MScSM
Master of Science in Sustainability Management

Institute for Management & Innovation
UNIVERSITY OF TORONTO
MISSISSAUGA

Master of Science in Sustainability Management

SSM 1030 Environmental Science

Lecture and seminar course

Course Objectives:

The main objectives of this course are to provide a scientific foundation of environmental science, identify key environmental problems and discuss scientific aspects of addressing these problems. The course covers the fundamentals of environmental science, sustainability science, environment as a system, systems and chaos theory, earth system, energy systems, urban environments, environmental change, and environmental impacts; and scientific foundations of the key environmental issues including air pollution, ozone depletion, climate change, global warming, water pollution, marine pollution, land pollution, genetic pollution, noise pollution, chlorofluorocarbon, nuclear waste and emissions, electronic waste, loss of biodiversity and resource degradation. The scientific aspects of these environmental issues will be analyzed using a systems approach and case studies will be used to investigate such issues in real-life context.

Course Materials:

No Textbook is required. Readings and additional resources will be posted on blackboard throughout the semester.

Instructional Approach:

The course will consist of lectures and in class seminars / discussions. Throughout the semester, groups of students will be assigned to research a topic relating to sustainability and lead an in-class discussion. A reading list will be made available and students will be expected to familiarize themselves with this material as papers relevant to the week's topic will be discussed in class. The in-class discussion may be based on these readings or any others that are pertinent.

Master of Management in Sustainability Management Program
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A major component of the course will be a 5000 word research paper on a topic of the student's choosing. The paper will examine a specific environmental issue, discussing the cause of the problem, the mechanism(s) by which various components of the environment are affected, the associated environmental impacts, and how this issue is or could be managed and mitigated (through policy, legislation, remediation, technology, etc.).

Grading:

Grading scheme

Mid-term test 20%

Research Paper 30%

Student participation (including presentation) 20%

Final Exam 30%

Academic Misconduct:

Students should note that copying, plagiarizing, or other forms of academic misconduct will not be tolerated. Any student caught engaging in such activities will be subject to academic discipline ranging from a mark of zero on the assignment, test or examination to dismissal from the university as outlined in the academic handbook. Any student abetting or otherwise assisting in such misconduct will also be subject to academic penalties.

Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site

Any modifications to the course will be announced and explained in class.

Course Schedule:

Winter/Spring Semester 2015: Room L1230, Innovation Complex
Wednesdays, from 9:00 am to 12:00 pm.
First class is Wednesday, January 7, 2015.
Last class is Wednesday, April 1, 2015, and there is no class Feb. 18 due to Reading Week.

Overview of Topics Covered:

Human population growth and pressure on resources

Climate change – causes, evidence of change, change on multiple temporal scales, natural vs. human induced climate change

Environmental change – archives and proxies for examining environmental change in different environments

Atmospheric science and pollution – acid rain, ozone depletion, smog

Land degradation and desertification

Environmental issues in aquatic ecosystems – ocean acidification, microplastics and garbage islands, eutrophication, drinking water and wastewater treatment

Contaminants and pollutants – mercury, heavy metals, persistent organic contaminants, emerging contaminants

Ecological footprint

Energy systems – renewable vs. non-renewable, pros and cons of different energy sources

Agricultural and industrial systems

Waste management and urban environments

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