GEOG 3432B-Environmental Hazards and Human Health
Winter 2019 Course Outline

Course Description
This is a survey course regarding the links between human health and environmental hazard exposure. Issues will include the health impacts of water pollution, air pollution, solid and hazardous waste, toxic substances, pesticides and radiation. The limitations of models and methods are discussed.

Two lecture hours, one tutorial hour
Prerequisite(s): None, however both GEO 3250 and GEO 2152 are considered an asset.
Prerequisite checking is the student’s responsibility

Senate Regulations
Senate Regulations state, “unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.”

Textbook and Lecture Reading Materials

February 6th: A Primer on Scientific Risk Assessment at Health Canada:

February 13th: The United States Environmental Protection Agency Risk Assessment:
https://www.epa.gov/risk

Instructor: Dr. Fatih Sekercioglu
Email: msekerci@uwo.ca
Office: SSC 2223
Lectures: Wednesday 2:30 – 4:30 Room: SSC 3014
Tutorials: Thursday 10:30 – 11:30 Room: SSC 3006
Thursday 11:30 – 12:30 Room: SSC 3014
Office Hours: Wednesday 1:30 – 2:30, or by appointment

TA: Killian Atuoye
Oluwatomilola (Tomi) Ladele
Email: katuoye@uwo.ca
oladele@uwo.ca
Office Hours: TBA

Office: TBA
March 6th: Environmental Burden of Cancer in Ontario:  

March 27th: Ontario Climate Change Toolkit:  

Course Objectives and Format
Understanding the links between human health and environmental hazard exposure. In class lecture and tutorial.

Learning Outcomes
Describe the complex relationships between environmental hazards and human health
Critically analyze, compare, and contrast environment, health, and hazards research
Enhance group work and presentations skills
Demonstrate concise writing and science communication skills
Assess your peers’ writing and presentation. Provide constructive feedback to your colleagues

Evaluation

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation (tutorial and lecture)</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Group presentation and essay</td>
<td>30%</td>
<td>See Lecture Schedule</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
<td>February 27th</td>
</tr>
<tr>
<td>Case Study Reflections (2 submissions)</td>
<td>10%</td>
<td>See Tutorial Schedule</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
<td>During Final Exam Period</td>
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</tbody>
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Students are responsible for material covered in the lectures as well as the assigned chapters/sections in the text. You must complete all course components to pass the course. No electronic devices - e.g., phones, calculators are allowed at the midterm or exam.

**Group Presentation and Essay:** Selections of the groups (maximum five students) and topics will be finalized by January 16th. Essays should be no longer than 3,000 words excluding references and appendices.

Assignments will be explained in greater detail in class. There will be a 10% per day late penalty for assignments submitted after the due date. There are no make-up opportunities for peer-review activities.
**Exams:** The midterm exam will cover material from January 9th to February 13th. The final exam will be primarily weighted toward material covered in the second half of the semester. Both lecture and tutorial material will be included in the exams.

**Case Study Reflections:** Each student will be required to submit two 250 word reflections on case studies examined in tutorial. Students will be required to summarize the prudent causes and impacts of each environmental hazard examined and then reflect on how these cases relate to broader themes examined in the course, how we can mitigate the impacts of these hazards, or how we can act to prevent contaminants/exposure instances from increasing. Additional relevant discussion points probing critical thinking will be provided during tutorial. Imagine you are communicating to an educated, but non-specific audience. You may reference tutorial or lecture materials; however, no additional references are required.

Students will be evaluated on two reflections (5% final grade weighting each). However, note that there are six tutorial case studies. Students may choose which case studies are of most interest to them and therefore which they would like to reflect on. Students must have been present in tutorial to receive credit for a submitted case-study reflection. Reflections are due at 5 pm the Friday after the respective tutorial. Reflections will be submitted online using the OWL course website.

Further, if students are dissatisfied with their grade on one of their two reflections, they may submit a third reflection (based on a different case study) to replace one of their grades.

For Western's Policy on Accommodation for Medical Illness and a downloadable SMC please refer to the Academic Handbook.

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation. Academic accommodation cannot be granted by the instructor or department.

Grades will not be adjusted on the basis of need. It is important to monitor your performance in the course. Remember: **You are responsible for your grades in this course**

