management, and will explore tools to quantify and interpret scale, efficiency, and distributive justice
INTD 3304.03:	Sustainable Development in Cuba	UG		International development studies	Arts and social sciences		The course examines Cuba's experience with sustainable development, including recently introduced agricultural cooperatives and communal environmental education
PHIL 2480.03:	Environmental Ethics	UG		Philosophy	Arts and social sciences	Dieleman S.	This class examines humanity's relation to nature from a philosophical perspective. Of particular importance will be the moral or ethical obligations which humanity may have towards the natural environment
PHIL 2485.03:	Technology and the Environment	UG		Philosophy	Arts and social sciences	Dieleman S.	In this course, we will assess the environmental impact of particular technologies (e.g., fossil fuel technologies, pharmaceutical and information technologies) and discuss sustainable alternatives and appropriate technologies in developing as well as developed nations
POLI 3385.03:	Politics of the Environment	UG		Political science	Arts and social sciences	Hayden A	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
POLI 4380.03:	Politics of Climate Change	UG		Political science	Arts and social sciences	Hayden A.	This course examines the interactions between politics and a changing climate
SOSA 2102.03:	Political Ecology	UG		Sociology and social anthropology	Arts and social sciences		The course examines those phenomena where traditionally political questions about the

							distribution of resources or power within a society overlap with environmental questions, and where struggles over environmental protection or regulation intersect with struggles to control group life
SOSA 3200.03:	Environmental Anthropology	UG		Sociology and social anthropology	Arts and social sciences	Gazit T.	In this class 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
PEAS 2202.03:	Fundamentals of Environmental Engineering	UG		Process Engineering and applied science	Engineering	Kermanshahi pour. A	The course focuses on sources of environmental pollutants, the effects of pollutants on living and non-living systems, and the processes by which pollutants are generated or by which their effects can be minimized or remediated
CPST 3030.03:	Engineering in Society II	UG		Complementary studies	Engineering	Molloy S.	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. 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
CIVL 4460.03:	Solid Waste & Landfill Engineering	UG		Civil and resource engineering	Engineering	Walsh M.	This class 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).
CIVL 4440.03:	Water and Wastewater Treatment	UG		Civil and resource engineering	Engineering	Walsh M.	The focus of the class is on design of water treatment and municipal pollution control plants
MINE 4815.03:	Mining and the Environment	UG		Civil and resource engineering	Engineering	Hill J.	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
MECH 4340.03:	Energy Management I	UG		Mechanical engineering	Engineering	Ugursal V.	The purpose of this course is to introduce the concepts and techniques of energy management and conservation
MECH 4820.03:	Energy from Renewable Resources	UG		Mechanical engineering	Engineering	Allen P.	This class 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. The impact of the environment of consumption of conventional energy forms is investigated
ENVE 4772.03:	Environmental Assessment and Management	UG		Process engineering and applied science	Engineering	Lea K.	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
ENVE 3251.03:	Environmental and Industrial Microbiology	UG		Process engineering and applied science	Engineering	Truelstrup Hansen L.	The principles of microbial communities are applied to biological systems. Emphasis is placed on microbial populations in air, soil and water. Applications of microbial ecology to agriculture, industry, biotechnology and environment are examined

ENVE 3412.03:	Energy and Environment	UG		Process engineering and applied science	Engineering		This class deals with energy sources and consumption in various systems. Energy conservation and utilization of renewable energy sources are emphasized. Environmental impacts of energy development and consumption are examined
ENVE 4432.03:	Waste Management	UG		Process engineering and applied science	Engineering	Brooks S.	This class deals with sources of pollution and their effects on air, water, and soil qualities. The physical, chemical and biological treatment processes of various types of waste are discussed in relation to pollution control
ENVE 4421.03:	Biogeochemistry and Bioremediation	UG		Process engineering and applied science	Engineering		Following an overview of fresh water and ocean geochemistry, the primary production and nutrient cycles in rivers, lakes and the ocean are studied. Oil spills, their impact on the ecosystem and remedial measures are investigated. Design and maintenance of wetlands as treatment systems are presented. The sources of environmental pollutants and the health, environmental, and socio-economic implications of pollutants are studied. The application of various bioremediation technologies to restore contaminated sites is discussed
ENVE 4612.03:	Waste Disposal and Utilization	UG		Process engineering and applied science	Engineering		The physical, chemical and biological properties of liquid and solid wastes are discussed and related to current handling and disposal methods. Solutions to problems of pumping liquid waste, lagoon design and holding facilities are presented
ENVE 4651.03:	Solar Energy Utilization	UG		Process engineering and applied science	Engineering		The objective of the class is to provide students with the principles for the design and performance analysis of active and passive solar heating systems
ENVE 4401.03:	Design Project for Environmental Engineers I	UG		Process engineering and applied science	Engineering	Jamieson R.	The objective of the class is to provide students with first-hand experience in applying engineering design principles, biogeochemical analyses and

							environmental assessment techniques to the solution of specific environmental problems related to air, soil and water pollution control
ENVE 4402.03:	Design Project for Environmental Engineers II	UG		Process engineering and applied science	Engineering	Jamieson R.	The objective of the class is to provide students with first-hand experience in applying engineering design principles, biogeochemical analyses and environmental assessment techniques to the solution of specific environmental problems related to air, soil and water pollution control
HPRO 4422.03:	Environmental Health	UG		Health promotion	Health professions		This course emphasizes the importance of the environment, both physical and social, and how it is implicated in the work of health promoters and other health professional. . The content reviews principles of natural and social ecology, the role of policy in shaping our environments, and research aimed at understanding the impact of various environmental conditions on health. Students will explore environmental health issues within the community and propose educational strategies to maintain and enhance health and well-being
MGMT 1702.03:	Ecosystem Goods and Services	UG		Management	Management	Staff	The course explores the ecosystem goods and services on which our societies and economies depend, and the environmental basis of those goods and services. The course will cover the nature and function of: matter, energy, ecosystems, primary producers, natural resources, biodiversity, ecological footprints, and feedback loops; and their importance for managers
MGMT 2702.03:	Resource and Environmental Management	UG		Management	Management	Staff	This course provides an overview of principles and techniques and explores challenging cases of

							environmental and resource management. Sustainable development provides a framework for examining the issues involved in the extraction, manufacture, use and disposal of materials, energy and products, and the management tools available for addressing those issues.
MGMT 3701.03:	Resource/Environmental Problem-Solving 1: Sustainable Ecosystems	UG		Management	Management	Beazley K	The class introduces students to concepts and methods for analyzing ecosystem sustainability across a spectrum of intensities of use from full legal protection to intensive urban and industrial development
MGMT 3702.03:	Resource/Environmental Problem-Solving 2: Sustainable Industries.	UG		Management	Management	Staff	The class introduces students to concepts and methods for analyzing industrial sustainability based on both renewable (e.g., forests, fisheries, agriculture) and non-renewable (e.g., minerals, fossil fuels) resources. Students learn how natural resources are managed and used, and how sustainable businesses and innovative economic enterprises can be based on sustainable resource use
MGMT 4701.03:	Advanced Resource and Environmental Management 1.	UG		Management	Management		A study of resource and environmental management that integrates knowledge gained through previous coursework and experience and builds on that conceptual foundation through integrative analysis, practical application, and critical thinking. Emerging issues in resource and environmental management are considered.
MGMT 4702.03:	Advanced Resource and Environmental Management 2.	UG		Management	Management		A study of resource and environmental management that integrates knowledge gained through previous coursework and experience and builds on that

							conceptual foundation through integrative analysis, practical application, and critical thinking
BIOL 2060.03:	Introductory Ecology	UG		Biology	Science	S. Walde, D. Ruzzante, H.K. Lotze, B. Worm, A. Schmidt	Topics include population growth, competition, predation, food webs, metapopulation dynamics, biodiversity and ecosystem function. The class has a quantitative approach providing a foundation for further work in ecology, marine biology and environmental science
BIOL 3060.03:	Environmental Ecology	UG		Biology	Science	B. Freedman	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 class is ecological sustainability of the human economy
BIOL 3061.03:	Communities and Ecosystems	UG		Biology	Science	P.A. Lane	Part 1 includes ecosystem history and theory, complex systems, community structure descriptors, interactions, stability, and food webs. Part 2 discusses the ecosystem approach, environmental management, ecosystem health and integrity, environmental indicators, ecological footprint, resilience theory
BIOL 3063.03:	Resource Ecology	UG		Biology	Science	H. K. Lotze	This course considers the ecology, utilization, and management of natural resources in fisheries, wildlife and forest management, agriculture and aquaculture. Topics include population dynamics, community interactions, and ecosystem support of resources as well as the history of resource utilization, practices of controlling production,

