

# SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

Course Code and Title	Faculty/School	Department	Level	Description	Type
ABIZ 3550 Environmental Policy	Agricultural and Food Sciences	Agribusiness and Agoeconomics	UG	(Formerly 061.355) Environmental policy development and enactment in Canada: federal and provincial review processes; sociopolitical aspects of policy development; chemical and pesticide licensing procedures and environmental effects monitoring; environmental policy and sustainability; case studies; discussion of various policies; ethics of development, preservation and conservation; environmental risk management. Prerequisite: ABIZ 2390 (or 061.239) or ECON 2390 (or 018.239).	Sustainability Focused
ARCG 7090 LEED Core Concepts and Strategies	Architecture	Architecture Interdisciplinary	G	This course provides a comprehensive overview of techniques, approaches, materials and technologies used in creating more sustainable buildings and communities in Canada. It provides an introduction to the LEED Rating System and is formulated as a preparatory course for persons interested in becoming a LEED Green Associate in Canada.	Sustainability Focused
BIOE 2480 Impact of Engineering on the Environment	Engineering	Biosystems Engineering	UG	Students will gain an understanding of overall sustainability of industrial activities, lifecycle and risk assessment techniques for sustainability, and design improvements to enhance environmental performance of engineered systems. This course will introduce basic methodologies for conducting environmental impact assessments, including physical, chemical, ecological, social and economic impacts. May not be held with the former BIOE 4480. Registration restricted to Biosystems Engineering students.	Sustainability Focused
BIOE 3900 Biosystems Engineering Design 2	Engineering	Biosystems Engineering	UG	An introduction to the use of reverse engineering to deduce design features from previously designed products or systems. Considerations such as design for sustainability and design for disassembly will be discussed. Students will have opportunity to use reverse engineering principles i) to understand how components fit together to form functional systems, ii) to identify flaws and iii) to propose design improvements. Students will learn appropriate techniques for documenting the reverse engineering process. Theory of project management will also be taught and discussed. Prerequisites: BIOE 2900 or the former BIOE 2580 and ENG 2022 or the former ENG 2020.	Sustainability Focused
BIOE 4630 Pollution Prevention Practices	Engineering	Biosystems Engineering	UG	To give students an understanding of pollution prevention as it relates to solids and hazardous waste management, air and water pollution, energy usage, and resource depletion. To evaluate practices on improved manufacturing operations, present fundamentals of pollution prevention economics, examine waste minimization incentives, design improvements to existing systems, and investigate overall sustainability of industrial practices. Prerequisite: CIVL 2790 (or 023.279) or MECH 2262 (or MECH 2260 or 025.226).	Sustainability Focused
BIOL 3600 Biological Diversity and Sustainability	Science	Biological Sciences	UG	Anthropogenic drivers of change of many components of biological diversity; the resulting impacts on ecosystem capacity to provide ongoing goods and services that are essential constituents of wellbeing and ultimately sustainability. Prerequisites: BIOL 2300 (C); or BIOL 1030 (C) and BIOL 2390 (C).	Sustainability Focused
BIOL 7140 Advanced Physiology	Science	Biological Science	G	(Formerly 200L 7140, 022.714) An in-depth study of topics related to how changing internal and external environments influence life-sustaining physiological processes. Topics include plant and animal stress, endocrine & electrophysiology, metabolism and molecular biology of solute transport.	Sustainability Focused
CITY 7450 Concepts in Sustainable Planning and Design	Architecture	City Planning	G	(Formerly 073.745) Examination of the concepts and theories involved in the development of sustainability as a force in socioeconomic and environmental decision making. Explores the implications of sustainability for contemporary design and planning thought and practice.	Sustainability Focused
CIVL 4024 Sustainable Building Design: Principles of Best Practice	Engineering	Civil Engineering	UG	(Lab required) Best practices in sustainable design; current standards that govern building envelope components, cladding systems, membranes, infiltration air quality, indoor air quality, indoor environmental quality; present and future challenges; present and future building science and demonstrates their application to the design, repair and maintenance of buildings; building systems; how environments affect material performance. May not be held with BIOE 4412 or BIOE 4700. Prerequisite: CIVL 3760, Pre or Corequisite: CIVL 3770.	Sustainability Focused