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**Lecture Schedule**

<table>
<thead>
<tr>
<th>Lecture Date</th>
<th>Lecture topic</th>
<th>Required reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 9</td>
<td>Scope of course; Syllabus clarifications and additions</td>
<td>None</td>
</tr>
<tr>
<td>January 16</td>
<td>Risk Management and Key Concepts</td>
<td>Eyles and Baxter Ch. 2 &amp; 4</td>
</tr>
<tr>
<td>January 23</td>
<td>Health &amp; Environmental Equity and Policy</td>
<td>Eyles and Baxter Ch. 8</td>
</tr>
<tr>
<td>January 30</td>
<td>Evaluating Environmental Risks to Health (Guest Speaker)</td>
<td>Eyles and Baxter Ch. 9</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Reading Material</td>
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</tr>
<tr>
<td>February 6</td>
<td>Scientific Risk Assessment at Health Canada</td>
<td>A Primer on Scientific Risk Assessment at Health Canada (online)</td>
</tr>
<tr>
<td>February 13</td>
<td>EPA Risk Assessment</td>
<td>The United States Environmental Protection Agency Risk Assessment (online)</td>
</tr>
<tr>
<td>February 27</td>
<td>Midterm Exam (in-class)</td>
<td>None</td>
</tr>
<tr>
<td>March 6</td>
<td>Environmental Burden of Cancer in Ontario</td>
<td>Environmental Burden of Cancer in Ontario, Public Health Ontario (online)</td>
</tr>
<tr>
<td>March 13</td>
<td>Group Presentations (1, 2, 3, 4)</td>
<td>None</td>
</tr>
<tr>
<td>March 20</td>
<td>Group Presentations (5, 6, 7, 8)</td>
<td>None</td>
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<tr>
<td>March 27</td>
<td>Group Presentations (9, 10) Climate Change, Hazards and Human Health I</td>
<td>Ontario Climate Change Toolkit (online)</td>
</tr>
<tr>
<td>April 3</td>
<td>Climate Change, Hazards and Human Health II/Looking Ahead</td>
<td>Eyles and Baxter Ch. 10/Ontario Climate Change Toolkit (online)</td>
</tr>
<tr>
<td>TBD</td>
<td>Final Exam</td>
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**Group Presentation Topics (Five students per group)**

1. Source Water Protection
2. Environmental hazards in homes
3. Hydraulic Fracking
4. Waste Management
5. Air Pollution
6. Noise Pollution
7. Water pollution (recreational)
8. Environmental hazards in offices/buildings
9. Electromagnetic Fields/Radioactivity
10. Flood
## Tutorial Schedule

<table>
<thead>
<tr>
<th>Tutorial Date</th>
<th>Topic</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 10</td>
<td>No tutorial</td>
<td>None</td>
</tr>
<tr>
<td>January 17</td>
<td>Introduction, Group presentation and Essay</td>
<td>None</td>
</tr>
<tr>
<td>January 24</td>
<td>Group Presentation and essay assistance</td>
<td>None</td>
</tr>
<tr>
<td>January 31</td>
<td>Case Study: Water Contamination by Pathogens</td>
<td>Hrudey et al. (2003), Parr (2005)</td>
</tr>
<tr>
<td>February 7</td>
<td>Case Study: Agricultural BMPs, Nutrients and Water Quality</td>
<td>Pearce and Yates, 2017; Holmes et al. 2016</td>
</tr>
<tr>
<td>February 14</td>
<td>Mid-term preparation</td>
<td>None</td>
</tr>
<tr>
<td>February 28</td>
<td>Case Study: Built Environment and Health</td>
<td>Renalds et al. (2010); Seliske et al. (2009)</td>
</tr>
<tr>
<td>March 7</td>
<td>Case Study: Nuclear Waste Storage</td>
<td>Stefanelli et al. 2017; Bickerstaff, 2012</td>
</tr>
<tr>
<td>March 14</td>
<td>Case Study: Air pollutants in London, ON and cardiorespiratory effects of air pollution in Ontario</td>
<td>Stieb et al. 2017; Oiamo et al. 2012</td>
</tr>
<tr>
<td>March 21</td>
<td>Case Study: Climate Change and Human Health</td>
<td>Hajat (2017)</td>
</tr>
<tr>
<td>March 29</td>
<td>Final Exam preparation</td>
<td>None</td>
</tr>
<tr>
<td>April 5</td>
<td>Final exam preparation</td>
<td>None</td>
</tr>
</tbody>
</table>

## Tutorial Reading List


**Make-up Examinations**

Makeups will be granted with approved documentation only. All documentation for missed exams must be provided the Academic Counselling Office and Instructor within 48 hours of the scheduled exam. For missed exams, you must take your documentation to Academic Counselling.
within 48 hours of the exam. Otherwise, the instructor will assign a grade of zero. The format and content of make-ups may differ substantially from the scheduled test or examination.

**Use of Electronic Devices**
No electronic devices will be allowed during tests and examinations.

**Academic Offences**
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

**Western’s Commitment to Accessibility**
The Department of Geography strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar’s website.

More information about “Accessibility at Western” is available.

**Medical Issues**
The University recognizes that a student’s ability to meet his/her academic responsibilities may, on occasion, be impaired by medical illness. The Student Services website provides greater detail about the University’s policy on medical accommodation. This site provides links the necessary forms. In the event of illness, you should contact Academic Counselling as soon as possible. The Academic Counsellors will determine, in consultation with the student, whether or not accommodation should be requested. They will subsequently contact the instructors in the relevant courses about the accommodation. Once the instructor has made a decision about whether to grant an accommodation, the student should contact his/her instructors to determine a new due date for tests, assignments, and exams.

Students must see the Academic Counsellor and submit all required documentation in order to be approved for certain accommodation.
Mental Health
If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western’s Health and Wellness website for more information on mental health resources.

Support Services
Student Support Services
Student Development Services

Important Dates
January 7: Classes resume
January 15: Last day to add a second term half course
February 18: Family Day – Department Office Closed
February 18 to 22: Spring Reading Week (No classes; Department Office open)
March 7: Last day to drop a second term half course without penalty
April 9: Classes end
April 10: Study day
April 11-30: Examination Period