

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

TITLE	COURSE #	DEPARTMENT	LEVEL	DESCRIPTION
SUSTAINABILITY FOCUSED				
ACTIVE HEALTH AND HUMAN POTENT	3710	Physical Education	UG	An examination of lifestyle behaviours which can enable or constrain human wellness and potential.
AD ISS ENV HLTH	4400	Environment	UG	An evaluation of global and local environmental health issues and the assessment and management tools used to manage these risks.
ADV FITNESS APPRAISAL	4560	Kinesiology	UG	Advanced theoretical knowledge and experiential learning related to physical activity, fitness and lifestyle assessment, counselling, and exercise prescription for apparently healthy and clinical populations.
ADV ISS SUPPLY CHN MGMT	4250	Supply Chain Management	UG	The material covered in this course moves beyond a business perspective and analyzes the relationship between supply chain management (SCM) and other parts of society as a whole.
ADVANCE ENV LAW	4650	Environment	UG	This course provides an in-depth review of Canadian law and policy relating to environmental protection and management.
AG INDUSTRY	0720	Agriculture Diploma	UG	This course provides students with the opportunity to increase their awareness of agriculture and the agri-business sector.
AGRIC WASTE MGT	4510	Biosystems Engineering	UG	Characteristics of waste, design of systems for collection, storage and land application, alternate treatment/conversion systems, impacts on air, soil and water quality.
AIR POLLUTION	4460	Biosystems Engineering	UG	Air pollutant sources and characteristics, their impact on the environment, their behaviour in the atmosphere.
ALTERNATIVE BUILDINGS	4700	Biosystems Engineering	UG	This course will provide students with experience in the design of structures that utilize natural and green building materials and techniques.
ANAL WAT&WASTES	4240	Food Science	UG	Introduction to the principles and application of the standard methods employed in the analysis of water and wastes in the food processing industry.
APPLIC AGROECOL	4510	Agroecology	UG	Integration of information on ecological principles, agricultural production technology and environmental and socio-economic issues through in-depth studies of issues and problems in agro ecology.
ARCH STUDIO 3	4004	Environmental Architecture	UG	This studio focuses on the broader cultural implications of social interaction and the collective inhabitation of the built and natural environments.
ARCH TECH 4	4008	Environmental Architecture	UG	A technical knowledge project-based course. Comprehensive technology issues include: site; material; energy; structures; construction; sustainability; environmental factors; building code; life safety.
BIODIVERSITY & SUSTAINABILITY	3600	Biological Sciences	UG	Anthropogenic drivers of change of many components of biological diversity; the resulting impacts on ecosystem capacity to provide on-going goods & services that are essential constituents of well-being & ultimately sustainability.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

BIOLOGY OF MAMMALS	4218	Biological Sciences	UG	Structure, classification, evolution, life histories and distribution of mammals and their relation to human cultures. Techniques of studying mammals. Identification of the mammals of Manitoba.
BUSINESS ETHICS	2830	Philosophy	UG	The course will explore the application of ethical theory to business. Topics to be discussed will normally include: theories of justice, corporate responsibility, the ethics of advertising, consumer and environmental protection, and preferential hiring.
COMMERCE AND EMPIRE	3260	History	UG	This course will scrutinize the intersection of commerce and governance in Europe from c.500 to the present, paying particular attention to the way that debates about commerce, war and peace have generated notions of human rights over the past three centuries.
COMMUN HEALTH 2	2360	Dental Hygiene	UG	This course further develops the students' abilities to deliver community oral health education/promotion programs, with particular attention given to the barriers faced and strategies used to meet the unique needs of target populations which are less likely to have optimal oral health.
COMP ENV PHYS	3540	Zoology	UG	An examination of the environmental challenges confronting animals in aquatic and terrestrial habitats, and the various ways these problems are solved at the cellular and organ system levels.
CONST ASSEMB 1	1690	Environmental Design	UG	An introduction to the principles and applications associated with the manufacture of construction materials and assemblies used in environmental design with an emphasis on resource impact.
CORP SOCIAL EVIRON RESPONSIBIL	3030	Leadership	UG	This course examines the responsibilities of business that accompany maximizing shareholder wealth. This includes balancing the needs of a variety of stakeholders among a variety of forms of well-being (e.g. financial, ecological, environmental, social, spiritual, physical).
CRIT THINK ENV	4110	Environment	UG	Topical issues and responses regarding the environment including conservation, management, and policy making are critically evaluated at local, national, and global scales.
CROP SYSTEMS	3510	Plant Science	UG	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.
CUL RELEVANT PHYS EDU	3360	Physical Education	UG	An investigation of physical health and education (based on ability, gender, race, socio-economic class, sexuality) experienced within education experiences of young people from diverse backgrounds.
DEV HEALTH	3500	Human Ecology General	UG	This course examines how social inequalities affect population health across the lifespan. It is guided by the determinants health with a particular focus on socioeconomic variables.
DEV HLTH CHILD	3610	Family Social Sciences	UG	Population health gradients are largely set early in life and are affected by the environments in which children live. This course examines current knowledge of the social determinants of child and adolescent health.
EARTH ENVIRONMT	1340	Biological Sciences	UG	A presentation of contemporary environmental issues focusing on the scientific basis of problems caused by the growth of human population, use and depletion of resources, pollution, and damage to the environment.
ECOL RES MGMT	7230	Natural Resource Management	UG	The ecological context of resources; historical evolution of the resource concept from utilitarian to ecosystem thinking; the ecosystem concept and its applications to resource management and planning; adaptive management by use of feedback learning.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

ECOLOGY AND DESIGN 2	3004	Envir. Design Landsc & Urban	UG	This course will focus on an examination of ecological and technological perspectives on the planning, design and making of the physical environment.
ECOLOGY AND SOCIETY	3838	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.
ECON EU EMU	2580	Economics	UG	A brief overview of the History of European unification from the Second World War to the Economic and Monetary Union. Performance and policies in the areas of labour markets, social welfare and cohesion, agriculture, environment, competition, public finance, etc.
ECON WRLD FOOD	1010	AgBusiness and AgEconomics	UG	Determinants of global food consumption, production and the factors underpinning food security and malnutrition. The importance of international trade in balancing countries' supply and demand for food, examination of trade barriers and institutions facilitating trade.
ECONOMIC	2210	Geography	UG	An introduction to spatial aspects of economic activities. It includes consideration of natural resource extraction and development, industrial location theory, agriculture, and the basis of regional development.
ECOSYSTEM MANAGEMENT	4050	Environment	UG	This course will provide students with an understanding of the practical applications of ecological science, environmental policy, and resource management approaches in the large-scale planning of landscapes.
ENERGY RES MGMT	7130	Natural Resources Institute	UG	This course covers global energy issues, objectives, strategies, and policies, and the environmental impacts of alternative energy sources; Canadian energy issues, objectives, strategies, and policies.
ENERGY SOURCES	2350	Physics	UG	A detailed investigation of the physical aspects of energy production and utilization. Critical comparison of the various energy sources including solar, nuclear, fossil, and wind will be emphasized.
ENV ECON CULTUR	4220	Native Studies	UG	An analysis of sustainable development issues discussed within a cultural context. Depending on the instructor, this course may have a field component.
ENVI ENG ANALYS	3690	Civil Engineering	UG	Introduction to environmental engineering analysis concept; risk assessment; colloidal dispersions; mass balances, reaction kinetics and reactor design principles. Water pollution and water quality in rivers and lakes.
ENVI ENG DESIGN	3700	Civil Engineering	UG	Design principles are developed for water, solid/soil and air pollution control.
ENVIRO PHYS OF ANIMALS 1	3470	Biological Sciences	UG	This course is intended to acquaint students with some of the major environmental challenges encountered by animals and stresses the diversity of physiological solutions to these problems in aquatic and terrestrial organisms.
ENVIRON POLICY	3550	AgBusiness and AgEconomics	UG	Environmental policy development and enactment in Canada; federal and provincial review processes; socio-political aspects of policy development; chemical and pesticide licensing procedures and environmental effects monitoring; environmental policy and sustainability.
ENVIRON TECH	1680	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.
ENVIRONMENT LAW	3600	Law	UG	(Formerly 045.360) The balance between technical development and the life-support capacity of the environment. The acquisition and nature of private rights in natural resources and their control by legislation and common law. Remedies for environmental degradation.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

ENVR RESP /LAW	3160	Environment	UG	Environmental responsibilities and their legal framework in terms of policies, legislation, standards and guidelines and the tools to manage responsibility are examined through lectures, case study review and discussion.
ENVSCI CONCEPTS	1000	Environment	UG	(Formerly 128.100) This course will introduce students to the conceptual framework of the environment by examining its physical, biological, and social components.
ENVSCI ISSUES	2000	Environment	UG	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.
ENY CONV UTIL	4680	Mechanical Engineering	UG	Energy supply and demand, advanced thermodynamic cycles, conventional energy sources, alternative energy, conservation of energy, environmental considerations.
ETHICS & BIOMED	2740	Philosophy	UG	An examination of some important ethical issues arising out of recent developments in biology and medicine. Examples of topics to be covered include: the allocation of scarce medical resources; genetic engineering; euthanasia vs. the prolongation of life; abortion and infanticide.
FAMILY LIFE ED	5570	Education Admin, Fndns & Psych	UG	A study of human sexuality and family relationships. Consideration is given to research findings, teaching resources and the methods, development, and cooperation with home and community.
FHC:ACTION PER	4900	Family Social Sciences	UG	Examines relationships between families, housing and community; impact of communities on children; best practices for enhancing quality of life in communities; participatory processes for working with communities. Significant on-site learning. Emphasis on inner-city.
FMLY REL, HEALTH & WELL	4602	Family Social Sciences	UG	This course provides an indepth survey of the interaction between family relationship dynamics, health and well-being across the life course period.
FOOD GEOGRAPHIES	3870	Geography	UG	This course provides a critical examination of the geographies of food at a variety of scales, from the body to the global.
FOOD SAFETY	1000	Food Science	UG	A contemporary examination of the safety of the food supply - where, how and why problems may rise and what is and can be done to consistently achieve high quality, safe food. Controversial issues (residues, organic, biotechnology, irradiation) will be discussed in a balanced manner.
FUND HORTIC	2510	Plant Science	UG	Principles of the culture, marketing, and utilization of fruits, vegetables, and ornamentals, their contribution to the economy and well-being of consumers, and impact of horticultural activities on the environment.
GENDR & SEXUALT	3810	Sociology	UG	An exploration of the relations between men and women in contemporary society. This course will use historical and cross-cultural standpoints to examine the social construction of gender and sexuality, and the ideological and material structures which (re)produce gender difference. Students may not hold credit for both SOC 3810 (077.381) and SOC 3811 (077.381). Prerequisite: [a grade of "C" or better in SOC 1200 (077.120) or SOC 1201 (077.120)] or [a grade of "C" or better in both SOC
GEOG CUL ENVIRO	2630	Geography	UG	An introduction to the cultural geographic study of environment, focusing on the evolution of landscape, the creation of regions, and human relationships with nature.
GEOG HEALTH CAR	4290	Geography	UG	This course provides an introduction to and critical examination of the geographies of health and healthcare. Topics include perceptions and determinations of health and health care; health care delivery etc.
GEOG NAT HAZARD	2440	Geography	UG	Physical environmental hazards to human settlement and economy are examined with particular attention to meteorological, soil erosion, mass wasting, earthquake, and volcanic phenomena.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