CIVL 4460 Technology, Society, and the Future	Engineering	Civil Engineering	UG	Impact of technology and technological change on society past, present, future; specific technologies, e.g. construction, machine power, computers, communications, medical, military: the process of technological change; invisible effects of technology; technology and resource use; sustainable development, limits to growth and the role of technology. Prerequisite: A grade of "C" or better in one of the courses from the list of Written English for Engineering Students, or the former ENGL 1310, or the former ENGL 1320.	Sustainability Focused
CIVL 7340 Sustainability in Construction	Engineering	Civil Engineering	G	Introduction and overview of sustainable construction and green buildings, green building assessment tools, the green building process, green building design, construction and commissioning, the economics of green buildings and future directions in sustainable construction and green buildings.	Sustainability Focused
ECON 3710 Sustainable Development: Issues and Policy	Arts	Economics	UG	(Formerly 018.371) An examination of the theory and practice of economic sustainability, ecological sustainability, and social sustainability, with emphasis on analysing current issues and designing policies to achieve sustainable development. Prerequisite: a grade of "C" or better in six credit hours of 1000 level Economics.	Sustainability Focused
EDUB 4010 Pedagogy for Sustainable Wellbeing: Science, Mathematics and Social Studies	Education	Curriculum, Teaching and Learn	UG	An exploration and critical reflection on theory, research, and practice in education for sustainability in science, mathematics, and social studies and the ways in which multiple literacies can assist children in consolidating their knowledge and understanding of sustainable wellbeing. Course offered offcampus. May not be held with EDUB 2040, EDUB 2050 or EDUB 2060. Prerequisites: EDUB 3012, EDUB 3014, EDUB 3312, Corequisite: EDUB 4012.	Sustainability Focused
EDUB 4012 Pedagogy in Multiple Literacies: Children as Meaning Makers	Education	Curriculum, Teaching and Learn	UG	A schoolbased course, taught in collaboration with EDUB 4010 Pedagogy for Sustainable Wellbeing: Science, Mathematics, and Social Studies, providing opportunities for teacher candidates to be immersed with children and teachers in curriculum inquiry related to learning languages/literacies, learning about languages/literacies, and learning through languages. Course offered offcampus. May not be held with EDUB 2000, EDUB 2010, EDUB 2070, and EDUB 2080. Prerequisites: EDUB 3010, EDUB 3312, Corequisite: EDUB 4010.	Sustainability Focused
ELSO 0700 English For International Tourism Module I	Extended Education	English Language Studies	UG	This course introduces students to basic tourism concepts and the language they will encounter when working in tourism-related fields. Topics covered include sustainable tourism, travel and events management. Class activities allow students to discuss practical applications of basic tourism concepts and principles. The course will help students become more confident and competent when communicating in English. Prerequisites: minimum PT score of 90 OR ELSL 0602 Presentation and Discussion Skills module II (min grade C).	Sustainability Focused
ELSO 0702 English for International Tourism Module II	Extended Education	English Language Studies	UG	This course introduces students to basic tourism concepts and the language they will encounter when working in tourism-related fields. Topics covered include sustainable tourism, travel and events management. Class activities allow students to discuss practical applications of basic tourism concepts and principles. The course will help students become more confident and competent when communicating in English. Prerequisites: minimum PT score of 95 OR ELSO 0700 English for International Tourism module I (min grade C).	Sustainability Focused
ENVR 1000 Environmental Science 1 Concepts	Environment, Earth and Resources	Environment, Earth and Resources	UG	(Formerly 128.100) This course will introduce students to the conceptual framework of the environment by examining its physical, biological, and social components. General topics to be considered will include ecological principles and the responses of natural and managed systems to disturbance; population growth; biodiversity and conservation; and environmental sustainability. Not to be held with BIOL 1340 (071.134).	Sustainability Focused
ENVR 2000 Environmental Science 2 Issues	Environment, Earth and Resources	Environment, Earth and Resources	UG	(Formerly 128.200) This course will briefly review the major features of the structure and function of natural systems along with the degree to which these have been compromised. The main component of the course, however, will concentrate on the identification of the issues that underlie environmental degradation, while exploring alternative conditions that have the potential to reverse current trends and ultimately contribute to ecological sustainability. Prerequisite: ENVR 1000 (128.100) (C) or BIOL 1340 (071.134) (C).	Sustainability Focused