							pests, and predators, and sustainable management strategies
BIOL 3065.03:	Conservation Biology	UG		Biology	Science	B. Worm	This class offers an introduction to conservation biology: the science of understanding and conserving biodiversity on Earth
BIOL 3601.03:	Nature Conservation	UG		Biology	Science	B. Freedman	This interdisciplinary course explores relationships between humans and the natural world, including damage caused to species and ecosystems. The class 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
BIOL 3623.03:	Applied Coastal Ecology	UG		Biology	Science	Frail-Gauthier J.	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
BIOL 3624.03:	Urban Freshwater Systems	UG		Biology	Science		Ecology of urban freshwater systems with a focus on understanding how they respond to human-caused stresses within their watersheds
BIOL 4001.03:	Environmental Impact Assessment	UG		Biology	Science	P. Lane,	This class provides an opportunity to explore all aspects of environmental impact assessment (EIA) as practiced in Canada and in other countries
BIOL 4065.03:	Sustainability and Global Change.	UG		Biology	Science	P. Lane, Patricia A.	Sustainability emphasizes equitable societies, protected environments, and robust economies. Most countries pursue Sustainable Development yet

							the concept remains controversial, and defined differently in the North and the South. The global trends focus on those that relate to environment and sustainability
BIOL 4160.03:	Political Ecology	UG		Biology	Science	P. Lane	Political ecology (PE) examines the politics of the environment but not on specific policies, political theories, or ideologies. PE considers an interacting array of political and socio-economic forces that shape human-environmental relationships
ERTH 2410.03:	Environmental Issues in Earth Sciences	UG		Earth sciences	Sciences	A.M. Ryan	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
ERTH 3410.03:	Environmental Geology II	UG		Earth sciences	Sciences	A.M. Ryan	This course is designed specifically for students with a strong background in geology. Selected topics are explored at greater depth using the accumulated geologic knowledge of the participants
ERTH 3420.03:	Geochemistry of Aquatic Environments	UG		Earth sciences	Sciences	M. Kienast	This course is an introduction to the governing principles and processes of aquatic geochemistry
ERTH 3601.03:	Global Biogeochemical Cycles	UG		Earth sciences	Sciences	S. Sterling	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

ERTH 4530.03:	Environmental Remote Sensing	UG		Earth sciences	Sciences	C. Walls	The goal of this course is to introduce students to the role of remote sensing as a technique to provide environmental and geologic information
ECON 2216.03:	Economics of Global Warming	UG		Economics	Sciences	Forsdyke R	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?
ECON 2850.06:	The Science and Economics of Climate Change	UG		Economics	Sciences	G. Lesins, R. Forsdyke	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
ECON 3332.03:	Resource Economics	UG		Economics	Sciences	Staff	This course focuses on inter-temporal 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 etc.
ECON 3335.03:	Environmental economics	UG		Economics	Sciences	Boulatoff, C.	This class 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.
ENVS 1000X/Y. 06:	Introduction to Environmental Science	UG		Environmental science	Science	S. Gass	This full year class introduces numerous topics including biogeochemical cycles, food webs, biodiversity, human population growth, soil, agriculture, climate, pollution, toxicology, energy,

							water, forests, oceans, minerals, law, waste management and urban issues
ENVS 2000.03:	Urban Field School	UG		Environmental science	Science	S. Gass	This field class 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.
ENVS 2100.03:	Environmental Informatics	UG		Environmental science	Science	D. Rainham	Environmental Informatics is the knowledge skills and tools which enable information to be collected, managed and disseminated to support research in environmental science. Information systems, tools, and techniques are introduced and applied to current environmental challenges
ENVS 3000.03:	Environmental Science Internship	UG		Environmental science	Science	P. Mushkat	
ENVS 3001.03:	Environmental Science Field School	UG		Environmental science	Science	S. Gass	Daily field trips introduce methods used in environmental science and environmental processes at diverse sites within Nova Scotia.
ENVS 3200.03:	Introduction to Environmental Law	UG		Environmental science	science	P. Mushkat	This course takes 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
ENVS 3300.03:	Contaminated Site Management	UG		Environmental science	science		Scientists, engineers and planners should have a basic understanding of the issues surrounding environmental site assessment given the potential environmental and socio-economic impacts. Topics include phased assessments, risk assessment, remediation and monitoring

ENVS 3301.03:	Enterprise Sustainability	UG		Environmental science	science	J. Rod	Integration of sustainability into corporate environment is reviewed from perspectives of practical application of pollution prevention (P2).
ENVS 3501.03:	Environmental Problem Solving I	UG		Environmental science	science	T. Wright	This class introduces students to concepts and methods for analyzing environmental problems
ENVS 4002.03:	The Science of Wetland Ecosystems	UG		Environmental science	science	Staff	An interdisciplinary introduction to wetland ecosystems, with emphasis on the relationship between wetlands and the surrounding watershed
ENVS 4210.03:	Environmental Law: Natural Justice and Unnatural Acts	UG		Environmental science	science	P. Mushkat	The class will consider administrative processes, the role of legislation, the function of administrative boards and tribunals and the general principles of judicial review
ENVS 4220.03:	International Environmental Law for Scientists.	UG		Environmental science	science	P. Mushkat	The problems posed by environmental issues are global requiring solutions that are only achievable through multi-lateral collaboration. Over 20 years, there has been an explosion of international agreements intended to either redress or avoid environmental disasters
ENVS 3226.03:	Economic Botany, Plants and Civilization	UG		Environmental Science	Science	Rajaselvam, R.	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 development of novel plant based bioproducts (bio-fuels, etc)

ENVS 3801.03:	Directed Readings in Environmental Science	UG		Environmental Science	Science	Gass, S	This class is intended for third and fourth-year students who wish to study in an area of environmental science not covered in other classes offered at the university
ENVS 4901.03:	Honours Thesis Part A	UG		Environmental Science	Science	Sterling, S.	Includes lectures and tutorials on proposal writing, research design and methodologies, and an independent environmental science research project
ENVS 4902.03:	Honours Thesis Project Part B	UG		Environmental Science	Science	Sterling, S.	Independent environmental science research project
ENVS 4950.03:	Advanced Topics in Environmental Science	UG		Environmental Science	Science	Staff	This class will address current interdisciplinary issues in environmental science with topics varying each semester
PHYC 2310.03:	Energy and the Environment	UG		Physics and atmospheric science	Science	R. Dunlap	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
CHEM 6361.015:	Sustainable Materials Issues		G	Chemistry	Science	White M.	This class will provide a quantitative coverage of matters concerning eco-informed choices of materials for applications, with an emphasis on energy and sustainability
CIVL 6117.03:	Water Quality Management		G	Civil and resource engineering	Engineering		Water quality requirements for various uses: factors affecting water quality; behaviors and fate of pollutants in treatment plants and receiving waters and considerations involved in selection from alternative methods of water quality control.

ECON 5516.03:	Resource and Environmental Economics I (Resources)		G	Economics	Arts and social sciences		This class is designed as an introduction to the theory and application of resource economics
ECON 5517.03:	Resource and Environmental Economics II (The Environment)		G	Economics	Arts and social sciences	Staff	This class is designed as an introduction to the theory and application of environmental economics.
ECED 6190.03:	Energy Systems Analysis		G	Electrical and computer engineering	Engineering	L. Hughes	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
IDIS 6010.03:	Industrial Waste Management		G	Interdisciplinary series	Engineering		Industrial processes that generate solid, liquid and gaseous wastes will be reviewed and methods of control will be discussed. Waste management systems that include recycling, recovery and reuse will be considered
IDIS 6011.03:	Water Resources Management and Planning		G	Interdisciplinary series	Engineering		This class will cover planning and management considerations that are important in water-related engineering decisions. Topics to be considered are: constitutional and legal frameworks for water management in Canada and Nova Scotia; conceptual approaches to water management; water use and management issues; nature and purpose of water management; water management frameworks and functions; and institutional arrangements for water management.