GEOG OF ENVIRON (HS)	3640	Geography	UG	This course provides an intermediate-level assessment of current geographical approaches to society and environment. Students are exposed to critical realist, social constructionist, Marxist, feminist and post-Colonial traditions as they are applied to environmental and social justice.
GLOBAL CHANGE	4370	Geology	UG	Examination of the major processes controlling global change through time.
GREEN BUILD AND PLAN	3750	Environment	UG	An overview of the concepts and tools of Green building design and Green Planning. The course covers the History and trends in Green Building and Planning, related policies, tools and techniques.
GREENHSE CROPS	0710	Plant Science	UG	A study of greenhouse construction, environmental control, growth regulation and special problems relating to cut flowers, pot and foliage plants, bedding plants, vegetables and woody plants.
HLTH PHYS ASPECT OF AGING	2610	Kinesiology	UG	An introduction to health, well-being and aging. Emphasis on health as multidimensional including physical, social and mental health. Integration of theory and research in examining selected issues related to health and physical aspects of aging.
HUM BEHAV PRACT	2090	Social Work	UG	Students are introduced to a broad range of theories and will develop an understanding of how people and environments reciprocally affect each other.
HUM RIGHTS SOCIAL JUSTICE	2400	History	UG	Introductory course examining the emergence of the modern human rights era and social justice movements globally. Possible topics of study: human rights as global norm; non-Western conceptions of rights; workplace rights; indigenous rights; women's and gender rights.
INTRO LAND ECOL	3730	Environmental Design	UG	Plants, Landscape and Design and uses the concept of sustainability to guide explorations of environmental ethics; ecological structure, function and change; and design topics such as ecological restoration, wetland creation and phytoremediation.
INTRO SOC DEV	1012	Family Social Sciences	UG	This course is an introduction to Social Development with a particular emphasis on families and communities. Social development is concerned with the advancement of the common good, the effective management of social problems, the meeting of human needs, and the equitable distribution of society's resources. As such, this course explores the social factors and conditions that promote or hinder social development and how this affects the well-being of individual, families, and
MARINE BIODIV	4260	Zoology	UG	Examines key ecological principles governing the maintenance of marine biodiversity, particularly in northern ecosystems.
MARINE BIODIVERSITY	4220	Biological Sciences	UG	Examines key ecological principles governing the maintenance of marine biodiversity, particularly in northern ecosystems.
MATERIALS AND ASSEMBLIES	2300	Envir. Design Landsc & Urban	UG	This course provides an introduction to applied statics, construction materials and construction system assemblies for landscape, building, and interior constructions.
MATLS., ASSEMBLIES, DETAIL	3004	Envir. Design Landsc & Urban	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.
MULT FAM ISS	2350	Family Social Sciences	UG	(Formerly 062.235) A focus on multicultural issues that affect family interaction in Canada, which is designed to prepare students for professional practice.
NATURAL HAZARDS (PS)	2272	Geography	UG	Environmental hazards to human settlement and economy are examined with particular attention to meteorological, soil erosion, mass wasting, earthquake and volcanic phenomena.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

NATURE OUT REC2	4090	Recreation Studies	UG	This course ex-amines planning and management frameworks as they relate to sustainable nature-based tourism. The course examines the expansion of tourism as a global phenome-non and considers sustainable nature-based tourism as a community development process.
OCC HEALTH & SAFETY	3050	Labour Studies	UG	This course will explore historical, legal and political issues surrounding health and safety in Canadian workplaces with an emphasis on Manitoba.
ORG CROP PROD	0820	Plant Science	UG	Management principles and practices involved in the production of organic field and forage crops with a focus on the Canadian Prairie Region.
PEOPLE SCI ENV	3330	Native Studies	UG	This course will examine current Aboriginal environmental and development issues both locally and internationally.
POLLUT PREVN PR	4630	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.
POVERTY LAW	3130	Law	UG	Specific topics to be covered will include: income security, homelessness and housing, legal aid, panhandling, and anti-poverty advocates' use of international and domestic law in lobbying and test case litigation.
POWER AND INEQUALITY	3890	Sociology	UG	This course critically surveys classical and contemporary debates around the inevitability of social inequality, & explores how inequalities have been reproduced and rationalized, or attenuated and challenged, throughout human History.
PROC LAND FORM	3210	Environmental Landscape	UG	An investigation of the relationship between natural and cultural processes and the landscape, with particular emphasis on the plains environment of Western Canada.
PROF DEV ENV 1	2900	Environment	UG	Through self directed learning students are introduced to the environmental sectors and issues including workplace health and safety, the respectful workplace, managing workloads and expectation, and professionalism.
RAD PRO FOOD&AG	4450	Biosystems Engineering	UG	An introduction to the scientific principles underlying the radiation processing of food and other agricultural commodities; its development and implementation within the context of societal needs and concerns.
RENEWABLE ENERGY	4692	Mechanical Engineering	UG	Introduction to renewable energy systems, current and future global energy issues and the need for renewable energy applications, and distributed renewable energy generation.
SACRED LANDS	4260	Native Studies	UG	Students will increase their understanding of the importance and significance of Sacred Lands and Sacred Spaces to International Indigenous Peoples. Experiential learning, seminar and a field component may be included depending on instructor.
SCL WEL&HUM RES	2280	Economics	UG	Economic and social dimensions of poverty and inequality: income, wealth, housing, health, education, welfare. Problems and policies in Canada and abroad.
SOC INEQUALITY	3870	Sociology	UG	An examination of social inequality in contemporary capitalist society from a comparative perspective. The course will critically examine theoretical explanations for various dimensions of social inequality, such as class, gender and race/ethnicity.
SOC JUST PERS INDIG MAT CHILD	4606	Family Social Sciences	UG	This course examines the local and global challenges regarding the health care and health care needs of Indigenous peoples, with particular attention to childbearing women, new mothers, and young children.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

SOCIAL DEVEL POLICIES	4012	Family Social Sciences	UG	This course examines the formulation of social development policies and the impact of these policies on the well-being of individuals, families, and communities. The course uses a seminar format to foster students' capacity to understand and examine policy issues.
SOCIAL PROBLEMS	2310	Sociology	UG	An examination of one or more contemporary social problems, other than crime and delinquency. Issues that might be addressed include poverty, war, environment, licit and illicit drugs, and death and dying.
SOCIOLOGY THROUGH FILM	2200	Sociology	UG	Using film as a method, this course will be organized around the broad themes of social inequality and social justice. It will engage in a critical sociological analysis of issues such as health and well-being, poverty, genocide and violence, globalization and consumer culture.
SOIL & WATER	4510	Soil Science	UG	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.
SOIL CONS MGMT	0620	Soil Science	UG	Land capability for agriculture; storage, use of water and water use efficiency; saline and alkaline soils; soil acidity; soil erosion and conservation; tillage, cropping systems and rotations; fate of biosolids, pesticides.
SOIL LANDSCAPES	3600	Soil Science	UG	Discover why soil is an essential resource. Explore the roles of soils and landscapes within natural and agricultural ecosystems by learning the fundamental biological, chemical and physical properties and processes; soil and landscape classification and evaluation.
STUDIO 3	3006	Envir. Design Landsc & Urban	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 semi-private realm focusing on the needs of the individual, on spatial qualities, materials, and site design detail.
STUDIO 4	3008	Envir. Design Landsc & Urban	UG	A critical exploration of analytical, conceptual, and developmental aspects of design of the public realm in an experimental studio setting. Social, political, economic, communication, and ecological networks will be studied at the scale of neighborhood and community in the urban realm.
SUSTAIN DEVELOP	3710	Economics	UG	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.
SUSTAIN NATURE TOUR	3090	Recreation Studies	UG	Analysis of the growth and development of sustain-able nature-based tourism as a global and regional phenomenon.
SUSTAINABLE MANITOBA	3850	Environment	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.
TECH SOC&FUTURE	4460	Civil Engineering	UG	Impact of technology and technological change on society - past, present, future; specific technologies: the process of technological change; invisible effects of technology; technology and resource use; sustainable development, limits to growth and the role of technology.
TOP HT TRAN ENY	4690	Mechanical Engineering	UG	Some combination of the following advanced topics: conduction heat transfer, radiation, heat-exchanger design, two-phase phenomena, fluidization, alternative energy, energy conservation. Other topics of current interest may also be included.
TOPICS IN HEAT TRANSFER	4694	Mechanical Engineering	UG	Some combination of the following advanced topics; conduction heat transfer radiation, heat-exchanger design, two-phase phenomena, fluidization, alternative energy, energy conservation. Other topics of current interest may also be included.
URBAN AGRICULTURE	1000	Plant Science	UG	Urban environments and their importance for food production, increasing biodiversity, and reducing pollution are presented.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