ENVR 3850 Sustainable Manitoba (A)	Environment, Earth and Resources	Environment, Earth and Resources	UG	This course approaches local sustainability issues from an interdisciplinary perspective. By looking at the ecological, social and economic aspects from a variety of discipline perspectives, a fuller understanding of sustainability is achieved. The broad range of perspectives is achieved through participation of guest speakers from other faculties and outside of the university as well as excursion outside the classroom. Not to be held with GEOG 3850. Prerequisite: 60 credit hours of course work, or permission of department head.	Sustainability Focused
EVAR 4008 Arch Tech 4: Comprehensive Design Technology Report	Architecture	Environmental Design	UG	A technical knowledge course that integrates with ARCH 4008. Comprehensive technology issues include: site; material; energy; structures; construction; sustainability; environmental factors; building code; life safety. Student's work will include analysis, technical drawings and calculations. Corequisite: EVAR 4010 Arch Studio 4	Sustainability Focused
EVDS 1680 Environmental Technology	Architecture	Environmental Design	UG	(Formerly 079.168) An examination of the scientific principles embodied in the natural laws which govern the science of building, landscape and environmental design in the context of sustainable development. Factors of climate, geology and natural resource systems are introduced. Corequisite: EVDS 1630.	Sustainability Focused
EVDS 2300 Materials, Structures and Assemblies	Architecture	Environmental Design	UG	This course provides an introduction to applied statistics, construction materials and construction system assemblies for landscape, building, and interior construction. Concepts and applications, including impacts on resource depletion and on sustainable building practices will be introduced along with basic strategies and methods to analyze and calculate forces in simple structures.	Sustainability Focused
EVDS 2702 Natural and Human Systems	Architecture	Environmental Design	UG	An application of the scientific principles embodied in the natural laws which govern environmental design. Aspects of the biological factors, energy, human physiology and perception, comfort, and resource management are reviewed in the context of sustainable planning and design practices.	Sustainability Focused
EVIE 3004 Materials, Assemblies and Detailing	Architecture	Environmental Design	UG	Workshop and lecture course on materials, joinery and invention. Review of the principles of framing, bracing, and tension applied to casegoods and furniture; exploration of a variety of soft and hard materials and constructions with an emphasis on sustainability. Not to be held for credit with the former EVIE 3630. Prerequisite: EVDS 2200.	Sustainability Focused
EVLU 3004 Ecology and Design 2	Architecture	Environmental Design	UG	This course will focus on an examination of ecological and technological perspectives on the planning, design and making of the physical environment. This will include a meshing of prediction and advocacy concerning new models of sustainable urbanization, focusing on green technology and infrastructure. Key theories and their application to landscapes at varied scales will be considered along with salient literature, current issues, design precedents and potentials for creative expression and interpretation. Prerequisite EVDS 2200.	Sustainability Focused
EVLU 3006 Studio 3: Dwelling/Precinct/Everyday Life	Architecture	Environmental Design	UG	A studio/lecture course that examines the notion of dwelling through spatial design with a concentration at the scale of the precinct in the private to semiprivate realm focusing on the needs of the individual, on spatial qualities, materials, and site design detail. Theoretical, analytical, conceptual, design, planning and communication skills in landscape urbanism will be developed and applied in distinct projects. Emphasis is on habitat by design, issues of contested space, ecological design and sustainability. May include a mandatory field studies trip; location and cost to be determined on a yearly basis.	Sustainability Focused