IDIS 6013.03:	Environmental Health Engineering		G	Interdisciplinary series	Engineering		Radiological health, air pollution control, solid waste treatment, vector control, milk and food sanitation, industrial hygiene
IDIS 6030.03:	Energy Resources and Utilization		G	Interdisciplinary series	Engineering		This class surveys world energy resources and examines the technical feasibility for utilization
BUSI 6900.03:	Corporate Social Responsibility, Business Ethics and Sustainability.		G	Business administration	Management	Staff	This class introduces students to the relevance and importance of ethics and social responsibility in business
ENVI 5001.03:	Environmental Assessment		G	Environmental studies	Management	P.Duinker	Students explore all aspects of environmental assessment (EA), with a focus on EA processes in Canada
ENVI 5021.03:	Fisheries Management		G	Environmental studies	Management		This interdisciplinary course focuses on the theory and practice of fishery management, with emphasis on Sustainable Fishery Systems
ENVI 5031.03:	Economics for Resource and Environmental Management.		G	Environmental studies	Management		This course focuses on key topics in environmental economics, and also explores the theory and practice of a new discipline which better integrates environmental and economic analysis; namely the field of “ecological economics”.
ENVI 5039.03:	Indigenous Perspectives on Resource and Environmental Management.		G	Environmental studies	Management		This course explores issues concerning Indigenous peoples’ relationships with natural resources and settler populations within a broad socio-political-environmental context
ENVI 5041.03:	Environmental Education		G	Environmental studies	Management	Staff	This class provides a broad examination of the conceptual bases of learning and understanding the

							environment. It will consider current educational efforts to promote values, attitudes, and behaviors protective of environmental integrity
ENVI 5044..03:	Patterns for Sustainable Industrial Development		G	Environmental studies	Management	M. Adams	By studying the flow of materials and energy through industrial systems, industrial ecology identifies economic ways to lessen negative environmental impacts - through pollution prevention, innovative waste management strategies, improved energy efficiency, design for the environment, and promoting sustainability - within the carrying capacity of the surrounding ecosystems. The course will also include the social dimensions related to industrial ecology by focusing on the organization and management dimensions that are related to the reduction of industrial emissions, waste flows, energy use and usage of materials within in-company procedures and beyond the level of single organizations
ENVI 5047.03:	Biodiversity Conservation System Design and Management (Protected Areas Management)		G	Environmental studies	Management		The theory and practice of conservation system design are explored in this course. Topics include ecological integrity, focal species, population viability, habitat suitability, private land conservation, and First Nation perspectives
ENVI 5048.03/5049.03:	Directed Study.		G	Environmental studies	Management		Students undertake an independent study if no similar class is available
ENVI 5050.03:	Special Topics in Environmental Studies		G	Environmental studies	Management		A suitable combination of directed readings, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area

ENVI 5051.03:	Special Topics in Resource and Environment Management.		G	Environmental studies	Management		A suitable combination of directed readings, seminars, written assignments, individual study and discussion or laboratory projects in a prescribed area
ENVI 5204.03:	Coastal Zone Management.		G	Environmental studies	Management	L. Fanning	This course is designed to introduce students to the concepts, principles, approaches and issues associated with integrated management of coastal zones worldwide.
ENVI 5205.03:	Law and Policy for Resource and Environmental Management.		G	Environmental studies	Management	P. Tyedmers	This course provides students with an overview of substantive and procedural aspects of Canadian law and policy related to natural resources and the environment
ENVI 5480.03:	Environmental Ethics		G	Environmental studies	Management		This class examines how moral standards apply to human conduct when related to the environment and the implications for resource and environmental management
ENVI 5500.03:	Socio-political Dimensions of Resource and Environmental Management.		G	Environmental studies	Management	P.Duinker	The goal of this course is to introduce students to the social, cultural, and political dimensions regarding resource and environmental management
ENVI 5501.03:	The MREM Internship.		G	Environmental studies	Management		The internship consists of a 12-16 week placement with an organization involved in resource and environmental management.
ENVI 5504.03:	Management of Resources and the Environment.		G	Environmental studies	Management	P.Duinker	Students explore key management concepts applied in managing natural resources and the environment.

ENVI 5505.03:	Biophysical Dimensions of Resource and Environmental Management.		G	Environmental studies	Management	M. Adams	This class 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
ENVI 5507.03:	Environmental Informatics		G	Environmental studies	Management	P. bush	Environmental informatics refers to digital systems for environmental monitoring, analysis, communication and decision making
ENVI 5508.03:	MREM Project Report.		G	Environmental studies	Management		The MREM Project Report and the associated oral presentation represent the culmination of the MREM program
ENVI 9000.00:	Master's Thesis.		G	Environmental studies	Management		Research project focused on a sustainability related topic
MARA 5001X/Y. 06:	Contemporary Issues in Ocean Management and Development.		G	Marine affairs	Management	L. Fanning, E. De Santo	This class offers an introduction to the field of marine affairs and to the broad suite of contemporary issues confronting the ocean and coastal manager. Subject areas addressed include current governance approaches, negotiation and consensus building, managing and accessing 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
MARA 5012.03:	Community -Based Co-Management.		G	Marine affairs	Management	Aporta C.	This class 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
MARA 5013.03:	Marine Protected Areas		G	Marine affairs	Management	E. De Santo	The creation of refugia from human exploitation in the marine environment for the purposes of conservation and sustainable resource usage is a fast-growing application of ecological theory and ecosystem-based management. The holistic approach marries ecological research, fisheries science, park management and social policy
MECH 6341.03:	Energy Management - II.		G	Mechanical Engineering	Engineering	Ugursal V.	The subjects that will be discussed in this class are computer technology for energy conservation; energy saving opportunities in fired heaters and boilers; cogeneration; waste heat recovery; and synthesis of heat and power networks.
MECH 6346.03:	Advanced Energy Storage		G	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).
PHYC 5555.03:	Advances in Solar, Thermoelectric and Energy Harvesting Materials		G	Physics and atmospheric science	Science	I, Hill	Materials and technologies for sustainable energy production and storage will be introduced.
PLAN 5500.06:	Planning Studio 2.		G	Planning	Architecture and planning	J. Zuck or A. Fillmore	The course adopts an environmental perspective in approaching planning issues and challenges
POLI 5595.03:	Politics of the Sea II.		G	Political science	Arts and social sciences	Staff	This class examines Ocean Governance in the context of global developments from UNCLOS/UNCED to Integrated Ocean and Coastal Management with a particular focus on issues of

							Oceans and Zones of Peace, the Economics of the Common Heritage and Institutional Requirements necessary to govern oceans equitably and in a sustainable manner
BIOE 6200.03:	Advances in Waste Handling and Disposal		G	Process and applied science	Engineering		Current methods of handling and disposal of wastes are discussed. Physical, chemical and biological properties of various types of waste materials as related to practical design problems are studied
BIOE 6230.03:	Biological Treatments of Wastes		G	Process and applied science	Engineering		The physical, chemical and biological properties of various wastes as related to the design of biological treatment processes are discussed
BIOE 6240.03:	Biomass Energy.		G	Process and applied science	Engineering		The source and amount of energy consumed in various agricultural operations will be studied. Renewable energy sources will be identified and their technical feasibility will be investigated. Technological advances in biochemical and thermochemical conversion systems will be included and the impact of these conversion systems on the environment will be studied
BIOE 6610.03:	Applied Solar Energy.		G	Process and applied science	Engineering		The class covers the following topics: solar radiation measurement and methods of estimating the availability of solar energy for flat-plate solar collectors; flat-plate solar collectors design and methods of testing their performance; energy storage; procedures for solar heating systems design including computer simulations; and design of monitoring systems for the evaluation of the performance of solar heating systems and their components
LAWS 2051.03:	International Environmental Law.	UG		Law	Law	VanderZwaag D.	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
LAWS 2104.03:	Environmental Law I.	UG		Law	Law	Doelle M.	Environmental laws in support of sustainable development are explored through nine class themes.
LAWS 2125.03:	Marine Environmental Protection	UG		Law	Law		The objective of this class is to provide an understanding of the development and current state of law dealing with protection of the marine environment
LAWS 2133.03:	Environmental Law II - Interdisciplinary Perspectives on Climate Change	UG		Law	Law	M. Doelle	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.
LAWS 2153.03:	Business and Environmental Law.	UG		Law	Law	Dunning M.	This class looks at the interrelationship between environmental issues and business issues and how they continue to evolve. Emphasis is placed on how

							environmental issues, especially those relating to liability for contaminated sites and pollution, impact on, and affect, business transactions and operations
LAWS 2213.03/2 214.03:	Energy Law.	UG		Law	Law		The course offers a general introduction of global and national energy issues, including energy security, energy demand and supply, the range of energy sources available, and the social, economic and environmental consequences of the choices
LAWS 2219.03:	Regulatory Systems in Environment and Health.	UG		Law	Law		This advanced level course bridges the separation of human health and environmental protection into distinct areas of legal concern. Topics to be explored include issues such as: international law and governance on health and environment; human rights and health and environment; gender and health and environment; comparative regulatory theory and practice; health and environment in relation to First Nations and other aboriginal communities; occupational safety and health; linkages between human health and pesticides, climate change and other leading environmental issues; food production and security and the role and implications of technology
LAWS 2225.03:	Environmental Law Placement.	UG		Law	Law	M.Doelle	This placement provides students with the opportunity to work with environmental law practitioners in Halifax during the winter term

### COURSES THAT INCLUDE SUSTAINABILITY

COURSE	TITLE	DEGREE LEVEL	DEPARTMENT	FACULTY	FACULTY MEMBERS	COURSE DESCRIPTION
AGRI 1000.03	Agricultural Ecosystems	UG	Agriculture	Agriculture	Prof. Caldwell	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 context
AGRI 3001.03:	Issues in Agricultural Health and Safety	UG	Agriculture	Agriculture	Prof. Sanderson	The course describes the health and safety situation and the major health and safety risks in the agriculture industry
AGRI 4000.03:	Contemporary Issues in Agriculture	UG	Agriculture	Agriculture	Prof. Tennessen	This course allows students in all disciplines to discuss current topics of interest to agricultural professionals. These topics include soil degradation, integrated pest management, antibiotics in feed, the occupation of farming, and animal welfare
AGRN 2002.03:	Forage-Based Cropping Systems	UG	Agronomy	Agriculture	Prof. McLean	Forage crop production, management, and use will be discussed in the context of agricultural ecosystems. Emphasis will be placed on beneficial management practices to reduce negative impacts on the environment, while maintaining profitability and sustainability of rural communities
AGRN 2008.03:	Potato Production	UG	Agronomy	Agriculture	Prof. Asiedu	History, biosystematics, and eco-physiology of the crop are emphasized.