WATER IN FOOD PROCESSING	4260	Food Science	UG	The course is devoted to the management of water and wastewater in food processing. The roles of water in food processing, recycle and reuse opportunities, treatment options for water and wastewater are presented.
WRKNG WITH ABORGNL ELDERS	2030	Native Studies	UG	This course provides an opportunity for students to develop culturally relevant community service skills in Native Studies and to acquire an understanding of traditional teachings by Elders from the Cree and Ojibway traditions.
ADV SEM IN CRIMINOLOGY	4490	Sociology	UG	A critical examination of the field of criminology and the work of criminologists in shaping modern sensibilities about crime, law, and social justice.
AG BLDG & ENVIR	0700	Biosystems Engineering	UG	(Formerly 034.070) Factors that impact the practicality of farm buildings. Components of buildings, including materials and construction techniques. Techniques of maintaining building environments to facilitate production and/or storage.
ARCH STUDIO 2	3010	Environmental Architecture	UG	Building upon first term explorations, architectural propositions are developed that seek to clarify relations between human inhabitation and the physical environment in a regional context.
CAN SOCIAL HIST	4890	History	UG	A study of the evolution of Canadian society with intensive analysis of topics such as the pioneer community, immigration, ethnic History, urban development.
CARBON NATURE	1030	Chemistry	UG	This course introduces organic molecules and illustrates the principles of organic chemistry with topics from cosmetics and personal care products, the petroleum industry, food preparation chemistry, polymers and plastics, poisons and biological toxins, and risk assessment.
COMMUNITY ORGANIZING	3080	Labour Studies	UG	This course examines the theory and practice of collaborative community and labour organizing, with particular emphasis on Latin America, to identify the strengths and limitations of this approach for reviving unions, protecting workers' rights and advancing social justice.
CULTURAL ANTHRO	1220	Anthropology	UG	(Formerly 076.122) The comparative study of human societies and cultures, including language, economic and political organization, family and kinship, ritual and belief systems, cultural stability and change.
DES ASSIST TECH	4610	Biosystems Engineering	UG	Application and design of technology for individuals with disabilities; emphasizing the development of the requisite knowledge, skills, and attitudes to evaluate, design, and implement client-centred assistive technology.
DEV COUNTRIES	3590	Geography	UG	The main theme is modernization; examples from South Asia and Africa south of the Sahara. Historical development, population and social problems, land use and conservation, urbanization and industrialization.
DEV, CONF, DISPLACEMENT	2012	Family Social Sciences	UG	The course is an introduction to development, conflict, and displacement as they affect individuals, families and communities.
DEVELOPMENT	3390	Economics	UG	Processes and problems of development policies to accelerate change. Economic relations between developed and developing regions.
ENERGY ECON	2400	Economics	UG	A study of the economic relationships in energy production, consumption, demand and supply, pricing and conservation, energy policy and the development of new and renewable energy sources.
ENERGY&ENVIRON	1300	Physcis	UG	This course provides a broad physical outlook on the environment in which we live. Emphasis will be placed on the atmosphere, outer space, the fundamental structure of energy and matter, energy sources, the application of physical principles in modern technology, etc.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

ENERGY&SOCIETY	3520	Geography	UG	The course reviews in detail the role of energy in modern society. Explanation of basic energy laws and flows in the biosphere precedes discussion of energy resources, technologies, uses, and impacts.
ENG MGMT&ENVIRN	4100	Civil Engineering	UG	Teams of students apply environmental management techniques, such as: impact assessment, site assessment, and auditing to selected engineering construction projects and operations.
ENV CHEMISTRY	2550	Chemistry	UG	An introduction to the chemistry of the environment. Emphasis will be on the composition of the natural environment and the processes of natural and human-introduced chemical species that take place within it.
ENV CONS RESTOR	3110	Environment	UG	Environmental conservation and restoration are introduced and approaches based on science and traditional knowledge are contrasted. An emphasis is placed on systems thinking and both local and international case studies.
ENV MGMT SYST	3350	Environment	UG	This course provides an introduction to environmental management systems and specific material on the ISO 14001 international EMS standard. Auditing principles and techniques are described with specific guidance on auditing an ISO 14001 EMS.
ENV MGMT TOOLS	7250	Natural Resource Management	UG	Management tools; systems analysis tools-simulation, optimization, multi-objective analysis; economic tools-valuation and environmental accounting, incentives, supply-demand analysis; social approaches-public participation, conflict management, etc. and policy tools.
ENV MICRO	4320	Microbiology	UG	Applications of microbial ecology and biogeochemistry to environmental concerns, including bioremediation, water treatment, and the terrestrial subsurface.
ENV NAT RES LAW	2650	Environment	UG	This course provides an introduction to legal and policy processes and an overview of Canadian law relating to the environment and natural resources.
ENV RESPONSIB	3150	Environment	UG	Environmental responsibilities in terms of policies, legislation, standards and guidelines are covered through lectures, case study review and discussion. Environmental liability and due diligence are reviewed in relation to responsibilities of organizations and individuals.
ENVIRON ASSESS	3250	Environment	UG	The theory, principles and practices of environmental assessment as a planning and decision-making process to identify and mitigate adverse effects of development projects.
ENVIRON PLANS	0700	Agriculture Diploma	UG	This course examines environmental and food safety concerns and regulations as they relate to farming. Students will develop a Manure Management Plan, an Environmental Farm Plan and will understand HACCP principles.
FD FACT FALLACI	1200	Human Nutritional Sciences	UG	This course will present facts and fallacies about food from harvest to market forms. Emphasis will be placed on technological development, consumer concerns and factors affecting nutritional quality. Current issues related to food safety and nutritional trends will also be discussed.
FD NUT HLTH POL	4290	Human Nutritional Sciences	UG	Principles and applications of policies, regulations and legislation in the areas of food and health that address nutrition and health problems of populations.
FOOD IND OPT PRACTICUM	4364	Human Nutritional Sciences	UG	This course involves supervised application of food quality, safety, and management principles in a commercial or government setting.
GEO ENV CHANGES	2620	Geography	UG	This course will introduce concepts of environmental change and examine in detail past, present and future environmental changes. The human response to, and the role of policy in dealing with environmental change will be discussed.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

GEOG MOD CHINA	2490	Geography	UG	Survey of the People's Republic of China. Discussion of China's population, food and energy production, industrial achievements, and internal politics will be preceded by a description of the country's environmental conditions and resources.
GLOB CLIM CHANG	4390	Geography	UG	Students will be introduced to the complexities of climate changes through a series of introductory lectures and reading assignments that focus on recent scientific publications and review articles. Both sides of the climate change debate will be addressed .
INDOOR SYSTEMS 1	4002	Environmental Interior Environ	UG	In-depth, whole building examination of various integrated active and passive environmental controls systems.
INGRED TECH FDS	3330	Human Nutritional Sciences	UG	Chemical and functional properties of ingredients and their application in designed foods: low fat, low calorie, high fibre, high energy and innovative food products.
MONOGAST PROD	4540	Animal Science	UG	Describes the swine industry in terms of size, complexity and relationship to the economy and gives an understanding of the breeding, feeding, management and marketing practices in a modern production unit.
NATRES AG PROD	1500	Agriculture	UG	Introduces students to natural resources and climate, primary production of crops and livestock, production and resource economics and rural society. A model of the entire agri-food system will be used to show interrelationships among disciplines, processes, etc.
NATURAL AND HUMAN SYSTEMS	2702	Envir. Design Landsc & Urban	UG	An application of the scientific principles embodied in the natural laws which govern environmental design. Aspects of the bio-physical factors, energy, human physiology and perception, comfort, and resource management are reviewed.
NUT HLTH LIFSTL	1210	Human Nutritional Sciences	UG	This course addresses the relationship between nutrition and health. The focus is on healthy eating and on strategies for modifying food patterns within the context of lifestyle and culture.
NUT LIFECYCLE	2130	Human Nutritional Sciences	UG	Examination of nutritional needs throughout the life cycle, the nutritional concerns of different age groups and the development of healthy eating practices.
NUTRIT ELDERLY	4310	Human Nutritional Sciences	UG	The role of nutrition in health promotion and disease prevention during aging.
NUTRITION DENT	2150	Oral Biology	UG	The course covers the role of nutrition in general health and disease with emphasis on the prevention and management of oral problems in Dentistry.
NUTRITION HEALTHY LIVING	1100	Human Nutritional Sciences	UG	An introduction to nutrition and practical approaches for healthy diet and disease prevention. Prerequisites: Enrollment in the Aboriginal Community Wellness Diploma program.
NUTRITION IN DENTISTRY	2330	Oral Biology	UG	The course covers the role of nutrition in general health and disease with emphasis on the prevention and management of oral problems in Dentistry.
PEST ENV EC ETH	3520	Soil Science	UG	A comprehensive examination of the benefits and risks of pesticide use.
PEST TOXICOLOGY	4250	Entomology	UG	Action, behaviour, and fate of pesticides in target and non-target species and in the environment. Past, present, and future chemical control agents will be discussed on the basis of chemical and biochemical knowledge.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

PHYS ACT WELLNS	1200	Physical Education	UG	An examination of the importance of physical activity for health and wellness, theories and determinants of health promoting behaviours, and strategies for promoting health behaviours.
PHYSICAL ACT HLTH & WELL	1200	Phys Ed & Rec Studies General	UG	An examination of the importance of physical activity for health and wellness, theories and determinants of health promoting behaviours, and strategies for promoting health behaviours.
PHYSICAL ACTIVITY & AGING	4500	Kinesiology	UG	The study of the aging processes and the effects of exercise and lifestyle factors on the health and fitness of the aging adult.
PROJ ENV SCI	4500	Environment	UG	A research thesis project in any aspect of environmental science or environmental studies, chosen in consultation with the course coordinator and an appropriate supervising faculty member.
PROJECT ENV SCI	3500	Environment	UG	A research project in any aspect of environmental science, chosen in consultation with the department head and an appropriate supervising faculty member.
PROMO HLTH COM	4300	Nursing	UG	Theoretical and practical application regarding the promotion of health in First Nations Communities.
SCIENTIFIC THINKING	2270	Environment	UG	A course to help students develop skeptical and scientific thinking around environmental issues and problems. A multi-disciplinary approach will be taken, using current topical issues as examples.
SOC DETERM OF HLTH	3450	Social Work	UG	This course will apply a sociological perspective to a critical and theoretically informed study of the social structures influencing personal and population health, including intersections of class, gender, ethnicity, and aging as sources of health inequities.
SOIL ECOLOGY	4400	Soil Science	UG	Explore the application of soil biology to diversity in agro ecosystems, response of soil organisms to management, mediation of important environmental issues, and promotion of human health.
SOIL FERTILITY	0630	Soil Science	UG	Soil nutrients and their behavior; evaluation of soil fertility including soil testing for precision agriculture; crop response to fertilizers; manufacture, properties, reactions and applications of fertilizer.
SOIL PRODUCT	0420	Soil Science	UG	Soil classification systems; soils of Manitoba and their properties; soil productivity and its maintenance; soil fertility and testing, fertilizer recommendations; environmental concerns.
TOPS AIR POLLUT	4550	Geography	UG	An introduction to air pollution sources; meteorology of air pollution; calculation of ground concentrations; effects and controls; environmental planning and policy.
UTIL AGRIC PROD	1510	Agriculture	UG	Introduction to the aspects of agriculture that follow primary production and includes confined animal production and a presentation of a model of the entire agrifood system. Special emphasis on processing, marketing, transportation and food safety.
AD AGRIC EC DEV	7420	AgBusiness and AgEconomics	G	Critical examination of current issues in agricultural trade and economic development.
ADV CROP PRODUCTION	7660	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.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

