ENGG*6790 – Environmental Engineering, Public Health and Climate Change Adaptation
Winter 2014

Instructor

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Learning Resources

2.1 Course Website
Course material, news, announcements, and grades will be regularly posted to the ENGG*6790 Courselink site. You are responsible for checking the site regularly.

2.2 Required Resources
There is no required textbook for this course. The instructors will provide weekly reading materials related to specific lecture topics. All students are expected to study the assigned readings prior to each lecture.

2.3 Recommended Resources
Recommended resources will be posted on the Courselink.
2.4 Additional Resources

Lecture Information: All the lecture slides will be posted on the Courselink (week #1-#12).

Assignments: Download the assignments according to the schedule given in this handout. All the solutions will be posted as indicated.

3 ASSESSMENT

3.1 Dates and Distribution

Weekly Reflective Journals (individual): 15%
Term Project (groups of two): 30%
AV Summary (groups of two): 10%
Peer Review (individual): 10%
Class Presentation (individual): 15%
Oral Exam: 20%

3.2 Course Grading Policies

When You Cannot Meet a Course Requirement: When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course in writing, with your name, id#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration:

http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1400.shtml

Accommodation of Religious Obligations: If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations:

http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml
4 AIMS & OBJECTIVES

4.1 Suggested Calendar Description
Climate change is linked to a wide range of environmental and social impacts and implications. This course focuses on exploring the links between environmental engineering, public health and climate change adaptation. Specific methodologies from engineering and public health/epidemiology will be presented to enable students explore environmental engineering and public health implications of climate change, investigate factors contributing to climate change and identify adaptation strategies.

4.2 Course Aims
This course aims to:
1. Introduce students to scientific investigation techniques focused on exploring climate change impacts
2. Enable students to explore the interconnections between environmental and health impacts of climate change
3. Provide students with concepts, methods and real world applications of strategies for climate change adaptation.

4.3 Learning Objectives
At the successful completion of this course, the student will have demonstrated the ability to:
1. Apply scientific investigation methods from engineering and epidemiology to explore available literature and other sources
2. Explore the interface between engineering, public health and adaptation
3. Translate an understanding of the effects of climate change to design adaptation strategies
4. Apply various tools and methods of systems science to design approaches for adaptation
5. Concisely and articulately communicate the results of their investigation into real world adaptation case studies to their colleagues

4.4 Instructor’s Role and Responsibility to Students
The instructor’s role is to develop and deliver course material in ways that facilitate learning for a variety of students. Selected lecture notes will be made available to students on Courselink/D2L but these are not intended to be stand-alone course notes. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes will be the principal venue to provide information and feedback for tests and project.

4.5 Students’ Learning Responsibilities
Students are expected to take advantage of the learning opportunities provided during lectures and tutorials. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who do (or may) fall behind due to illness,
work, or extra-curricular activities are advised to keep the instructor informed. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

**E-mail Communication:** All students are required to check their University of Guelph e-mail account regularly. E-mail is the official route of communication between the University and its students.

**When You Cannot Meet a Course Requirement:** When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course in writing, with your name, id#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration:

http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1415.shtml

**Drop Date:** The last date to drop one-semester courses, without academic penalty, is Friday, March 7. Two-semester courses must be dropped by the last day of the add period in the second semester. Refer to the Graduate Calendar for the Schedule of Dates.

**Recording of Materials:** Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

### 4.6 Relationships with other Courses

**Previous Courses:** This course may relate to a number of graduate courses the students may have already taken including those dealing with sustainability, water and wastewater management, renewable energy and emission monitoring and control.

**Follow-on Courses:** None

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## 5 Teaching and Learning Activities

### 5.1 Timetable

**Lectures:**

Lectures will be conducted at Rm. 3527, Richards Building on Thursday from 12:30 to 3:20 pm.
5.2 Course Topics and Schedule

Please note that this is a tentative course topics and schedule. Instructors reserve the right to change some of the topics or the schedule as needed.

Lecture 1. Introduction
(Introduction to the course, history of Public Health, history of Environmental Engineering, discussion of climate change science.)

Lecture 2 & 3 Assessing the public health impacts of climate change
(The science of assessment, epidemiological methods, Methods of climate change assessment, methods of public health assessment, links between climate change and public health, case studies)

Lecture 4. Economics of climate change and adaptation
(Uncertainties, vulnerability assessment, public health and economic implications, understanding efficiency, case studies)

Lecture 5 & 6 Exploring concepts of mitigation, adaptation and resilience
(What is mitigation, adaptation and resilience, relative roles of mitigation and adaptation with case studies, effective allocation of resources, intervention strategies for public health protection, adaptive planning and management)

Lecture 8 & 9 Technology and adaptation – How engineers perceive and address adaptation
(Case studies of engineering adaptation strategies (flood management, draught management, resource recovery and reuse, emission control greenhouse gas emissions assessment and control, technological solutions to adaptation and resilience, public health intervention technologies)

Lecture 10 & 11 Systems approaches to health and climate change adaptation
(Introduction to systems approach, tools for implementing systems approach, ecosystem approach to health, social-ecological systems, ecological engineering)

Lecture 12. Course review and final presentations
5.3 Other Important Dates

Drop Date: The last date to drop one-semester courses, without academic penalty, is March 7, 2014. Refer to the Graduate Calendar for the schedule of dates:
http://www.uoguelph.ca/registrar/calendars/graduate/current/sched/sched-dates-f10.shtml

6 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. The Academic Misconduct Policy is detailed in the Graduate Calendar:
http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1702.shtml

6.1 Resources

A tutorial on Academic Misconduct produced by the Learning Commons can be found at:
http://www.academicintegrity.uoguelph.ca/

The School of Engineering has adopted a Code of Ethics that can be found at:
http://www.uoguelph.ca/engineering/undergrad-counselling-ethics

The Graduate Calendar is the source of information about the University of Guelph’s procedures, policies and regulations which apply to graduate programs:
http://www.uoguelph.ca/registrar/calendars/graduate/current/