							Production practices for seed, table, and processing stock and marketing in the Atlantic Provinces are examined
ANSC 2005.03:	Animal Agriculture	UG		Animal Science	Agriculture	Prof. Tennessen	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
ANSC 2007.03:	Beef Production and Management	UG		Animal Science	Agriculture	F. Nicholson	This course will focus on the management of commercial beef farms, ranging from cow/calf to stocker/feeder operations
ANSC 3001.03:	Animal Health	UG		Animal Science	Agriculture	T. Semple	This course seeks to impart an understanding of animal health and its importance in livestock production enterprises
ANSC 3002.03:	Domestic Animal Behaviour	UG		Animal Science	Agriculture	Gordon M. Gatti-Yorke S.	This course studies the behaviour of farm animals and presents information that is relevant to the care and management of animals. Considerable attention is also given to welfare issues in animal agriculture
ANSC 3005.03:	Animal Welfare	UG		Animal Science	Agriculture	J. Morigan	This course deals with the well-being of animals, with emphasis on farm animals. Issues include what we mean by animal welfare, what the animal welfare issues are in modern agriculture and in modern society, and how we use ethology and physiology to assess animal welfare

ANSC 0020.02:	Dairy Industry I	UG		Animal Science	Agriculture	D. MacCallum	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.
ANSC 0021.02:	Dairy Industry II	UG		Animal Science	Agriculture	D. MacCallum	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
ANSC 0113.02:	Principles of Animal Welfare & Husbandry	UG		Animal Science	Agriculture	G. Fraser	The course will enable the student to analyze and select handling practices, housing options, biosecurity, and disease prevention options that meet the needs of the animal and the enterprise
ANSC 0206.02:	Managing Dairy Milking Systems and Housing Facilities	UG		Animal Science	Agriculture	Fraser G.	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

ANSC 0207.02:	Records Management and Decision- making for Dairy Herds	UG		Animal Science	Agriculture	Fraser G.	Students examine record-keeping options for dairy herds and use herd records to analyze key aspects of herd and farm performance. Establishing and maintaining the records required to meet certification (e.g., HACCP) requirements are also integral components of the course
APSC 1003.03:	Practices and Mechanics of Materials	UG		Applied Science	Agriculture	Havard P.	This course deals with the practices of selecting and working with materials, including considerations for green practices Green practices during the construction of machines, structures and buildings will include traditional properties and their environmental and resource efficiency including their deconstruction
APSC 2002.03:	Bioresource Systems Analysis	UG		Applied Science	Agriculture	Prof. Price	The objective of this course is to introduce the concept of systems theory and analysis. The emphasis will be on the use of bioresource science principles applied to environmental and technological systems
APSC 2004.03:	Aquacultural Environment	UG		Applied Science	Agriculture	Prof. Yildiz	Principles necessary for understanding and providing optimal aquatic environments for aquaculture production are reviewed
APSC 2013.03:	Machinery and Building Technology	UG		Applied Science	Agriculture	Prof. Zaman	In the first half of the course, students are introduced to the types of equipment, their productivity, and methods of

							selection for efficient operation. 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.
APSC 3015.03:	Irrigation and Drainage	UG		Applied Science	Agriculture	Prof. Havard	This course examines basic soil/water/plant/atmosphere relationships. It introduces students to soil and water conservation and management principles.
APSC 3020.03:	Energy Production and Utilization	UG		Applied Science	Agriculture	Prof. Corscadden	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
APSC 4001.03:	Water Quality Issues	UG		Applied Science	Agriculture		Current environmental water quality issues such as contamination of surface and ground water are discussed. Emphasis is placed on providing solutions to the water quality problems
APSC 4004.03:	Energy Conversion and Assessment	UG		Applied Science	Agriculture	Prof. Corscadden	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
AQUA 3000.03:	Fish Health	UG		Aquaculture	Agriculture	Prof. Duston	This course outlines concepts of disease with special reference to fish. Diseases of various etiological types are considered, with emphasis on those in the aquaculture environment. The relationships of management and economics to disease in cultured fish are detailed, and public health concerns are addressed
AQUA 4000.03:	Finfish Production	UG		Aquaculture	Agriculture	Prof. Duston	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
BIOA 2006.03:	Mammalian Physiology	UG		Biology	Agriculture	T. Semple	An introduction to the body systems and how they function. Topics covered include: homeostasis; the nervous, muscular, endocrine, cardiovascular, respiratory, renal, and digestive systems; and an introduction to environmental physiology
BIOA 2008.03:	Plant Diversity	UG		Biology	Agriculture	Prof. Olson	This course emphasizes the biology, evolution, and diversification of the major phyla of the Kingdom Plantae
BIOA 3000.03:	General Entomology	UG		Biology	Agriculture	Prof. Cutler	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
BIOA 3002.03:	Weed Science	UG		Biology	Agriculture	White S. Fergus F	This course deals with the principles of weed science. The selection, safe use, handling, and storage of herbicides are stressed, along with the environmental impact of the different methods of weed control
CHMA 1000.03:	General Chemistry I	UG		Chemistry	Agriculture	Prof. Pitts	This course is designed to help students understand chemical equations, reactions, and calculations. The laboratory work will focus on the development of practical lab skills applicable to the agricultural and environmental industries.
CHMA 3003.03:	Advanced Integrated Chemistry Laboratory	UG		Chemistry	Agriculture	Prof. Hoyle	The course will cover advanced laboratory topics in the fields of inorganic, general, and organic chemistry. Topics will be chosen from the fields of environmental science or agriculture
ECOA 1000.03:	Principles of Microeconomics	UG		Economics	Agriculture	Dunlop, D.	A course in comprehensive principles of microeconomic theory, covering the market system, producer and consumer theory, environmental and resource economics, and international trade policy
ECOA 1002.03:	Introduction to Economic Reasoning	UG		Economics	Agriculture	Staff	The macroeconomic aspect of this course is taught along with INFB International Food Policy and Environment as part of the International Food Business program.
ECOA 3002.03:	Agricultural and Food Policy	UG		Economics	Agriculture	Dunlop, D.	This course introduces students to the structure of the agri-food industry and the process of policy and implementation.

							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
ECOA 4004.03:	Trade	UG		Economics	Agriculture	Dunlop, D.	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. The consequences of, and linkages among, international trade, the environment, and economic development will also be pursued
ENGN 2014.03:	Bioresource Processing	UG		Engineering	Agriculture	He, Q.	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
ENVA 3004.03:	Principles of Pest Management	UG		Environmental Sciences	Agriculture	Cutler, G.	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
ENVA 4000.03:	Pesticides in Agriculture	UG		Environmental Sciences	Agriculture	Cutler, G. Percival	A course dealing with various aspects of pesticides used in agriculture. The course will look at pesticides from their origin and development to their registration, sale, distribution, and use. Also included are discussions of safety and toxicology
ENVA 4002.03:	Economic Entomology	UG		Environmental Sciences	Agriculture	Cutler, G.	An introduction to the study of economic entomology from an agricultural perspective, covering principles of insect control (natural, mechanical, physical, cultural, biological, and legal), including chemical and biochemical control, and insecticide development, formulation, and application. This course stresses the theory of integrated pest management (IPM)