ADV FOOD PACKAG	7250	Food Science	G	Advanced course for the principles, materials, design and development of packaging with emphasis on chemical and physical nature of packaging materials, food products and new technologies.
ADV LIMNOLOGY	7380	Biological Sciences	G	The biological productivity of lakes. A seminar and tutorial course given with the help and cooperation of scientists in the Freshwater Institute and the Department of Botany.
ADV THEO RES EC	7430	AgBusiness and AgEconomics	G	Economic theory of the development and management of natural resources. Application of capital theory, investment theory, the theory of externalities and decision-making theories to resource utilization and management.
AG ECONOMIC DEV	7310	AgBusiness and AgEconomics	G	Theory and policy of agricultural development in underdeveloped countries: problems of stimulating growth in agriculture and evaluation of alternative approaches to economic development of agriculture.
BIOL RES MNGT 2	7412	Biological Sciences	G	Examination of natural resource management practices, in discussions with resource managers. Open to students in the Natural Resources Institute or by consent of instructor.
CLIMATE CHANGE	7440	Geography	G	The course will provide an overview of General Circulation Models (GCMs) and how these models are used to study various aspects of global climate change.
CONSERV BIOL AND BIODIV MGMT	7302	Natural Resource Management	G	The course explores management and conservation of biodiversity at the genetic, species, and ecosystem levels of biological organization, and from local to global scales.
CONTEMPORARY THEMES IN BUSINES	7130	Interdisciplinary Management	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 (International & Emerging Markets: Sustainability: Entrepreneurship etc.
DISPUTE SYSTEMS DESIGN	7122	Peace and Conflict Studies	G	Examines the role of conflict resolution within organizations and diverse settings (workplace, schools, communities, multiparty conflicts, international conflicts).
Distributed Energy Generation	7880	Electrical & Computer Engineering	G	Rationale for distributed generations (DG); Distributed electricity generation technologies (thermal and renewable); Availability of renewable energy resources; Technical and economic evaluation of DG projects; DG grid integration issues and interconnection standards; Microgrids.
EN JUST EC HLTH	7340	Natural Resources Institute	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.
ENVIR MGMT PRACTICE	7252	Natural Resources Institute	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, etc.
ENVIRON & OP	6310	Occupational Therapy	G	An examination of physical, social, cultural and institutional aspects of the environment and their relationship to occupational performance throughout the life span.
ENVIRON GEOPHYS	7820	Geology	G	Examination of the application of geophysics to environmental targets. Topics will vary according to student interest and may include aspects of new-surface geophysics, engineering geophysics, geophysics of global climate change and geophysical risk assessment.
HEALTH IN CANADA	7640	History	G	This course explores the History of health and health care in Canada, with a focus on the late 19th and 20th century.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

HUM DIM NAT RES & ENV MGMT	7222	Natural Resource Management	G	The human dimensions of Natural Resources & Environmental Management will be considered through the following thematic units: definitions, History & paradigms of management; intersection of science with politics, actors, Traditional Ecological Knowledge (TEK) etc.
INDIG WRLD PEAC BLDG	7240	Peace and Conflict Studies	G	Examines indigenous models of peacebuilding from community level to national level. Emphasis is placed on restorative processes fundamental to cohesive relationships with others.
INTERNAT HUMAN RIGHTS	7110	Peace and Conflict Studies	G	This course examines the shift in focus from state security to people. Human security is a bridge between the inter-related fields of development, human rights and conflict resolution. The course explores how these efforts at exploring the human condition can best be understood and applied.
INTRNAT CFLCT RES	7030	Peace and Conflict Studies	G	Examines international conflict resolution and post-accord peace-building. Theories regarding the causes of international conflict are reviewed. Approaches for just and enduring resolution to international conflicts, building peace, and the promotion of a global civil society are explored.
IPERS COMM PS TB	7010	Peace and Conflict Studies	G	Examines the role of language and communication in conflict and conflict resolution. These theoretical and practice perspectives are fundamental to the field of conflict analysis and resolution/peace studies. The role of power, gender, and culture in communication and conflict are reviewed.
LAND RES CONFL	7280	Geography	G	A survey of the ecologic, environmental and regional approaches to the resolution of land resource conflicts and the planned enhancement of land-related utilities.
LEED CORE CONCEPTS STRATEGIES	7090	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.
MAN SUST DEVLMT	7020	Interdisciplinary Management	G	Strategic issues related to the manager's role in sustainable development, including enterprises in the renewable and non-renewable resource sectors, life-cycle analysis, and full cost accounting.
PEACE EDUCATION	7260	Peace and Conflict Studies	G	Examines the role of peace education as students seek to make sense of complicated and perilous events in their society. The course provides students with a background in the area of social justice, peace studies and conflict resolution.
PLAN THEORY 1	7030	City Planning	G	The principal ideas and ideals influencing planning thought and practice, ranging from rational comprehensive planning to theories of societal guidance, ethics and the human-environment interface.
PLAN THEORY 2	7040	City Planning	G	Dominant influences in urban and regional planning thought in Canada. Topics covered include the Commission of Conservation, Public Health Legislation and the Urban Reform Movement.
PLANNING DES 1	7410	City Planning	G	Studio/workshop developing problemsolving techniques and design skills in an area subject to environmental, social and economic change.
PLANNING DES 3	7430	City Planning	G	The application of urban design theories and techniques to a large scale urban area of complex land uses and community development issues.
PLN/DES SUS ENV	7450	City Planning	G	Examination of the concepts and theories involved in the development of sustainability as a force in socio-economic and environmental decision-making. Explores the implications of sustainability for contemporary design and planning thought and practice.
POPULATION	7200	Geography	G	This course discusses the contemporary imbalance between population and resources. The consequences of resource exploitation upon the natural environment are also examined.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

RES ENV NRTH MB	7280	Natural Resource Management	G	A comprehensive examination of natural resources, socio-economic conditions, and institutional structures forms the basis for an evaluation of long-term sustainability and developmental strategies for Manitoba's North.
RESTORATIVE & SOCIAL JUSTICE	7250	Peace and Conflict Studies	G	Examines the principles of restorative justice, the theoretical foundations of the restorative justice movement, and the development of new restorative justice programs. Restorative justice healing, re-integration and reconciliation are explored colonized and postcolonial indigenous communities.
SOCIAL RES MGMT	7220	Natural Resource Management	G	Context of resource management and development; History of resource management; definitions of resources and management; sharing power and responsibility for governance; the role of governments, user-groups, and the market; property rights and resource regimes etc.
SPEC TOP 1 CHLDRN & WAR	7300	Peace and Conflict Studies	G	Examines the impact of international war, civil war and genocide on children. Today's children are tomorrow's world citizens, and their events will shape the future in unforeseeable ways.
SPECIAL TOPICS	7120	Landscape Architecture	G	An assignment and conference course. A detailed study of some special topics in landscape architecture, including environmental sustainability, urban landscape technology, and housing form.
SUS DEV NAT RES	7180	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' well-being.
SUSTAIN CONSTRU	7340	Civil Engineering	G	Introduction & overview of sustainable construction and green buildings, green building assessment tools; green building process; green building design, construction & commissioning, the economics of green buildings and future directions in sustainable construction.
SUSTAIN, ECON & NAT RES	7182	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.
SUSTAINABLE LIVELIHOODS	7370	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.
TOP ENVIRN ENGR	7200	Civil Engineering	G	Includes topics such as energy and the environment, solid waste management, and environmental problems in transport. Topics are studied through case histories of contemporary issues.
VIO INTRVN PREV	7040	Peace and Conflict Studies	G	Examines different definitions and types of violence from the interpersonal to the global levels (e.g., family violence, youth and gang violence, violence in the workplace, hate crimes, and war).
WATER RES: APM	7330	Natural Resources Management	G	Considering fresh water as a resource, this course initially examines theoretical models and management approaches and practices; water supply requirement, measurements, and management; demand management; and environmental sustainability.
ADV ECOTOXICOLOGY	7380	Geography	G	Ecotoxicology characterizes how organisms interact with anthropogenic and natural stressors in an ecological context. This course is an examination of the fundamental science, approaches and issues being addressed in the field.
CULT ECOLOGY	7130	Anthropology	G	An examination of the systematic nature of culture and its interrelationships with natural environmental factors.
DEVELOP OF THE SOC WRK PROFES	8020	Social Work	G	A seminar focusing on the development of social work from mainstream and marginalized people's perspectives (including Aboriginal people and women), and its relationship; to current professional issues.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

ENERGY ANALYSIS	7290	Geography	G	A survey of origins, methods and applications of energy analysis, a new technique of system energetics designed to provide information for a more efficient use of scarce natural resources.
ENV MGMT PROC	7240	Natural Resource Management	G	Policy formulation and implementation; policy analysis processes; decision making in complex environments; environmental assessment process-theory and practice; environmental assessment policy development; components of legislated assessment process.
ENV RISK HAZ MT	7320	Natural Resource Management	G	Environmental risk and hazards are viewed in terms of complex processes of natural systems and social formation. Analysis of processes and events is assisted by theoretical formulation, development of models and examination of site- or type-specific empirical cases.
ENVIRON ASSES	7290	Natural Resource Management	G	Course is a fundamental tool of decision making regarding natural resources and the environment and will provide students with an understanding of how environmental assessment is designed, administered and operates in the field.
EPIDEM OCC HLTH	7460	Community Health Sciences	G	The aim of the course is to acquaint the student with the role of the environment (general and specifically working) as the determinant of health. The content of the course will be presented in the form of lectures, seminars, and field visits.
ERGONOMICS	7050	Medical Rehabilitation	G	This course shall examine the basic tenet of ergonomics, "the modification of the environment to meet the needs of the individual," and contrasted to "the adaptation of the individual to meet the constraints of the environment."
FOOD RHEOLOGY	7270	Food Science	G	Evaluation of the textural properties of foods provides critical information in the development of quality food products. This course deals with the principles and methodologies in food rheology and includes an examination of the rheological properties of selected food systems.
NAT RES LAW	7190	Natural Resource Management	G	The course introduces students to the legal regulation of natural resources. This course will explore a number of legal and policy considerations related to the ownership and disposition of natural resources.
NATURAL HAZARDS & DISASTERS	7490	Geography	G	This course provides a conceptual and methodological survey of natural hazards. Characteristics and causes of geophysical disasters, human exacerbation of hazards, and human adjustments to and perceptions of natural threats will be studied.
NONRENEW RES EC	7450	AgBusiness and AgEconomics	G	A research seminar in applied economic analysis of the development and management of non-renewable resources, concentrating on specific topics and policy issues in energy and mineral resources.
NUTRITN PUB POL	7530	Computer Science	G	Focus on public policy related to the nutrition and health status of Canadians, including food and nutrition policies, health public policy, influence of trade regulations, context of health systems, social and economic environments.
PESTICIDE RES	7260	Soil Science	G	Discussion and application of research protocols for examining pesticide fate in the environment and for quantifying pesticide residues in food, water and soil. Prerequisite: consent of instructor.
PROJ IN NRM 1	7160	Natural Resource Management	G	Team research project in an area of interest. Application of problem-solving skills to current issues in natural resources management. Additional information on the program may be found in the NRI Information Bulletin, available through the general office of the institute.
PROP RIGHT INST	7270	Natural Resource Management	G	Systems of rights, rules and responsibilities to guide resource use; the development of property rights and evolution of institutions. Additional information on the program may be found in the NRI Information Bulletin, available through the general office of the institute.
REGIONAL DEV	7350	AgBusiness and AgEconomics	G	Review policy, goals, theories, methods and applications relevant to analyzing Canadian and developing country rural development, regional economic growth and project evaluation.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