GMGT 1010 Business and Society	Management, I. H. Asper School of Business	Business Administration	UG	The course will provide overarching frameworks to examine the nature, role, and importance of business in society. Key internal operations of business organizations will be discussed (e.g. finance, marketing, operations), but the majority of the course examines the relationships that business firms must balance among key stakeholders in their external environment (i.e. government, owners, customers, communities, suppliers, future generations, etc.). Students will examine various institutional contexts (e.g. economic, political/legal, and sociocultural) and critically think about relationships between business and society, mindfully considering alternative approaches to management. Special emphasis will be placed on contemporary social issues in business (e.g. sustainable development, corporate social responsibility).	Sustainability Focused
IDM 7020 Managing for Sustainable Development	Management, I. H. Asper School of Business	Management Interdisciplinary	G	(Formerly 098.702) Strategic issues related to the manager's role in sustainable development, including enterprises in the renewable and nonrenewable resource sectors, lifecycle analysis, and full cost accounting. Emphasis is placed on environmental management control systems, environmental performance measurement, reporting, and the impact of environmental management on strategic management decisions.	Sustainability Focused
IDM 7130 Contemporary Themes in Business	Management, I. H. Asper School of Business	Management Interdisciplinary	G	This course exposes students to salient themes found in the modern business environment. Students will develop a broad appreciation for the challenges and opportunities presented by these contemporary themes (e.g. International and Emerging Markets; Sustainability; Entrepreneurship and Innovation).	Sustainability Focused
NATV 3160 Fundraising for Aboriginal Organizations	Arts	Native Studies	UG	This course examines effective fundraising skills as critical for the longevity of many programs in the Aboriginal community. While government fundraising is an important source, understanding grantsmanship and other funding strategies are critical for sustained program existence and effective use of scarce human and financial resources. Students may not hold credit for both NATV 3160 and NATV 3000 (032.300) when titled "Financing Strategies for Aboriginal NonProfit Initiatives." Prerequisite: [a grade of "C" or better in NATV 1200 (032.120)] or [a grade of "C" or better in both NATV 1220 (032.122) and NATV 1240 (032.124)] or written consent of department head.	Sustainability Focused
NATV 4220 Environment, Economy and Aboriginal Peoples	Arts	Native Studies	UG	(Formerly 032.422) An analysis of sustainable development issues discussed within a cultural context. Depending on the instructor, this course may have a field component. Contact the Department of Native Studies for details. Prerequisite: written consent of department head.	Sustainability Focused
NRI 7180 Sustainable Development and Natural Resources	Environment, Earth and Resources	Natural Resource Management	G	An examination of the context, concepts, principles, and applications of sustainable development and natural resources at the international, national, and regional levels. Sustainable development is considered from three perspectives: environment, economy, and peoples' wellbeing. Particular attention is focused upon the implications of sustainable development for natural resources and environmental management. Permission of the instructor required. Students are advised to consult with Institute Faculty prior to admission.	Sustainability Focused
NRI 7182 Sustainability, Economics, and Natural Resources	Environment, Earth and Resources	Natural Resource Management	G	Economic aspects of sustainability are a critical component of sustainable development. The relationship between environment, economy, and the human dimensions of natural resources comprise the primary focus of the course. Specific topics include environmental/ecological economics, externalities, project assessment, benefit cost analysis, the economics of renewable and nonrenewable resource management and economic aspects of globalization.	Sustainability Focused
NRI 7252 Environmental Management Practice	Environment, Earth and Resources	Natural Resource Management	G	Environmental Management systems (e.g. 14001 and Natural step), best management practices and project management. Tools: Awareness (Environmental Policy, Environmental Impacts, Risk Assessment, Life Cycle Assessment), Action (Objectives, Targets, Risk Reduction, Indicators, Monitoring, Activities), Advance (Sustainability Report, Triple Bottom Line, Environmental Audit). Additional information on the program may be found on the NRI website: <a href="http://www.umanitoba.ca/institutes/natural_resources/">www.umanitoba.ca/institutes/natural_resources/</a>	Sustainability Focused