ENVA 4005.03:	Geographic Information Systems (GIS)	UG		Environmental Sciences	Agriculture	Prof. Brewster	The objective of this course is to provide both a theoretical and a practical understanding of GIS concepts and GIS application skills as it relates to ESRI ArcGIS© software. The application of GIS technologies will focus on data sets derived from environmental science, soil science, or agriculture generally
ENVA 4008.03:	Directed Studies in Pest Management	UG		Environmental Sciences	Agriculture	Cutler, G.	Directed studies involve a suitable combination of directed reading, written assignments, and individual study or laboratory research projects in the area of pest management
FOOD 0020.00:	Topics in Agriculture & Food Enterprise Management	UG		Food Science	Agriculture	Prof. Sanderson	Students participate in an examination of the structure of agri-food industry and of the context in which individual enterprises operate. They are required to identify current issues facing the agri-food industry at all levels, and to examine their potential impact on sustainability and opportunities in the Atlantic Canadian industry
GENE 4003.03:	Biotechnology	UG		Genetics	Agriculture	Prof. Wang-Pruski	Biotechnology includes the generation of new medicine, generation of biofuel, new chemicals and materials, removal of pollutants, and production of better and safer foods.
HORT 2001.03:	Principles of Organic Horticulture	UG		Horticulture	Agriculture	Prof. Goodyear	Study of the principles that form the basis for organic production systems. Special attention is given to soil fertility, organic soil amendments, compost and mulches, crop rotation, plant health, management of diseases and pests, companion

							planting, and produce storage/handling and marketing
HORT 2004.03:	Introduction to Viticulture	UG		Horticulture	Agriculture	Prof. Percival	This course on viticulture in the Atlantic region will initially examine the taxonomy, morphology, physiology, and biochemistry of grapevine growth and fruit maturation. Emphasis will be placed on the environmental regulation of grapevine growth, development, yield and composition, and management strategies to optimize grape production in cool-climate viticulture production areas
HORT 2006.03:	Tree Fruit Crops	UG		Horticulture	Agriculture	Prof. Pruski	Tree fruit production with emphasis on resource conservation is investigated in relation to the region
HORT 2009.03:	Landscape Plant Nursery Management	UG		Horticulture	Agriculture	Prof. Mapplebeck	This course examines the selection, propagation, growing, handling and marketing of nursery crops. The course uses an entrepreneurial approach with emphasis on the importance of new plant introductions, and plant and landscaping trends analysis. The course also examines the nursery industry from the standpoint of where it fits into the bigger picture, i.e., the overall “green” industry
HORT 2010.03:	Greenhouse and Floriculture Crop Management	UG		Horticulture	Agriculture	Prof. Mapplebeck	This course examines the greenhouse, its environment, and the production of crops in this environment, plus outdoor cut-flower production

HORT 3000.03:	Environmental Processes and Natural Landscape Functions	UG		Horticulture	Agriculture	Prof. MacKenzie	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 are examined
HORT 4000.03:	Urban Tree Management	UG		Horticulture	Agriculture	Prof. Goodwin	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
HORT 0205.02:	Residential Landscape Design and Construction	UG		Horticulture	Agriculture	Prof. MacKenzie	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
IAGR 2002.03:	International Rural Development	UG		International Development	Agriculture	Prof. Cameron	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 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.

IAGR 2003.03:	Food Security & Rural Development in Cuba	UG		International Development	Agriculture	Prof. G. Beyeler	The focus of the course is food production and food security in Cuba, with emphasis on animal production, urban gardens, herbal medicine, environmental protection, ecotourism, and rural development
IAGR 3000.03:	Tropical Agriculture	UG		International Development	Agriculture	Prof. Asiedu	This course will introduce the student to food production, storage, and handling systems in tropical and subtropical countries. The sustainability of these systems and issues that limit the use of the environment for long-term food production will be identified
MCRA 4000.03:	Soil Microbiology	UG		Microbiology	Agriculture	Prof. Burton	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
PHLA 3000.03:	Environmental and Agricultural Ethics	UG		Philosophy	Agriculture	A. Kernohan	This course offers a general introduction to environmental ethics with emphasis on agricultural issues
PLSC 4002.03:	Plant Ecophysiology	UG		Plant Science	Agriculture	Prof. Lada	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. Agricultural practices and agroecosystem management will be related to the economic and environmental responsibilities
PLSC 4003.03:	Problem Solving in Plant Science	UG		Plant Science	Agriculture	Prof. Caldwell	The objective of this course is to review and integrate material from prerequisite courses in crop production, environment, business, soils, climate, and basic sciences into a comprehensive understanding of crop management systems
SOCI 1001.03:	Introductory Sociology II	UG		Sociology	Agriculture	Prof. Dukeshire	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.
SOCI 3000.03:	Rural Sociology	UG		Sociology	Agriculture	I. Landry	This course provides a focus on rural sociological themes, particularly in the Canadian and Atlantic region context. Themes addressed include: the theory and nature of rural social change; rural communities and response to forces of

							change; problems and issues in rural society (e.g., crime, aging, health care); environmental issues and their links to society; and the social implications of economic and political change for rural Canada
SOIL 3001.03:	Soil Conservation in Agriculture	UG		Soils	Agriculture		A study of the processes of soil degradation and its prevention or amelioration. A major part of the course concerns the erosion of agricultural soils and its control. Other topics include soil compaction and soil acidification, soil reclamation, use of soil in waste recycling, and the role of soil in water conservation
SPEC 4007.03:	Special Topics in Environmental Studies	UG		Special Topics	Agriculture	Kilfoil, M	This is an opportunity to study a special topic in the area of agricultural, environmental or environmental horticultural studies as defined by an individual student, a group of students, or faculty.
ARCH 5004.06:	Urban Systems Studio		G	School of Architecture	Architecture and planning	Venart C.	This course examines the infrastructure of the metropolis and its influence on urban form and development. Topics include systems for transportation, energy use, water distribution, civic institutions, spaces of social exchange, and ecology
ARCH 5007.06:	Landscape Studio		G	School of Architecture	Architecture and planning	Lilley, B Savage, N.	This course investigates architectural responses to landscape. It regards the land as a physical and cultural context requiring appropriate methods of

							visualization and representation. Referring to recent projects in land art, it considers how to engage local materials and interests while promoting the sustainable occupation of a particular site
ARCH 5011.06:	Coastal Studio		G	School of Architecture	Architecture and planning	Cavanagh, T.	This course investigates building on the coast. It explores conjunctions of ecology, culture, and traditional technical knowledge. Through participatory design, students work with a coastal community to develop innovative responses to situations with sensitive ecologies, extreme climate, and local cultural traditions
ARCH 5104.03:	Urban Systems		G	School of Architecture	Architecture and planning	Macy, C.	This seminar examines the infrastructure of the metropolis and its influence on urban form and development. It considers transportation, energy use, water distribution, civic institutions, spaces of social exchange, and ecological systems. It emphasizes new concepts of what is "urban" and what is "natural," referring to innovative urban designs worldwide
ARCH 5202.03:	From Timber to Lumber		G	School of Architecture	Architecture and planning	Parsons, A.	This course examines principles of forestry and ecology pertaining to woodlot management
ARCH 5219.03:	Technology of Heritage Conservation		G	School of Architecture	Architecture and planning	Parsons, A.	This course studies issues of building technology in heritage conservation. Based on the Standards and Guidelines for the Heritage Conservation of Historic Places in Canada (2010), it considers building technology issues germane to different conservation interventions

							(preservation, restoration, and rehabilitation), the appropriate use of materials and details, and the integration of building systems technology
ARCH 6215.03:	Earth Construction		G	School of Architecture	Architecture and planning	Thompson, K.	This course studies traditional and contemporary methods of earth construction (cob, rammed earth, wattle and daub, earth bag, and adobe) as sustainable, low-impact building systems
ARCH 6216.03:	Natural Finishes		G	School of Architecture	Architecture and planning	Thompson, K.	This class examines the use of natural finishes (earth and lime plasters, paint, stone, and wood) for walls, floors, and ceilings in contemporary buildings. Natural, local, and reused materials are assessed in terms of installation, cost, durability, aesthetic characteristics, and environmental impact in comparison with industrialized products
PLAN 1001.03:	Introduction to Community Design 1	UG		School of planning	Architecture and planning	Grant, J. Rapaport, E.	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

PLAN 3002.03:	Reading the City	UG		School of planning	Architecture and planning	Guppy, S.	This course introduces the principles, theories, and methods of urban form analysis in the local urban context. Students explore the local urban environment to interpret what the city means, and how it comes to take the shape it does.
PLAN 3020.03:	Landscape Design	UG		School of planning	Architecture and planning	Zuck, J.	The course introduces principles and methods of site design. It pays special attention to social, natural, and technical components as factors in adapting sites for human use
PLAN 3040.03:	Reading the Suburbs	UG		School of planning	Architecture and planning	Grant, J.	This course explores issues related to planning and designing the suburbs, and develops techniques for analyzing and developing community form in the suburban environment.
PLAN 3225.03:	Plants in the Human Landscape	UG		School of planning	Architecture and planning	Rajaselvam R.	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
PLAN 4106.03:	Transportation Planning	UG		School of planning	Architecture and planning	Habib, M.	The class 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. The emphasis is on urban transportation,

							mobility demands and the supply of efficient and environmentally sound transport facilities
ARCH 4004.03	B3 Free lab	UG		School of Architecture	Architecture and planning		To complement studio-based learning, this class is an experimental hands-on workshop in design led by an instructor. Investigations of a particular architectural topic may include design-and-build, documentary work, landscape installations, community design projects and interdisciplinary work. Projects may be done locally or involve travel to a distant site.
CANA 3020.03:	Canadian Cultural Landscapes	UG		Canadian studies	Arts and Social sciences	Campbell, C.	This class explores the stories behind Canada's distinct regional landscapes
CANA 3220.03:	Coastal Communities in the North Atlantic	UG		Canadian studies	Arts and social sciences		Coastal communities as a social/ecological type are examined as populations, and social structures (territorial, economic, occupational, political) as they have developed in response to particular ecological and social circumstances.
CHIN 2290.03:	Emerging Giants: The Economic Rise of China and India	UG		Chinese	Arts and social sciences	Cyrus, T.	This class 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?