RES & ENVIR MGMT POLICY	7242	Natural Resource Management	G	The complexity of natural resources and environmental policy formulation, implementation, and analysis is the primary focus.
ENVIR EARTH SCI	1360	Geology	UG	An integrated approach to environmental Earth Science. The effect of Earth's internal processes on the external processes in the atmosphere and hydrosphere. Topics include: the water cycle, weather, climate and climate development, and pollution.
ENVIRON SYSTEMS	4180	Civil Engineering	UG	Development of a river water quality model; waste allocation modelling; modelling of the sites selection process; analysis of environmental impact using technical and non-technical (i.e. sociological, ethical, aesthetic) parameters.
ETHICS & SOCIETY	2290	Philosophy	UG	An examination of some contemporary ethical theories and their application to a number of practical issues.
EENE	3200	Biosystems Engineering	UG	This course will discuss air pollution and odor control, remediation of contaminated soil and ground water, waste-water and solid waste treatment, and the role of biotechnology in these processes. Consent of Instructor required.
ETHICS ENVIRON	2750	Philosophy	UG	An examination of some important ethical issues connected with environmental pollution and resource depletion.
GEOG CUL INEQUA	2640	Geography	UG	An introduction to the cultural geographic study of human and place inequalities, focusing on behaviour in landscape, group differences, and human identities.
MICROCLIMATES	3320	Geography	UG	This course introduces the concept of energy balance climatology and examines relationships among climate, microclimate, and environments of the Earth's surface and human-made environments. Studies include bioclimates and hydroclimates.
NAT DISAST GLOBAL CHANGE	1410	Geology	UG	Discover how and when natural disasters occur, and how to identify and recognize them. Explore the Earth processes that lead to natural disasters and global change.
PLAGUES PEOPLE	2240	Anthropology	UG	Examines selected plagues in evolutionary, ecological, and epidemiological context, and considers the complex biological, social, and economic repercussions for human populations. Foci include past, present, and emerging infectious disease epidemics.
PREC AGRIC CONC & APPL.	2222	Biosystems Engineering	UG	Precision agriculture is a philosophy of agricultural management that has been enabled by modern technology.
DAIRY PRODUCTN	0680	Animal Science	UG	A study of current production practices in Canada's dairy industry with focus on nutrition, reproduction, genetics, health, replacement rearing and marketing.
DES WATER MAN	4600	Biosystems Engineering	UG	To introduce the basic theoretical principles in the design of irrigation and drainage systems. Topics covered include the determination of irrigation depth and interval, evapotranspiration, measurement and analysis of precipitation, design of sprinkler and drip irrigation systems, selection of pumps, surface and subsurface drainage design, water quality issues, salinity management, and the environmental impact of water management practices.
DESIGN STUDIO 6	3690	Environmental Architecture	UG	Continuing studies in the principles, vocabularies and methods of approach to architectural and environmental design. Studio work with specific projects to exercise the analytical, conceptual and developmental stages of design.
DEV EC: PROB & POL	3394	Economics	UG	Processes and problems of development policies to accelerate change. Economic relations between developed and developing regions.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

DISTRIBUTIVE JUSTICE	3710	Political Studies	UG	A study of the question of whether, and to what extent, inequalities of various kinds are compatible with the demands of both justice and community.
EARTH: A USER'S GUIDE	1000	Environment Earth & Resources	UG	This course will present a multi-disciplinary introduction to the Planet Earth as both the source of essential resources and as the site of resulting negative impacts.
EMP LEGI & PROT	3130	Labour Studies	UG	An examination of the legal rights and obligations of workers and employers, and the enforcement mechanisms for the non-unionized workplace, over the course of the employment relationship from hiring through to termination or retirement.
EMPLOYMENT LAW	3330	Law	UG	(Formerly 045.333) A detailed study of employment law including employment principles, constructive and wrongful dismissal, just cause, human rights and remedies.
ENV PROBSOLVING	2170	Environment	UG	A survey of mathematical and scientific approaches to environmental problems. A multi-disciplinary approach will be taken, using current topical issues as examples.
ENV PSYCHOLOGY	3600	Psychology	UG	The scientific study of environment/behaviour interactions. The physiological and behavioural effects of the thermal, sonic, luminous, and built environment. Perception and evaluation of environments.
ENVIRON CONTR	2670	Environmental Design	UG	The course introduces principles and methodologies associated with acoustics, natural and artificial lighting in environmental design. These principles are examined within the context of appropriate case studies, laboratory assignments and studio projects.
ENVIRON ECON	2390	Economics	UG	The economics of management of water, air and land resource quality, and the economics of conservation. The economic implications of environmental standards, licensing, criteria and pollution charges will be illustrated by current issues.
FRUIT PRODN	0740	Plant Science	UG	Cultural steps involved in the commercial production of tree fruits and small fruits with specific reference to Manitoba conditions.
GLOB WORLD ECO	3220	Political Studies	UG	An exploration of issues relating to globalization, including regionalism, economic structures and regimes, multinational corporations, global debt, problems in the developing world, and the future for leadership in the international system.
HORT FOOD CROPS	3530	Plant Science	UG	Management practices, environmental considerations, and physiological factors involved in the production, marketing, and handling of the major vegetable and fruit crops.
HUMAN FACTORS/ENVIRONMENT	3014	Environmental Interior Environ	UG	Theoretical and practical issues related to human characteristics, needs, behaviours, and interactions with and within the built interior environment.
INDIGEN ENVIRON DISCOURSE	3110	Native Studies	UG	This course is designed to further an in-depth understanding of Indigenous perspectives on the environment (rural and urban) through the critical analysis of poetry, essays, fiction, film and art by Indigenous writers, scholars and (media) artists.
LAND RES MNGT	3530	Geography	UG	A study of the geographical aspects of problems and conflicts arising from land-resource utilization; methods of classifying land resources; elementary physical planning of resource development.
MAN FARM INSECT	0620	Entomology	UG	Characteristics, damage, and identification; insecticide use and safety; life histories and control of common Manitoba livestock, field and farmyard insects. General principles of pest management in agriculture will also be discussed.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

MATERIAL CULTUR	4270	Native Studies	UG	A critical review of the spiritual, cultural, historical and environmental factors influencing material culture used by international Indigenous Peoples. Experiential learning seminars and a field component may be included depending on instructor.
MERCHAND & SALE	0700	AgBusiness and AgEconomics	UG	Analyzing food consumption, farm input usage and marketing trends and translating these into effective selling and distribution programs. Examination of the selling function and sales management.
NAT MED&HEALTH	3240	Native Studies	UG	The health, disease, and medical practices of North American Native peoples. A survey of the health and health care of North American Native people from pre-contact to modern times. Special attention will be paid to traditional concepts of health and healing practices.
NATURAL PRODUCT	3430	Pharmacy	UG	Medicinal products of natural origin; introduction to systems of complementary medicine. Therapeutic aspects and products are emphasized.
NATURL RESOURCE	4470	Economics	UG	The application of economic theory to the study of natural resource development and resource problems. Emphasis is on the implications for resource management and policy. Prerequisite: written consent of department head.
PARKS PLANNING	4350	Geography	UG	The course is taught in two segments, an on-campus component and field study component taking place in Banff National Park.
PLACE, AND POPULATIONS	2330	Geography	UG	An examination of the factors controlling the number and distribution of human population. Variations in fertility, mortality and mobility will be analyzed and the causes and consequences reviewed.
PRIN OF ECOL	2370	Agroecology	UG	Principles of ecology at the individual, population, community, and ecosystem levels.
PLANT STRESS PHYSIOLOGY	4430	Biological Sciences	UG	Selected topics on plant responses to environmental stress at the physiological and biochemical levels. Laboratory will consist of supervised projects in the above areas.
SITE PLANNING	3002	Environmental Landscape	UG	An investigation of the relationship between natural and cultural processes in the formation of the built environment, including a review of the methods and strategies employed for site programming, inventory, analysis, and development at different scales of intervention.
THEORY 3	2610	Environmental Design	UG	An introduction to human behavior and its interrelationship with the design and shaping of the built environment; the relationship of language, culture and environmental cues to human behavior. Prerequisite: consent of instructor.
SP TOP CROP MAN	0810	Plant Science	UG	Selected topics of current interest in Crop Management.
TECH & SOC 1	2640	Arts Interdisciplinary	UG	An interdisciplinary examination of technological development, economic growth and their effect on Society and the natural environment.
SENSORY TECH 2	3620	Environmental Interior Environ	UG	Further study of the interaction of light, colour, materials, construction, building systems and detailing in the design of the interior environment; responding to human and ecological considerations.
VEGETABLE PROD	0730	Plant Science	UG	Production problems and practices, environmental considerations, and the storage and marketing of the major vegetable crops. Equivalent course offered through the Prairie Horticulture Certificate program; contact the Director of the School of Agriculture.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