NRI 7280 Regional Development in Northern Manitoba	Environment, Earth and Resources	Natural Resource Management	G	A comprehensive examination of natural resources, socioeconomic conditions, and institutional structures forms the basis for an evaluation of long-term sustainability and developmental strategies for Manitoba's North. Permission of the instructor required. Students are advised to consult with Institute faculty prior to admission. Additional information on the program may be found on the NRI website: <a href="http://www.umanitoba.ca/institutes/natural_resources/">www.umanitoba.ca/institutes/natural_resources/</a>	Sustainability Focused
NRI 7330 Water Resources: Analysis, Planning and Management	Environment, Earth and Resources	Natural Resource Management	G	Considering fresh water as a resource, this course initially examines theoretical models and management approaches and practices; water supply requirements; and management, demand management; and environmental sustainability. The second part encompasses selected aspects of watershed hydrology and management; water and ecosystem health; and river basin management strategies and policies. The final part evaluates institutional arrangements and jurisdictional responsibilities; transboundary issues, opportunities and implications. Additional information on the program may be found on the NRI website: <a href="http://www.umanitoba.ca/institutes/natural_resources/">www.umanitoba.ca/institutes/natural_resources/</a>	Sustainability Focused

NRI 7340 Environmental Justice and Ecosystem Health	Environment, Earth and Resources	Natural Resource Management	G	Explores Ecosystem health and environmental justice issues to realize both the possibilities and barriers to sustainability. Risk, resource distribution and power/decision making are analyzed across race, gender and class differences. Diverse views, theories and methods on community health consider wellbeing, quality of life, vulnerability and ecological integrity. Additional information on the program may be found on the NRI website: <a href="http://www.umanitoba.ca/institutes/natural_resources/">www.umanitoba.ca/institutes/natural_resources/</a>	Sustainability Focused
NRI 7370 Sustainable Livelihoods, Food Resources and Community Food Security	Environment, Earth and Resources	Natural Resource Management	G	About one third of a household's total environmental impact is related to food considering all the effects of livestock, agriculture and the food industry on water, soil and air, the overuse of fish resources, transport and packaging waste. This course analyzes sustainable livelihoods and food security/sovereignty in the food system (production, processing, marketing, etc.). Additional information on the program may be found on the NRI website: <a href="http://www.umanitoba.ca/institutes/natural_resources/">www.umanitoba.ca/institutes/natural_resources/</a>	Sustainability Focused
OPM 7130 Supply Chain Sustainability	Management, I. H. Asper School of Business	Supply Chain Management	G	This course takes a broad look at supply chain sustainability. Supply chain management includes logistics/transportation, purchasing, and a few aspects of marketing. Sustainability is a multidimensional concept, spanning environmental, social and economic issues. Delivery is via interactive lectures, small group discussions, and writing/presenting a sustainability term paper.	Sustainability Focused
OPM 7180 Sustainable Lean Management	Management, I. H. Asper School of Business	Supply Chain Management	G	Sustainable Lean Management will provide students with a basic understanding of the components of Sustainable Lean Management in the context of Profit, People and Plant (the triple bottom line) and the opportunity to practically apply the principles, methods and tools of Sustainable Lean Management to real problems. Sustainable Lean Management, at its core, is about systematically identifying the strategic problems of an organization and methodically solving those problems while simultaneously growing and developing the potential of people to the benefit of all stakeholders of the enterprise. Prerequisite: OPM 7120.	Sustainability Focused
PEAC 7120 Peacebuilding and Social Justice	Graduate Studies	Mauro Centre for Peace Studies	G	This course examines the role of peacebuilding in short term crisis intervention and longer term conflict transformation processes. Social justice is addressed at the systems level as it impacts the achievement of sustainable reconciliation. Crisis management in conflict settings, the root causes of conflict and its prevention are explored.	Sustainability Focused
PLNT 3510 Cropping Systems	Agricultural and Food Sciences	Plant Science	UG	(Formerly 039.351) Examination and analysis of sustainable prairie cropping systems. Emphasis will be placed on integrated systems that optimize the benefits of crop rotation, and conserve soil, water and wildlife resources. Conventional, traditional and alternative crop production systems will be discussed. Includes a limited number of tutorials to allow for field tours and guest speakers. Prerequisite: PLNT 2500 (or 039.250).	Sustainability Focused