CLAS 2025.03:	Nature, the Human, Community and the Divine in the Pre-Modern West	UG		Classics	Arts and Social sciences		What is nature? What is the proper relationship between nature and the human being, political community, and divinity? This class will investigate ancient Greek, Roman, Jewish, Christian and Islamic answers to these questions through the study of literature, philosophy, art and architecture of the Pre-Modern West
CTMP 3210.03:	Intersecting Bodies, Selves and Environments	UG		Contemporary studies	Arts and social sciences	Boos, S.	The traditional view of the relation between humans and nonhuman nature is regarded by many as dualistic insofar as it posits not only a distinction and separation between humans and nonhuman nature but regards humans as superior to nonhuman nature, on either religious, metaphysical, moral, or even evolutionary, grounds. In this course, three different strategies for overcoming this view are examined
EMSP 3000X/Y.0 6:	The Study of Nature in Early Modern Europe	UG		Early modern studies	Arts and social sciences	Morris, K.	This class provides an overview of the major changes and continuities of representation of the natural world in the sixteenth, seventeenth and eighteenth centuries. Because developments in the study of nature in this period are relative to institutional place and national location, the principal elements of the social, economic, political and cultural

							contexts within which scientists and philosophers of nature worked will be considered
GEOG 1060.03:	Earthquakes, Volcanoes and Natural Disasters	UG		Geography	Arts and social sciences	Gosse, J	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
GEOG 2202.03:	Introduction to Development II	UG		Geography	Arts and social sciences	Mannathukkaren N.	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
GEOG 3006.03:	Reading the Landscape	UG		Geography	Arts and social sciences	Guppy, S.	This course explores principles, theories, and methods of landscape interpretation. These approaches will be applied to community design problems in local landscapes
GEOG 3165.03:	Peoples and Cultures of the World: Selected Area Studies	UG		Geography	Arts and social sciences		This course examines a specific geographic and/or culture area. The class begins with background material on geography and history. Its focus is on the

							people themselves, their social organization and political, economic, and cultural systems. How they relate to globalization and development are examined.
GEOG 3370.03:	North American Landscapes	UG		Geography	Arts and social sciences	Campbell, C.	This course examines the use and meaning of the spatial environment among the various societies in North America from the sixteenth to the twentieth centuries. Among the topics are the meaning of area resources for indigenous peoples, the occupation and settlement of colonial populations, transportation and continental expansion, town planning, the politics of water and land in the West, preservation movements, scenic tourism, and the literary and artistic stylization of landscapes
GEOG 3440.03:	Geomorphology	UG		Geography	Arts and social sciences	Plug, L. Gosse, J.	Geomorphology is the quantitative study of Earth's surface processes and landforms applies to geology, civil engineering, hydrogeology, and environmental management
GEOG 3500.03:	Exploring Geographic Information Systems	UG		Geography	Arts and social sciences	Walls, C.	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.

GEOG 4440.03:	Geomorphology and Landscape Evolution	UG		Geography	Arts and social sciences	Gosse, J.	The purpose of this course is to provide a thorough examination of the development of landscapes by tectonics and surficial processes involving weathering, mass wasting, streams, and glaciers. The concepts of equilibria, climate and vegetation change, and rock character are recurring themes throughout the course
GEOG 4450.03:	Introduction to Landscape Simulation	UG		Geography	Arts and social sciences	Plug, L.	We examine different approaches to numerical modelling of earth-surface processes such as erosion and landslides, melting permafrost, and braided rivers
GEOG 4530.03:	Environmental Remote Sensing	UG		Geography	Arts and social sciences	Walls, C.	The goal of this class is to introduce students to the role of remote sensing as a technique to provide environmental and geologic information
HSTC 3212.03:	The Biosphere: Global Perspectives in Science and Philosophy	UG		History of science and technology	Arts and social sciences	Levit, G	Intended for both science and humanities students interested in ecology, this course focuses on the historical, philosophical and methodological aspects of central concept of "biosphere" in order to provide a picture of the history and actual state of affairs in the study of global ecology
INTD 3306.06:	Field Research Practicum	UG		International development studies	Arts and social sciences		Research will be undertaken in one of the following three areas *the environment and sustainable development;*women, family and childhood in the

							community;*community work and social participation.
INTD 4004.03:	Topics in Cuban Development	UG		International development studies	Arts and social sciences		This class will undertake a careful, in depth examination of a select theme in Cuban development. The theme will vary from year to year. These may include such topics as: Issues of Gender & Society, Economic Relations & International Policy, Sustainable Development & Social Participation in Rural Communities & Agricultural cooperatives, Family, Poverty, Social Development and Community Programmes, Social Class Dynamics and Economic Strategies
INTD 4013.03:	Environmental Conflict and Security	UG		International development studies	Arts and social sciences		This course emphasizes the ecological dimension of conflict, by investigation the intersections between natural resources and political upheaval
PHIL 2475.03:	Justice in Global Perspective	UG		Philosophy	Arts and social sciences	Dieleman, S.	In this class, 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. Specific topics may include: the impact of globalization on understanding of moral rights (human rights, labour rights, language rights, etc.), third world responses to western conceptualizations of rights, new conceptions of justice and social transformation including

						conceptions of restorative justice, conceptualizations of 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
POLI 3540.03:	Foreign Policy in the Third World	UG		Political science	Arts and social sciences	This course offers a comparative perspective on the political economy of foreign policy in Africa, Asia, the Middle East, and South America at the end of the twentieth century. It emphasizes the incidence and impact of structural adjustment programs and conditionalities along with the emergence of “new” issues such as debt, democracy, ecology, gender, refugees, and technology
POLI 4340.03:	Approaches to Development	UG		Political science	Arts and social sciences	A survey of theories of and policies about dependence, underdevelopment and peripheral social formations. Topics treated 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

SOSA 2045.03:	Indian Society: Change and Continuity	UG		Sociology and social anthropology	Arts and social sciences	Oakley, R.	The objective of this course is to introduce students to the society and culture of India from an interdisciplinary perspective. Topics discussed include: a historical background, social structure, political and social constraints to economic development, health issues, major religions and philosophy, development and foreign policy since independence, science and technology, disaster relief and development, and literature
SOSA 2503.03:	Health and Society	UG		Sociology and social anthropology	Arts and social sciences	Whelan, E.	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
SOSA 3060.03:	Social Change and Development	UG		Sociology and social anthropology	Arts and social sciences	Staff	This class considers theories of social change and development; approaches to the analysis of rural and urban livelihoods at the micro level; and the examination of community, class, patronage and gender relations in both their economic and cultural aspects.

SOSA 3135.03:	The Social Organization of Health Care	UG		Sociology and social anthropology	Arts and social sciences		The social organization of medicine and the politics of health are examined. Particular attention is paid to environmental and occupational health issues in light of technological and social change
SOSA 3211.03:	Continuity and Change in Rural Societies	UG		Sociology and social anthropology	Arts and social sciences		This class examines continuity and change in a range of rural contexts across several continents including North America, and encourages students to consider the notion of “development” from alternative perspectives
SOSA 4210.03:	Tourism and Development	UG		Sociology and social anthropology	Arts and social sciences		This class explores the relationship between tourism and development. Topics under discussion will include the definitions of hosts and guests, the commodification of tourist sites and the tourist experience, and the relationship of tourism to sustainability, environmentalism, and globalization
CIVL 3451.03:	Water Quality and Treatment	UG		Civil and resource engineering	Engineering	Gagnon, G.	The class 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

CIVL 4200.03:	Transportation Systems	UG		Civil and resource engineering	Engineering	Ali N.	This course covers urban transportation planning, transportation demand and supply, transportation management. The environmental impact of transportation systems such as noise and air pollution are examined
CIVL 4410.03:	Engineering Hydrogeology	UG		Civil and resource engineering	Engineering	Satish, M.	The theory and application of numerical methods are discussed in relation to simple groundwater systems, and this is followed by discussion of the chemistry of both natural and contaminated systems
CIVL 4431.03:	Water Distribution and Sewerage Systems	UG		Civil and resource engineering	Engineering	Hansen, D.	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
ENGM 4675.03:	Risk Assessment and Management	UG		Engineering mathematics and internetworking	Engineering	Fenton, G.	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