WOODY PLANTS	4530	Plant Science	UG	Classification, identification, ecological characteristics, landscape characteristics and use of native and introduced woody plants found in the prairie landscape. The course will include the preparation of a landscape plan incorporating a selection of the plants studied.
ADV INS PHY EC	7240	Entomology	G	The effect of environmental factors such as temperature, moisture, light and other organisms on the physiology and ecology of insects.
ADV IRRIG DRAIN	7140	Biosystems Engineering	G	Selected advanced problems and new developments in irrigation and drainage. Interrelationships between irrigation and drainage and the environment.
ADV PLANT ECOL	7490	Biological Sciences	G	Examines the ecology of interactions between plants and their biotic environment. Students are expected to critically examine new developments in these fields.
ADV PROBLEMS	7110	Human Nutritional Sciences	G	Studies of selected problems and programs in community nutrition emphasizing program planning and evaluation.
ADV. DEV. ECON.	7130	Economics	G	Introduction to development economics at the graduate level. A core objective is to provide breadth in terms of the coverage of salient topics in economic development and rigor in terms of the level of analysis.
BIOGEOGRAPHY	7500	Geography	G	The course will emphasize principles and approaches to understanding biogeography on a worldwide scale with specific examples from Canadian and Manitoban research.
BIOL RES MNGT 1	7400	Biological Sciences	G	A survey of the principles of ecology in relation to renewable resources, with emphasis on ecosystem concept ecological homeostatis, and energy flow. Open to students of the Natural Resources Institute or by consent of instructor.
CEREAL GRAINS	7180	Food Science	G	The course deals with cereal grains used for human food, the structure of constituents, and the relationship of constituent structure to functionality in the processing of the grains into food products.
ECOL DIM RES & ENVIR MGMT	7232	Natural Resource Management	G	Current concepts and theories in landscape ecology, plant and animal ecology, life-history strategies, food webs, and population and community ecology are discussed as they relate to management.
LAND ARCH STUDIO 1	7110	Landscape Architecture	G	An introductory study of structure and order within nature and the built environment. Instruction in the principles of design, the basic elements of graphic and spatial composition, and the vocabulary and methods of approach to landscape architectural design within a variety of contexts.
MATER INC SOIL	7310	Biosystems Engineering	G	Types and characteristics of agricultural materials; solid and liquid waste (including manure) incorporation; crop residue incorporations, seed placement; chemical incorporation; methods and equipment; performance evaluation; measurement technique.
BIOGEOCHEMISTRY	2230	Microbiology	UG	The roles and interactions of biological, chemical and geological reactions in determining the composition of the environment. Microorganisms as major agents of biogeochemical change and their roles in the element cycles will be especially emphasized.
BLDG SYSTEMS	4412	Biosystems Engineering	UG	Light-frame buildings as a structural and environmental system; structural loads in building systems; energy (heat), moisture and air contaminants in building systems; built-environment for building occupants.
PRIN SITE PLAN	6140	Landscape Architecture	G	An investigation of the relationship between natural and cultural processes and the landscape, with particular emphasis on the plains environment of Western Canada.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

SANIT ENG DES	7960	Civil Engineering	G	Design of unit operations. Planning, cost effectiveness analysis, and conceptual design of a whole wastewater treatment plant.
SOLID WASTE ENG	7210	Civil Engineering	G	Advanced engineering principles related to resource recovery and solid waste disposal. Biological conversion technologies and the disposal of solid wastes are discussed in detail.
SANITARY CHEM	7910	Civil Engineering	G	Physical, inorganic, and organic chemistry topics as related to water and waste handling and treating.
URBAN SOCIETY	7300	City Planning	G	An interdisciplinary seminar on social policy and social planning in the contemporary urban setting. National, provincial and local contexts shaping the provision of welfare and well-being. Demonstration of selected social planning techniques.
DES PROFESSIONS	7360	City Planning	G	Introduction to the development process and method. Site selection and planning. Feasibility and case studies. The dynamics of development teams, including marketing strategies and management of completed projects. Joint public and private enterprises.
ENG DESIGN PROC	7010	English	G	Consideration of the Engineering Design process and the logic upon which it is based. Explores both the History and possible future directions of the process from technical, social and environmental points of view.
ENVIRON MICRO	7050	Microbiology	G	Topics and current developments in the field of environmental microbiology will be covered. A combined lecture, discussion, assignment and seminar format may be used. Inquire at the department for availability.
ENVIRONBIOLECOL	7302	Biological Sciences	G	An in-depth study of topics selected from environment and ecology interests of the department, including population ecology, fisheries biology, plant/animal interactions, animal behaviour, ecosystem dynamics and restoration.
LAND ECO DESIGN	7170	Landscape Architecture	G	Landscape Architectural Field Ecology and expands on the concepts of communities, ecosystems, and biomes and the interactions of organisms with each other and non-living components in the environment.
MEDICAL ANTH 1	7740	Anthropology	G	An examination of the interrelationships between human ecology, human biology, and public health. Genetic and environmental factors in human disease. Design and implementation of field studies in the investigation of human disease. Methods of detection, ascertainment, and analysis of human population pathology.
MEDICAL ANTH 2	7750	Anthropology	G	Population structure and environment in human genetic disease. Comparative consideration of genetic pathology of New and Old World populations.
PL STRESS PHYS	7480	Biological Sciences	G	Current topics on plant responses to environmental stress at the physiological and biochemical levels. Laboratory will consist of supervised projects in the above areas. Offered in alternate years.
STR CON ARCH I	6480	Architecture	G	An orientation of the principles and applications associated with manufacture of construction materials and assemblies used in environmental design with an emphasis on resource impact.
STUDIO FIVE	7550	Architecture	G	An exploration of the regional context for the purpose of analyzing the impact and form stimulating qualities of site and specific climatic determinants on built and natural environments.
TH WASTE TREAT	7930	Civil Engineering	G	Characteristics of waste-specific and generic determinations; unit operations and unit process for physical, chemical and biological treatment and transformation of particulate and dissolved contaminants.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

SUSTAINABILITY RELATED				
AB BUS INF &IMP	3000	Interdisciplinary Management	UG	Explore the impact of legal, constitutional and governance issues on the internal and operating environment affecting economic development by Aboriginal peoples. Current strategies for successful partnerships between industry and Aboriginal peoples will also be examined.
ABORIGINAL GAMES AND ACTIVITIE	3770	Physical Education	UG	This course will provide students with a unique opportunity to explore, in theory and practice, traditional and contemporary world views related to historical, cultural, and environmental approaches to Aboriginal games and activities.
ABORIGINAL PEOP	3310	Law	UG	A study of the laws relating to Aboriginal Peoples in North America from the colonial period to the present. Special emphasis will be given to aboriginal rights, hunting and fishing rights, the legal aspects of Indian Treaties and the Indian Act.
ABORIGINAL PERSPECTIVES	1602	Education Curric, Tchg, & Lrng	UG	The course will focus on fostering teacher candidate pedagogical knowledge, orientations and capabilities for developing and implementing curricula for kindergarten through to Grade 12 that reflect Aboriginal perspectives.
ABORIGINAL PPL & RACISM IN CA	3170	Native Studies	UG	This course will trace the historical and colonial roots of racism as experienced by Aboriginal Peoples in Canada as well as examine its practices in contemporary society and culture. Concepts such as systemic racism, cultural difference and anti-racist education may be explored.
ADV COMMUNIC	0610	Agriculture Diploma	UG	A course designed to improve leadership potential and understanding of the rural community.
ADV ORG TH/BEH	4040	General Management	UG	An analysis of the human and structural aspects of organizations and how their interrelationship influences organizational performance. The influence of technology, size, and the external environment on organizational structure is also examined.
ADV PAINTING 2	4530	Fine Art, Studio Courses	UG	Individual instruction with concentration in the areas most relevant to the student's creative development.
ADVANCED CAD	3250	Environmental Design	UG	Advanced Computing in Environmental Design builds upon skills obtained in the introductory course. The advanced course provides an opportunity for students to explore detailed applications of computational technologies in design & planning.
ADVPI STRESSPHY	4120	Botany	UG	Selected topics on plant responses to environmental stress at the physiological and biochemical levels. Laboratory will consist of supervised projects in the above areas.
AG LAW	0760	Agriculture Diploma	UG	Discussion of the complexity of the agriculture industry and the laws affecting it. The course will illustrate laws critical for effective planning and the making of sound management decisions respecting the farm operations and agribusinesses.
AGRICULT GEOG	3510	Geography	UG	The course introduces location factors which influence the nature and distribution of farming activity. Study is made of the basic types of farming systems, prior to a detailed study of agriculture of the Prairies.
AGRICULT POLICY	0710	AgBusiness and AgEconomics	UG	Review of agriculture, international trade and food safety policies affecting the production and distribution of agricultural commodities and food products.
AGROMETEOROLOGY	3060	Soil Science	UG	Basic description and discussion of properties of the atmosphere, radiation, temperature, effect of temperature on plant growth, climate and animal response, water, evapotranspiration, insect adaptation, activity in relation to climate, climatic data.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

AN BEHAVIOR 1	4450	Psychology	UG	The nature-nurture controversy will be discussed, followed by a survey of the diverse behaviours relating to the physical environment (e.g., food storage); predation (e.g. trapping); defence (e.g., camouflage); and migration.
ANIM ENVIRON	3530	Animal Science	UG	Deals with how the animal is influenced by its environment to affect health, welfare and performances.
ANIMAL GEOGRAPHIES	3860	Geography	UG	This course presents a variety of topics concerning the interactions between humans and animals, how humans influence and use animals, and the many roles animals play in human lives and environments.
ANIMAL HEALTH	0600	Animal Science	UG	This course will discuss the common livestock and poultry diseases of the prairie provinces. Emphasis will be placed on prevention through management and health programs but treatment of specific diseases will be addressed.
ANTH SEXUALITY	3350	Anthropology	UG	Anthropological approaches to the study of human sexuality and the diversity of sexual expression and identification.
ANTHROPOLOGY OF FOOD	3200	Anthropology	UG	Considers the diversity of ways that anthropologists have used food as a productive entry point for understanding culture, society, and human ecology.
AQUATIC CHEM	4550	CHEMISTRY	UG	An examination of biogeochemical processes affecting the distribution, speciation and bioavailability of chemical substances in the aquatic environment.
ARCH STUDIO 1	3008	Environmental Architecture	UG	An architectural study of the human condition in relation to the natural and built environment through design oriented research exploration, analysis, evaluation and interpretation of a selected subject of inquiry.
ARCH STUDIO 4	4010	Environmental Architecture	UG	The previous terms investigations are further developed and synthesized into a comprehensively designed environment.
ARCH TECH 1	3004	Environmental Architecture	UG	Construction materials and structural theory in the analysis and design of simple wood-frame, masonry and light steel construction; fundamental passive energy systems and design strategies for material and energy reduction.
ARCH TECH 2	3006	Environmental Architecture	UG	Architectural, environmental & technical aspects of construction focusing on low-rise and medium sized wood, steel & masonry construction focusing on low-rise & medium sized wood, steel and masonry construction.
ASSES HLTH COM	3360	Nursing	UG	An analysis of concepts of prevention of disease and dysfunction in aggregate and community-based populations in First Nations Communities.
BIO ENG D TRIL2	3580	Biosystems Engineering	UG	Advanced design concepts associated with Biosystems Engineering, with emphasis on the principles of safety and human factors engineering. Theory of project planning. Preparation of a preliminary design by design teams in response to a design assignment submitted by industry. Written report with engineering drawings presented orally.
BIODIVERSITY	1030	Biological Sciences	UG	A laboratory-based course introducing biological diversity including prokaryotes, protists, fungi, plants and animals; the form and function of plants and animals and basic concepts of ecology. This course is intended for major and honours students in the Biological Sciences.
BUSINESS AND SOCIETY	1010	General Management	UG	The course will provide over arching frameworks to examine the nature, role, and importance of business in society.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

