EES1704H Environmental Risk Assessment
Fridays, 9am – 12pm
Room: MW140
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COURSE DESCRIPTION
This course introduces the principles of environmental (both human and ecological) toxicology and risk assessment. Study of the basic principles of toxicology, including routes of exposure, dose response, and target organ effects from exposure to environmental toxicants will be covered. The course presents the quantitative methods used to assess the human and ecological health risks associated with exposure to toxicants, focusing on the four major components of risk assessment - hazard identification, dose-response assessment, exposure assessment, and risk characterization. Risk communication and public consultation will also be addressed. The course will include an overview of Canadian regulations and policies and their impact on the practical realities facing practitioners, policy makers and stakeholders.

COURSE OBJECTIVES
The intent is to make this course a hands on, practical course so that you are able to participate as a team member conducting human health and ecological risk assessment upon its completion.

SCHEDULE
Jan 05  Lecture 1  History of Toxicology and Risk Assessment
Lecture 2  Risk Assessment 101
Jan 12  Lecture 3  Principals of Toxicology
Lecture 4  Environmental Contaminants
Jan 19  Lecture 5  Environmental Risk Assessment in Canada
Lecture 6  Environmental Site Assessment and Environmental Quality Guidelines
Jan 26  Lecture 7  Preliminary Quantitative Risk Assessment
Working Examples of HHRA
Feb 2  Lecture 8  Use of Toxicity Equivalency Factors (TEFs) – PAHs/PCBs/Dioxins
Lecture 9  Development of Toxicity Reference Values
Feb 9  Lecture 10  Ontario Brownfield Risk Assessment
Feb 16  Midterm
Feb 23  Reading Week
Mar 2  Lecture 11  Environmental Assessments and Risk Assessment
Mar 9  Lecture 12  Ecological Risk Assessment
Lecture 13  Health Impact Assessment
Mar 16  Student Group Presentations
Mar 23  Student Group Presentations
Mar 30  Good Friday

Apr 06
  Lecture 14  Public Health & Risk Assessment
  Lecture 15  Risk Communication

Apr 09 - 13  Final Exam  (Date TBD)

**EVALUATION**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Feb 9</th>
<th>5%</th>
<th>Risk Assessment Calculations</th>
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<tbody>
<tr>
<td>Midterm</td>
<td>Feb 16</td>
<td>25%</td>
<td>Closed book - 2 hour exam on concepts explored to-date in class.</td>
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**Group Project**

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<tr>
<th>Presentations Mar 16/23</th>
<th>10%</th>
<th>The class will be divided into groups of 4 (depending on class size).</th>
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<tbody>
<tr>
<td>Group Report Mar 23</td>
<td>20%</td>
<td>Each group will be assigned a chemical to explore its environmental toxicology, development of TRVs around the world, human and ecological considerations and a contaminated site issue which will require the development of appropriate remediation / risk management.</td>
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Final Exam  April (TBD)  40%  Final Exam

Evaluation will be carried out in accordance with the Graduate Grading and Evaluation Practices Policy (and how that policy is interpreted and applied in this Dept.)

**EMERGENCY PLANNING**

Students are advised to consult the university’s preparedness site (http://www.preparedness.utoronto.ca) for information and regular updates regarding procedures relating to emergency planning.

**ACCESSIBILITY NEEDS**

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact The UTSC Accessibility Services as soon as possible: http://www.utsc.utoronto.ca/~ability/
We also suggest you also refer to the following University of Toronto Scarborough Library link: http://utsc.library.utoronto.ca/services-persons-disabilities

**PLAGIARISM**

University of Toronto code of Behaviour on Academic Matters states that "it shall be an offense for a student knowingly: to represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e., to commit plagiarism."

For accepted methods of standard documentation formats, including electronic citation of internet sources please see the UofT writing website at: http://www.writing.utoronto.ca/advice/using-sources/documentation

The full Code of Behaviour regulations could be found from consulting http://www.sgs.utoronto.ca/facultyandstaff/Pages/Academic-Integrity.aspx

**WRITING AND ENGLISH LANGUAGE**

As well as the faculty writing support, please see English Language and writing support at University of Toronto: http://www.sgs.utoronto.ca/currentstudents/Pages/English-Language-and-Writing-Support.aspx
Students have commented that they found the latter address extremely helpful for writing term papers.
The following are also useful:


**LATE WORK**

All assignments are due in class at the specified time and date. Late submission will result in a 5% deduction (of each assignment's total grade) per business day, excluding weekends. In the case of illness or other special circumstance, notification should be given to the instructors and the Program Office as soon as possible and before the deadline in question.

Late work submitted after the final day of classes, is not acceptable without prior written permission from the Instructor.

**READINGS**

The following documents should be read as it will help you better understand course concepts.


The following reading list is not mandatory but will be useful throughout the course and as general risk assessment references.