ENGM 4680.03:	Ecosystem Modelling of Marine and Freshwater Environments	UG		Engineering mathematics and internetworking	Engineering	Gentleman, W.	Students develop and apply mathematical models of marine and freshwater ecosystems to study biological production, biogeochemical cycling etc
IENG 3301.03:	Fundamentals of Industrial Engineering	UG		Industrial engineering	Engineering	VanBerkel P	This course introduces students to fundamentals of industrial engineering. The history, development and theoretical basis of industrial engineering will be discussed, as well as the social and environmental impact of engineering decisions
IENG 4558.03:	Project Management and Control	UG		Industrial engineering	Engineering	Staff	This course identifies the common aspects and peculiarities of projects and then illustrates the application of analytical approaches to meet the challenges of achieving effective project management. The role of the professional engineer in society and the impact that engineering in all its forms makes on the environmental, social, economic and cultural aspirations of society are discussed.
MECH 4810.03:	Energy Conversion Systems	UG		Mechanical engineering	Engineering		: 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
MECH 4851.03:	Heating, Ventilating and Air Conditioning	UG		Mechanical engineering	Engineering	Ugursal, V.	This is an introduction to the design of thermal systems for indoor climate control
BIOE 4342.03:	Industrial Biotechnology	UG		Process engineering and applied science	Engineering		This class introduces students to industrial applications of biotechnology. Modern tools and approaches of biotechnology are presented, followed by application of biotechnology to diverse areas (e.g. the environment, medicine, agriculture, pharmaceutical and food processing industries)
CHEE 4773.03:	Industrial Safety and Loss Management	UG		Process engineering and applied science	Engineering	Amyotte, P.	Topics covered in this course include: history of health and safety; causes and effects of loss; policy development; loss control and health basics; emergency preparedness and standards; hazard identification; safe process design; inspection and investigation processes; measurement, evaluation and audits of OH&S program elements; legislation
ENVE 3452.03:	Soil and Water Conservation Engineering	UG		Process engineering and applied science	Engineering	Jamieson, R.	The prediction, nature, effects and control of natural surface and sub-surface waters and non-point source pollutants in catchments are considered

ENVE 3500.03:	Air Quality	UG		Process engineering and applied science	Engineering	Gibson, M.	This class covers sources, the impact on health and the environment, atmospheric chemistry, fate and transport and the measurement and modeling of atmospheric pollutants.
ENVE 4411.03:	Indoor Environment Control and Air Quality	UG		Process engineering and applied science	Engineering		The class deals with the design of heating, ventilating and air conditioning systems for controlled environment facilities such as: animal housing, residential and commercial buildings. Indoor air quality for humans and animals is discussed in relation to current methods of environmental control and energy conservation in buildings.
ENVE 4621.03:	Atmospheric Air Quality	UG		Process engineering and applied science	Engineering		This course will cover fundamentals of air quality. Sources and characteristics of atmospheric pollutants will be introduced as well as methods for sampling/measuring air pollutants and atmospheric processes
ENVE 4641.03:	Contaminant Fate and Transport	UG		Process engineering and applied science	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

FOSC 3080.03:	Food Microbiology	UG		Process engineering and applied science	Engineering	Truelstrup Hansen L.	This class is designed to introduce students to current aspects of food microbiology with special emphasis on spoilage organisms and foodborne pathogens. Special emphasis will be given to the microbial ecologies associated with foods from agricultural and marine sources
MATL 4813.03:	Iron and Steel Production	UG		Process engineering and applied science	Engineering		This class discusses factors affecting the global iron and steel industry with particular reference to Canadian participation. These factors include the supply of raw materials, new technology, environmental concerns and economics
DISM 3020.03:	Workers and the Work Environment	UG		Disability management	Health professions		This course identifies what is normal human function in the workplace in relation to occupational health and injury prevention. The class looks at normal human function in work processes, ergonomic support, Health and Safety Acts, injury prevention in the workplace, occupation health, organization of the workplace, and interpersonal factors
HAHP 3000.03:	Community Development	UG		Health promotion	Health professions		This course examines the nature and process of community development, reviews differing interpretations and approaches to community development, and provides students the opportunity to develop skills to catalyze and engage in the process

HSCE 3000.03:	Culture, Diversity and Health	UG		Health sciences	Health professions		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
MGMT 4309.03:	Strategic Leadership	UG		Management	Management		The study of organizational leadership from the perspective of senior managers who steer their organization toward creating value in the long term. Students also consider emerging issues related to how senior organizational leaders create value in terms of entrepreneurship, innovation, markets, strategy, human resources, design, and sustainability
BIOL 3067.03:	Ecology and Evolution of Fishes	UG		Biology	Science	Hutchings, J.	This class will examine selected topics on the ecology and evolution of marine and freshwater fishes. Topics shall include systematics, functional morphology, evolutionary ecology, behaviour, life history strategies, population biology, fisheries science, and conservation biology
BIOL 3069.03:	Population Ecology	UG		Biology	Science	Walde, S.	An examination of selected topics in population ecology, including the effects of species interactions on population fluctuations, cycles and extinction
BIOL 3600.03:	Aquaculture	UG		Biology	Science	Herbinger, C.	This class 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.
BIOL 3615.03:	Methods in Ecology.	UG		Biology	Science		Through participation in several class projects, students obtain experience conducting field studies and laboratory experiments. Projects include a range of ecological questions, techniques, organisms, and ecosystems
BIOL 3620.03:	Field Survey of Terrestrial Biodiversity	UG		Biology	Science		Measuring and interpreting trends in the biodiversity of organisms in terrestrial environments.
BIOL 3632.03:	Applied Field Methods in Fish Ecology.	UG		Biology	Science	Ward-Paige, C.	Practical experience conducting field research on fishes with field trips to streams and shallow water marine/freshwater habitats. Techniques include collecting fish, designing and conducting surveys, studying behaviour, measuring phenotypic variability, quantifying temporal and spatial variation, planning for statistical analysis, and weighing tradeoffs between data quality, quantity, costs and ethical/environmental considerations
BIOL 3634.03:	Agroforestry	UG		Biology	Science	Rajaselvam, R.	Agroforestry is a land-use system in which trees or shrubs are grown in association with agricultural crops or livestock. As practiced in the tropics,

							agroforestry generates numerous ecological, environmental and economic benefits
BIOL 3666.03:	Species Invasions.	UG		Biology	Science	Romanuk, T.	Students will examine species invasions, the establishment of non-native species in new communities, using an interdisciplinary framework incorporating impacts, theory, and management and control of invasive species
BIOL 4060.03:	Marine Mammalogy.	UG		Biology	Science	Wimmer, T.	The course will examine the characteristics that mammals brought with them when they returned to the ocean, the evolution of the different groups of marine mammals, some of their special adaptations, the roles of marine mammals in oceanic ecosystems and general principles of the marine mammal population biology. Students will use information on the biology of marine mammals to explore conservation/management issues
BIOL 4667.03:	Census of Marine Life.	UG		Biology	Science	O'Dor, R.	In this course, the Senior Scientist for Census 2010 examines the diversity, distribution and abundance of marine biota globally and reviews new approaches to discover new species and to monitor responses to climate change.

ERTH 2270.03:	Introduction to Applied Geophysics	UG		Earth sciences	Science	Nedimovic, M	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
ERTH 3400.03:	Fundamentals of Hydrogeology	UG		Earth sciences	Science	Salah M.	This course deals with the mathematical description of groundwater movement, geophysical and geological methods for groundwater exploration, regional occurrence and chemical quality of groundwater, and the effects of waste disposal on chemical quality
ERTH 3402.03:	Practical Hydrogeology	UG		Earth sciences	Science		This course is designed to build on ERTH 3400.03 to familiarize the student with the practical aspects of groundwater resources development and monitoring system installation, including drilling methods, well design, well hydraulics and aquifer analysis, slug testing, data interpretation, and introduction to groundwater modelling
ERTH 4141.03:	Applied Geology, Mineralogy and Geochemistry.	UG		Earth sciences	Science		This class is an introduction to various concepts and techniques used by geoscientists in the search for and evaluation of mineral concentrations, in mining and metallurgy, as well as in environmental aspects of these activities. The successive stages of a mineral exploration project are analyzed, from

							reconnaissance through exploration geochemistry, claim staking, drilling, mining, estimation of reserves, grades and tonnage, economic aspects, to mine site rehabilitation
ERTH 4440.03:	Geomorphology and Landscape Evolution	UG		Earth sciences	Science	Gosse, J.	The purpose of this course is to provide a thorough examination of the development of landscapes by tectonics and surficial processes involving weathering, mass wasting, streams, and glaciers. The concepts of equilibria, climate and vegetation change, and rock character are recurring themes throughout the course
ECON 2218.03:	The Canadian Economy in the New Millennium: Economic Policy Debates	UG		Economics	Science	Staff	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?
ECON 3333.03:	Theories of Economic Development	UG		Economics	Science		This course surveys current applications of economic theory to the problem of economic development. Topics covered include recent advances in theory of economic growth, theories of poverty and inequality and their relation to economic performance, theories of fertility and population growth, and the microeconomics of peasant agriculture