CANADIAN SPORT History	3170	Phys Ed & Rec Studies General	UG	This course will emphasize the rise of modern sport in Canada and will reflect on the ways in which social change has influenced sport and physical activity.
CARE CULTURES	3340	Nursing	UG	This course fosters skills in recognizing and understanding the impact of culture on health related values, beliefs and practices.
CATHOLIC SOCIAL TEACHING	3900	Catholic Studies	UG	An introduction to Catholic social teaching with a dual focus on critical theory and praxis.
CDN CHARTER	3170	Political Studies	UG	A systematic examination of the rights and freedoms contained in the Charter through Supreme Court decisions.
CDN EC PROBLEMS	2310	Economics	UG	Application of economic theory to a broad range of problems such as agriculture, trade, foreign ownership, regional disparities, competition policy, education.
CDN LABOUR MVT	1290	Labour Studies	UG	An introduction to the development of the contemporary working-class movement in Canada and to workplace issues today.
CDN SUBCULTURES	3550	Anthropology	UG	An anthropological study of dimensions of community, ethnicity, and social class in Canadian society.
CHILD SOCIETY	3420	Sociology	UG	A study of the position of the child in society, including: childhood in the life cycle; images of childhood; the child in work; the child in the family; the child in the adult world.
CHILDREN IN ADVERSITY	4604	Family Social Sciences	UG	Millions of children live with violence, trauma and other adverse circumstances.
CHILDREN VIOLENCE & RIGHTS	3806	Family Social Sciences	UG	Violence against children in their families takes many forms, from sexual exploitation to honour killings.
CIRCUM CULTURE	3340	Environment	UG	This course provides an introduction to the culture, lifestyles, belief systems, material culture, art, environmental issues, and politics of Aboriginal Peoples in northern Canada, Greenland, Alaska, Siberia and Scandinavia.
CIRCUMPOLAR CUL	3340	Native Studies	UG	An interdisciplinary study of inter-relationships between the History, traditional lifestyles, politics, and environment of circumpolar Indigenous peoples.
COM HEAL NUR 1	3220	Nursing	UG	An analysis of concepts of prevention of disease/dysfunction and promotion of health in community based populations. Focus is on primary and secondary prevention and the promotion of health with identified risk groups.
COMM NUT INTER	4300	Human Nutritional Sciences	UG	Principles of planning and evaluating nutrition related interventions. Examples of community needs assessments, program planning strategies and types of program evaluation will be examined.
COMMUN ECON DEV	2350	Economics	UG	A study of the economic development problems of northern and native communities in Manitoba.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

COMP ANIMAL ENERGETICS	4460	Biological Sciences	UG	Energetic strategies of animals living in ecologically diverse environments. Integration of physiological, morphological and behavioural adaptations with an emphasis on vertebrate species.
CON REC LEISURE	1400	Recreation Studies	UG	The nature and scope of recreation and leisure, the past influences and implications for the future. An overview of the types and roles of various components of the leisure service delivery system.
CONFLICT RES	3800	Family Social Sciences	UG	Students will examine the nature and development of conflict in family relationships throughout the life span. Implications of conflict for the quality of family relationships and individual development will be addressed.
CONT CN WELFARE	3130	Social Work	UG	An examination of social welfare in Canadian society, leading to an evaluation of present approaches in the light of changing economic and social conditions and changing needs.
CRITICAL ANIMAL STUDIES	2600	Religion	UG	This course will introduce students to "the animal" question that has emerged with such significance in recent decades, surveying some key theoretical and ethical issues under debate around the meaning of animality and the difference between human and animal life.
CURR ISS LAT AM	3680	Anthropology	UG	This course focuses on anthropological treatment of current Latin American issues such as civil war, interventionism, and refugees; population growth, urbanization, migration and poverty; class relations; agrarian structure, nutrition and health; genocide and ethnocide.
DYNAMIC EARTH	1340	Geology	UG	An introduction to dynamics of the Earth's interior and surface that created the environment in which life evolved and that continue to change the world in which people now live.
ENG LAW ENV SOC	3690	Electrical & Computer Engineering	UG	Engineering law: public responsibility and liability of the Professional Engineer; patents, copyrights, trademarks, designs, contracts; environment ethics: energy choices, depleting resources and growth of demand.
EVAL EC POL&PRG	4140	Economics	UG	Examination of government programs and policies, using cost-benefit analysis, cost-effectiveness, program evaluation, decision-making under uncertainty, and emerging approaches. Case studies will draw upon poverty, health, transportation, environment, development and other areas. Prerequisite: written consent of department head.
EVOLVING EARTH	1350	Geology	UG	An introduction to interpretation of the geologic record, with a survey of the Earth's origin and evolution, its life, and resources through time.
FAM ISS LIFESPN	1020	Family Social Sciences	UG	Introduction to contemporary issues involving families across the lifespan. Topics include mate selection, marriage, parenthood, divorce, lone-parent families, work-family balance, family violence, families and older persons, and poverty in families.
FOOD REL CONCP	1430	Religion	UG	This course explores the cultural (communal and social) dimensions of the major world religions through examination of food concepts and practices.
GEOG TRANSP DEV	3800	Geography	UG	This course examines the development of selected modes of transportation and their associated route and network development. Emphasis is on the place of transportation in the cultural, economic, and physical landscape of Canada and the United States since 1800. Prerequisite: a grade of C or better in a minimum of three credit hours from Geography courses numbered at the 1000 level, or permission of department head.
GEOGRAPHY OF MANITOBA (A)	3900	Geography	UG	A regional study of Manitoba emphasizing the unique character and diversity of Manitoba's cultural landscapes.
GLOBAL POLITICAL ISSUES	1040	Political Studies	UG	An investigation of the most pressing global issues facing the world today, including debates over globalization, the rise of trans-sovereign problems, and current theories about the future of the state.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

GRNDWATER CONT	4200	Civil Engineering	UG	Introduction to the principles of groundwater chemistry; chemical evolution of natural groundwater flow systems; sources of contamination; mass transport processes; hydrochemical behaviour of contaminants; nuclear waste disposal; non-aqueous phase organics; aquifer remediation.
ISS AG BIOTECH	4600	Plant Science	UG	By lecture, group discussion, individual/group projects selected topics related to the introduction and application of modern biotechnologies in agriculture will be examined.
L AND U THEORY	3010	Envir. Design Landsc & Urban	UG	An examination through lectures, readings, seminars and essay assignments, of twentieth and twenty first century philosophical thinking, which has been influential in the theory and practice of landscape architecture, planning and urbanism. Emphasis is on ideas, paradigms, and manifestos.
MICROBES IN OUR ENVR	4480	Microbiology	UG	A course investigating the diversity of roles microbes play in our immediate environment, and how they affect it. Environments to be examined may include the human body, waste treatment facilities and extreme environments.
PLANT & AN PHYS	2200	Agriculture	UG	Plant and animal physiology as affected by environment for use in the design of agricultural machines, structures and food processes for biological products; models of simulation of plant and animal growth.
PRAIRIE LAND	2450	Geography	UG	Traces the evolution of the cultural landscape of Western Canada including Indian occupancy, environmental perception, urban and rural landscapes, and regional images in art and literature.
REL & SOC ISSUE	2590	Religion	UG	The course examines selected ethical-social issues such as abortion, euthanasia, new genetic and reproductive technologies, and environmental and ecological issues, with reference to one or more of the world's religious traditions.
RISK RES B&SD	4600	Family Social Sciences	UG	The development of behavioural and social difficulties are examined from a risk and resilience perspective. The interaction of factors at all levels of the human ecological system are considered in terms of their impact on increasing risk and/or building resilience in children and youth.
SITE GRADE TECH	3220	Environmental Landscape	UG	The study of the means and methods of shaping land form, of controlling the runoff of water, and of stabilizing earthwork structures.
SITE MORPHOLOGY AND GRADING	3012	Environmental Landscape	UG	An examination of the means and methods used to create landscapes that are shaped by earthwork grading.
SOIL MICROBIOL	4120	Soil Science	UG	Types, growth and functions of soil organisms. Cycling of soil nutrients (N,C,P,S) by soil organisms. Microbial transformation of farm wastes and agricultural chemicals and effects of agricultural chemicals on soil microbial processes.
SP TOP ENV DES	3710	Environmental Design	UG	Independent study related to environmental design. Content may vary according to the interest of the community, students, profession, and the faculty.
SPEC. TOP. COMM. DES.	4006	Envir. Design Landsc & Urban	UG	This course will involve a critical examination of specific topics such as: health and community design; inner city environments; and Canadian community planning and design, and its contexts.
THEORY NATURE	2180	Religion	UG	While the content of this course will vary year-to-year, its constant purpose will be to introduce students to some of the many ways in which "nature" has been theorized.
WATER MGMT	0690	Biosystems Engineering	UG	Surveying including use of the level instrument and steel tape, agricultural drainage, dugouts and wells for farm water supply, irrigation, pump selection, the Water Rights Act.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

WRLD AGRI ST TR	2120	AgBusiness and AgEconomics	UG	Provides an understanding of world agribusiness, including areas such as agri-marketing, agricultural trade, agri-finance, agricultural policy, risk management, and economics of the environment and resources through an international study trip.
WSHP CDN EC POL	4820	Economics	UG	In depth examination of policy issues on selected topics such as unemployment, inflation, international trade, transfer payments, health care, the environment.
ARCH TECH 3	4002	Environmental Architecture	UG	Intergrated building systems focusing on multi-story steel and concrete construction including: passive and active heating, cooling, and ventilation methods, strategies and designs, electrical, water, communication, security, fire protection.
BRIT LAW WEL ST	2120	Social Work	UG	An examination of the emergence of the British welfare state from its origins in the 14th century. Social, political, economic, religious, demographic and cataclysmic factors influencing the development of parochial and state provision for human needs are examined and analyzed.
CDN SOC WELFARE	2110	Social Work	UG	An examination of the emergence of the Canadian welfare state from its various colonial inheritances to the Canada Assistance Plan. Social, political, economic, religious, geographical, demographic and cataclysmic factors influencing the development of the welfare state are examined and analyzed.
COL LATIN AMERI	2140	History	UG	A survey of the major developments in Latin America from the Indigenous cultures and European Conquest to Independence in 1821.
COM SOC WELFARE	2130	Social Work	UG	The welfare systems of three modern societies are examined and compared. Economic, political, social, religious, geographical, demographic and cataclysmic factors influencing the development of the various models of social provision are analyzed for their significance to the Canadian welfare system.
COMPAR MNGT	7030	International Business	UG	Comparative study and evaluation of management philosophy and practices in cross-cultural setting; the cultural, economic, and political environment which influence management decision-making.
CUMBERLND SOUND	3390	Native Studies	UG	This course examines the rich and complex History of Cumberland Sound. The course also discusses the specific character of Inuit culture in Cumberland Sound and, in a series of lectures on contemporary community dynamics, looks at recent expressions of culture.
ED OF MIN IN CD	5250	Education Admin, Fndns & Psych	UG	An examination of the nature of Canadian social development within the framework of a pluralistic society.
ENVIRON GEOLOGY	2390	Geology	UG	Examination of geological processes and material as they interact with human activities, environmental planning, and management. Also available by correspondence.
ENVIRONMENTAL TOXICOLOGY	4380	Biological Sciences	UG	A survey of the principles governing the dynamics of chemicals in the environment, with emphasis on the biological systems, using case histories of known pollution problems.
ENVR PHYSIOLOGY ANIMALS 2	3462	Biological Sciences	UG	An examination of the environmental challenges confronting animals in aquatic and terrestrial habitats, and the various ways these problems are solved at the cellular and organ system levels.
EUROPE 1918-1945	3684	History	UG	Europe in decline. The course examines the peace settlement of 1919, and the balance of power generally. It also considers fascism, the Russian Revolution, the rise of Nazism, the Spanish Civil War in addition to the origins and events of the Second World War.
FD PROD & MNGT	4140	Human Nutritional Sciences	UG	Menu planning. Food costing. Experience in standard methods of institutional food production and service.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