PLNT 7660 Advanced Crop Production	Agricultural and Food Sciences	Plant Science	G	A lecture seminar course to investigate environmental, crop management and genetic limitations to growth, yield formation, yield, water use efficiency and quality of field, forage and horticultural crops. Interactions will be stressed and emphasis will be placed on sustainable crop production systems. Simple and complex relationships will be demonstrated using models. Prerequisite: consent of instructor.	Sustainability Focused
REC 3090 Sustainable NatureBased Tourism	Kinesiology and Recreation Management	Recreation Studies	UG	Analysis of the growth and development of sustain-able naturebased tourism as a global and regional phenomenon. Particular emphasis will be placed upon the fundamental principles of sustainability, natural resource and visitor management for recreation, and the role of outdoor recreation and education in Sustainable Tourism Planning and Management. May not be held for credit with 123.309. Prerequisite: PERS 1300 (REC 1200 or 123.120) (C) and PERS 1400 (REC 1400 or 123.140) (C). Note: A fieldwork fee is attached to the course.	Sustainability Focused
REC 4090 Sustainable NatureBased Tourism Planning, Management and Research	Kinesiology and Recreation Management	Recreation Studies	UG	Building upon the changes to REC 3090 this course examines planning and management frameworks as they relate to sustainable naturebased tourism. The course examines the expansion of tourism as a global phenomenon and considers sustainable naturebased tourism as a community development process. In addition the role and importance of research in informing the tourism planning and management decision making processes is examined. May not be held for credit with 123.409 (123.430 or 123.432). Prerequisite: REC 3090 (123.309 or 123.330) (C). Note: A fieldwork fee is attached to the course.	Sustainability Focused
REC 7060 Issues in Tourism	Kinesiology and Recreation Management	Recreation Studies	G	(Formerly 123.706) Contemporary issues and research related to travel behaviour and sustainable tourism. Prerequisite: instructor's permission.	Sustainability Focused
SOC 3838 Ecology and Society	Arts	Sociology	UG	Examines changing patterns of social organizations of civilizations, the resultant social constructions of the human/nature interface, the human social contribution to the global ecological crisis, and possible strategies to create sustainable societies. Consideration of topics such as population, consumption, capitalism, and agricultural practices. Prerequisite: [a grade of "C" or better in SOC 1200 (077.120) or the former SOC 1201 (077.120)] or [a grade of "C" or better in both SOC 1211 (077.121) and SOC 1221 (077.122)].	Sustainability Focused
SOIL 4510 Soil and Water Management	Agricultural and Food Sciences	Soil Science	UG	(Formerly 040.451) Topics include: capability of land for agriculture; storage, movement and use of water; saline and alkaline soils; soil conservation including erosion; sustainability of soil organic matter; effect and fate of soil amendments. Prerequisite: SOIL 3600 (or 040.360) or 040.350 or 040.351.	Sustainability Focused
SWRK 4120 Field Instruction 2	Social Work	Social Work	UG	(Formerly 047.412) A second educationally directed practice experience building on SWRK 3150 (or 047.315) in which the student will have the opportunity to carry a sustained professional role in situations which require the integration of values, knowledge, and skill at the level of a beginning professional practitioner. While Access Programs may require additional field hours, 420 hours is the minimum required for all BSW students. This time commitment includes involvement with the agency in planning for, and engaging in, practice activity, and evaluation of performance. It also includes educational contact time with the field instructor in individual and/or group sessions. Subject to satisfactory completion and reports, students will be graded on a pass/fail basis. Prerequisites: 6 credit hours of SWRK 4200 (or 047.420), and SWRK 3150 (or 047.315), and consent by course instructor (Field Coordinator). Corequisite: 6 credit hours of SWRK 4300.	Sustainability Focused
WOMN 2610 Gender, Transport and Social Justice	Arts	Women's and Gender Studies	UG	Examines the gendered impact of uneven access to transportation. Using feminist theories of gender and mobility, it considers claims that mobile women are in danger, and that different forms of transportation have gendered cultures. It studies the links between imperialism, development, and transportation. The course also examines the particular ways in which transportation disadvantage, automobility, limited public transit services, and aging in place affect women as well as initiatives to promote sustainable transportation. Students may not hold credit for both WOMN 2610 and WOMN 2540 with the topic "Gender, Transport and Social Justice."	Sustainability Focused