OCEA 4160.03:	Fisheries Oceanography.	UG		Oceanography	Science	Taggart, C.T.	Oceanographic influences on ecology of marine fish: on population dynamics, distribution, abundance, reproduction, life history, feeding, growth, metabolism, mortality, and recruitment. Emphasis on contemporary hypotheses and primary literature and some on fishery management
OCEA 4335.03:	Environmental Impacts in Marine Ecosystems.	UG		Oceanography	Science	Grant, J.	Consideration of various activities in marine environments, with focus on ecosystem level influences: dispersion, elemental fluxes, benthic impacts, food webs, biodiversity
PHYC 4595.03:	Atmospheric Chemistry	UG		Physics and atmospheric science	Science	Martin, R.	A fundamental introduction to the physical and chemical processes determining the composition of the atmosphere and its implications for climate, ecosystems, and human welfare
AGRI 5230.03:	Directed Studies in Environmental Sciences		G	Agriculture	Agriculture	Lada, R	This course aims to provide to graduate students an opportunity for detailed study and critical thinking in an environmental sciences research area of interest
AGRI 5440.03:	Organic Environmental Analysis		G	Agriculture	Agriculture	Hoyle, J.	The class will involve the study of the analytical chemical techniques used in the analysis of environmental samples obtained from the atmosphere, hydrosphere, and lithosphere. Included in

							this study will be the sampling methods used for air, water, soil, food and wastes, and modelling of environmental contamination.
AGRI 5460.03:	Special Topics in Soil and Water Management.		G	Agriculture	Agriculture	Havard, P.	This class will discuss state-of-the-art soil and water management practices in either humid or arid regions, depending on the specific needs of the graduate students.
MGMT 5000.03:	Management Without Borders: A Foundation Course for Masters Students in Management		G	Management	Management	Baechler, J	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
CIVL 6115.03:	Design of Water Treatment Plants		G	Civil and resource engineering	Engineering	Gagnon, G.	Evaluation of water quality characteristics and synthesis of unit operations into plants designed to modify those characteristics. Design aspects of flocculation, coagulation, precipitation, sedimentation, filtration and disinfection are included.

CIVL 6116.03:	Biological Waste Treatment.		G	Civil and resource engineering	Engineering		A study of fundamental principles of microbiology as applicable to domestic waste treatment. Activated sludge processes, trickling filters, aerated lagoon, stabilization ponds, disinfection and anaerobic treatment
CIVL 6139.03:	Transport Operations		G	Civil and resource engineering	Engineering	Habib, M.	This class is an introduction to the operation of transportation services at the urban and regional levels. Environmental, energy and safety implications of transportation systems, and existing policies are reviewed
CIVL 6135.03:	Groundwater Chemical Quality		G	Civil and resource engineering	Engineering		This class provides an in-depth study into the chemical quality of groundwater. This class will explore these changes with particular reference to: (1) the types of inorganic and organic constituents dissolved in water and their significance; (2) the suitability of water quality data and its presentation; (3) the various processes that control the behaviour of dissolved substances in groundwater; (4) the evolution of groundwater quality; (5) the more commonly used groundwater quality models; (6) basic chemical properties, transport mechanisms, retardation and restoration of organic contaminants in water; and (7) point of use water treatment.

CIVL 6144.03:	Geo- Environmental Barrier Design.		G	Civil and resource engineering	Engineering	Lake C.	Geo-environmental aspects of waste management are examined with emphasis on the design of barrier systems to provide long term protection against groundwater contamination
CIVL 6162.03:	Groundwater and Wells		G	Civil and resource engineering	Engineering		This class deals with those aspects of groundwater resource assessment, development and protection pertaining to the design of water wells intended to function as reliable sources of potable water in the long-term
MINE 6004.03:	Analysis of Mineral Industries.		G	Civil and resource engineering	Engineering		Evaluation of mining properties and mineral processing industries. Canadian mineral policy, conservation of mineral resources, substitutes, secondary recovery of mineral raw materials, business cycles in the mineral industries, financing of new mining projects and source of funds
CH&E 6001.03:	Environmental and Occupational Health		G	Community health and epidemiology	Medicine	Guernsey, J.	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.

ECON 5252.03:	From Disaster Relief to Development		G	Economics	Arts and social science	McAllister, R.	This class introduces students to the growing literature built around comparative experiences of disaster prevention, mitigation, relief and sustainable development. Main themes include food and clean water, (security, distribution, drought reduction); refugees, asylum seekers and settlements for sustainable development; early warning systems for hurricanes, volcanoes and famines - their integration into national development planning; emergency programming in the context of military, political and economic instability; issues of humanitarian law and peacekeeping
ECON 5254.03:	Development Economics II		G	Economics	Arts and social science	Akbulut-Yuksel, M.	It focuses on the theory and evidence of economic development, and from these draws out implications for policy and practice, with an examination of microeconomics issues including, the role of institutions, household behaviour and gender, the functioning of markets, health, education, evaluation, and the use of common property resources and policies for sustainable development
ENVI 5009X/Y.0 6:	Graduate Seminar.		G	Environmental studies	Management		Through student delivered seminars, this course will assist graduate students work through difficult theoretical or methodological challenges related to their research and help them hone skills as presenters and discussants.

HPRO 5518.03:	Women's Health and the Environment		G	Health and human performance	Health professions	Staff	The goal of the class is to explore the interconnections between women's health and the environment, with an emphasis on environmental contaminants, health, and public policy
PLAN 6102.03:	Urban Economics		G	Planning	Architecture and planning		The course applies economic principles to urban growth and structure, urban social and economic problems, and provision of services and government activities.
PLAN 6108.03:	History and Theory of Landscape Architecture		G	Planning	Architecture and planning		It discusses the effects of technology and resource use on the design of landscapes as small as a private garden and as large as a bio-region, and examines the changing role of landscape architects, their writings, and their collaboration with architects and planners
PLAN 6120.03:	Citizen Engagement and Consultation: The Opportunities and Challenges of Public Engagement.		G	Planning	Architecture and planning		This course examines the conceptual foundations and practice of citizen participation, especially in the context of planning and development decisions by municipal and provincial governments, and the techniques or methods that can be used to more effectively involve individual citizens and stakeholder groups in community decisions
BIOE 6010.03:	Non-Point Source Pollution Control.		G	Process and applied science	Engineering		Course content initially deals with variants of the empirical USLE approach to soil erosion estimation and control on land surfaces through application of the RUSLE model. Emphasis is placed on

							model application to assess measures to protect surface water, groundwater and aquatic life resources
CHEE 6743.03:	Process Synthesis.		G	Process and applied science	Engineering		This class aims at developing abilities in the design and modification process plants (e.g. chemical, biochemical, utilities, pulp and paper, petroleum, petrochemical, metals, and food processing) in order to render them more cost effective, energy-efficient and environmentally friendly
FOSC 6330.03:	Fish/Food Process Engineering		G	Process engineering and applied science	Engineering		Emphasis is placed on sound principles in the design and operation of equipment commonly used in factories for the manufacture of food products and by-product. . Measures to reduce waste and pollution and especially the abatement of odour nuisance from the food processing factory are reviewed
PUAD 6400.03:	Local Government.		G	Public administration	Management	Gilbert, M.	There is a renewed interest in local government resulting from population migration to urban areas, the need to invest heavily in improved and greener infrastructure that can be used to satisfy local service needs, and a trend towards a more inclusive public involvement in urban issues. This course looks at how local governments fit into the public sector framework, how provincial / national legislation empowers and limits

							them, and their governance and management.
LAWS 2020.02:	Fisheries Law.	UG		Law	Law	Henley, D.	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.
LAWS 2022.03:	Law of the Sea.	UG		Law	Law	Chircop, A.	This course will undertake a detailed analysis of the law of the sea by examining the Convention and other materials. Included in the analysis will be an examination of navigational issues (territorial sea, international straits, archipelagoes), resource issues (exclusive economic zone, fisheries, non-living resources); maritime boundary delimitation; protection of the marine environment; transfer of marine technology; marine scientific research; dispute settlement; international ocean governance
LAWS 2068.03:	Ocean Law and Policy	UG		Law	Law	Chircop, A.	This course examines current issues in Ocean Law & Policy. The specific focus is on international fisheries, offshore oil and gas, and integrated ocean management.

LAWS 2079.02:	Oil and Gas Law	UG		Law	Law	Simms, M.	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, pipeline jurisdictional issues, aboriginal rights, rights of first refusal, environmental law, the Offshore Accords and their implementation and current regulatory issues
LAWS 2221.03:	Public Health Law.	UG		Law	Law	Gibson, E.	This course examines legal and ethical issues 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