FIT APPRAISAL	4460	Physical Education	UG	Theoretical knowledge and practical training related to physical activity, fitness and lifestyle appraisal and counselling.
FMLY ECONOMICS	4400	Family Social Sciences	UG	Analysis of principles, major problems and trends in the economic welfare of individuals and families in both the Canadian and global economies.
FMLY FINICIAL HEALTH	2400	Family Social Sciences	UG	A survey of topics that have an impact on the financial health of Canadian families, including personal money management, mortgage financing, credit and debt, educational and retirement planning, taxation, insurance, savings and investments.
FOOD MICROBIO 2	4280	Food Science	UG	In depth study of the microbiological problems encountered in different segments of the food industry, including the cereal, confectionery, fruit, vegetables, meat, poultry, fish, dairy and beverage industries.
FOOD TOXICANTS	4300	Food Science	UG	An introduction to the principles of toxicology and the application of these principles to toxicological testing of food products. Food toxicants to be discussed include those of natural origin and those which are either intentional or accidental additives.
HAZ WASTE TREAT	4350	Civil Engineering	UG	Sources and classification of hazardous and industrial wastes. Overview of the waste management problem. Theory and applications of various physical, chemical, and thermal, waste treatment processes. Waste elimination options and strategies.
HIST OF CANADA	1440	History	UG	A study of Canadian development from earliest days to the present. Emphasis is placed on Aboriginal societies, the History of French Canada, the regional life and social organization of the country, the impact of colonialism and continentalism, and the rise of nationalisms.
HORSE PROD MGMT	0730	Animal Science	UG	Principles of horse production, including genetics and breeding, reproductive management, nutrition and health. Applications to major sections of the horse industry.
ILLNESS	2560	Anthropology	UG	Comparative study of cultural factors involved in health/illness: concepts of disease and curing practices.
INT DYNAM EARTH	1440	Geology	UG	A non-laboratory introduction to dynamics of the Earth's interior and surface that created the environment in which life evolved and that continue to change the world in which people now live.
LAB REL HL SAFT	3070	Labour Studies	UG	The economic costs of workplace injuries and sickness; the History of occupational health and safety laws and their implementation; the History and functions of workers' compensation; collective bargaining on health and safety.
LANDFORMS	3580	Geography	UG	Present-day and Pleistocene glacial processes and landforms are examined in one term; slope processes and forms as well as the activities of rivers comprise the other. Human modification of these systems is discussed.
LANDSCAPE HORT	0790	Plant Science	UG	Principles of the production and use of horticultural plants in the rural and urban landscape including the establishment and value of shelterbelts.
PSYC LRN INST 2	2800	Education Admin, Fndns & Psych	UG	An examination of concepts and issues related to meeting the diverse needs of all students including methods and resources for accommodating student diversity in classrooms and schools.
RACE ETHNCTY IMMIG & NAT IN CA	3442	History	UG	This course examines topics in the History of immigration, colonization, race, and ethnicity in Canada.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

SEL TOPICS NUTR	4260	Human Nutritional Sciences	UG	Recent developments in human nutrition research.
SENSORY TECH 1	3610	Environmental Interior Environ	UG	The study of the interaction of light, colour, materials, construction, building systems and detailing in the design of the interior environment; responding to human and ecological considerations.
WRKPL HL & SAFT	3060	Labour Studies	UG	An introduction to occupational health, industrial hygiene and industrial safety emphasizing the impact of chemical hazards on the body, the measure and control of hazards and the causes and prevention of industrial accidents.
19/20 CENT AFT	7280	History	G	Emphasis will be placed on the development of the European-African relationship from the need of the slave trade to independence.
AD REP PHYSIO M	7360	Animal Science	G	A lecture-seminar course on sexual function and testicular physiology in males of livestock species; environmental factors influencing reproductive efficiency: recent developments in semen preservation and artificial insemination.
ADV SOIL ECOLOGY	7202	Soil Science	G	Examine the role of soil organisms and their communities in decomposition, elemental cycling, and pathogen/pest suppression in managed and natural soil systems.
ADV TH DES PLAN	7100	Soil Science	G	This course is intended to promote critical thinking and provide opportunities to explore in detail key issues, ideas and theories about design and planning.
ADVANCED SOIL ECOLOGY	7270	Soil Science	G	Examine the role of soil organisms and their communities in decomposition, elemental cycling, and pathogen/pest suppression in managed and natural soil systems.
ADVANCED TOPICS CONT INT DESIG	7280	Interior Design	G	This seminar is a forum for discovering the character of current international design practices. It emphasizes the development of writing skills by exploring models for formulating criticism and applying them through a sequence of written exercises.
APPLIED MICRO I	7040	Economics	G	Advanced study in a selected topic in applied microeconomics. Topics covered in rotation include, but are not limited to labour economics, health economics, public finance, international trade, environmental economics and evaluation of public policy production economics.
APPLIED MICRO II	7050	Economics	G	Advanced study in a selected topic in applied microeconomics. Topics include: labour economics, health economics, public finance, industrial organization, international trade, environmental economics evaluation of public policy production economics and applied game theory.
ARCH STUD & COMP PROG REPORT	7050	Architecture	G	Develop design explorations and seek to clarify relations between architectural criteria and the urban/natural environments in national or international contexts.
ARCH STUDIO 6	7060	Architecture	G	The previous term's investigations are further developed into a comprehensive architectural design proposal. The thorough integration of design and programming criteria, with building and environmental systems and assemblies are examined.
BNA 1760-1867	7810	History	G	Themes may include the fur trade, Euro-Aboriginal relations, immigration, rural and urban social patterns, the instruments of culture (religion, education, the family, etc.), and the social implications of political and economic development.
BUS ENVIRONMENT	7110	General Management	G	Analysis of the environmental factors within which a business operates.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

CHILD/YOUTH	7080	Psychology	G	Examines mental health conditions, covering a range of internalizing and externalizing disorders in children and youth. Biopsychosocial and ecological models, risk and resiliency, and developmental and cultural issues are examined.
CHILDRN VIOLENC	7620	Family Social Sciences	G	An examination of children's experiences of violence at the levels of families, communities and societies. Relevant theoretical and measurement issues are addressed, as well as the developmental outcomes of various forms of violence.
ECOL INFECT DIS	7220	Medical Microbiology	G	Explores the study of infectious diseases in a global context from the perspective of biomedical, clinical, health systems/services and social, cultural and environmental determinants of health and disease.
ENVIR ENGIN LAB	7950	Civil Engineering	G	Laboratory work in water and wastewater analysis and treatment processes related to water quality management.
ENVIRON GEOTECH	7530	Civil Engineering	G	Application of geotechnical engineering solutions to environmental problems.
HIST LANDS PRES	7220	Landscape Architecture	G	An investigation of strategies and techniques appropriate for the research, analysis, interpretation, and preservation of the cultural landscape.
INTRCUL RES PB	7050	Peace and Conflict Studies	G	Examines the role of socially constructed identities and meaning in intergroup conflicts in a variety of contexts. Culture is broadly conceived to encompass a variety of identities, including differences along racial, ethnic, religious, gender, and class lines.
LA MODELLING	7130	Landscape Architecture	G	The theory and application of GIS technology in the planning of urban and regional landscapes.
STORYTELLING	7128	Peace and Conflict Studies	G	Examines the role of narrative and storytelling in conflict resolution, theory, research and practice. The relationship between language and power and destructive or constructive relationships is explored.
THEORY OT	6110	Occupational Therapy	G	Students study the theoretical and philosophical foundations of occupational therapy and the relationship between occupation and health and well-being.
URBAN ANALYSIS	7200	City Planning	G	Theoretical framework for the dominant theories of urban structure, property and land-use relevant to city planning.
WRK FAM INTERRL	7230	Family Social Sciences	G	Advanced study of the earning and caring activities of families and how these activities interrelate at the community, provincial, national, and global levels. Emphasis on relating current research to relevant theoretical perspectives and professional practice.
ADOLE DEVEL	8060	Psychology	G	A critical evaluation of current theory and research in adolescent development. Topics covered include cognitive social development, self-concepts, sex roles, family relationships, etc.
ADV WEED SCI	7340	Plant Science	G	Weed biology and ecology in the context of weed management, covering theory, current information, investigative approaches and experimental techniques.
CULTURAL PERSPE	7330	Community Health Sciences	G	The objective of this course is to make students aware of the ways in which disease, illness, and medical practice are socially and culturally mediated.

SUSTAINABILITY COURSE CATALOGUE

OFFICE OF SUSTAINABILITY

CURRENT ISSUES	7360	AgBusiness and AgEconomics	G	Seminar dealing with current issues in policies relating to agriculture.
EDUCATIONAL SOC	7210	Education Admin, Fndns & Psych	G	An examination of the relationship between education and society, with particular attention to ethnicity, family, and socio-economic status and to the role of the school in the socialization process in the Canadian context.
LA FIELD ECOL	7160	Landscape Architecture	G	Field study of plant taxonomy and ecology. Approximately two weeks duration immediately prior to the beginning of fall term. For Landscape Architecture students or with consent of department head.
LAND ARCH >1900	7260	Landscape Architecture	G	A study of significant works of landscape architecture since 1900, including those of Canada, within the context of cultural and ideological change over the period.
TOPICS IN AG EC	7300	AgBusiness and AgEconomics	G	Application of economic analysis to contemporary problems in agriculture.
TRNSP EC & RES	7330	AgBusiness and AgEconomics	G	Rate determination and cost analysis for different modes of transportation; transportation issues in Canadian agriculture; and research techniques in transportation problems.
URB TRANS GEOG	7300	Geography	G	Current issues and problems in urban transportation are analyzed within several geographic contexts (e.g., spatial, environmental, economic, social, political). Students are encouraged to focus research on Winnipeg.