# GEOG/ENST 3331, Winter 2016

# ENVIRONMENTAL ISSUES: A CLIMATOLOGICAL APPROACH

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**Lecture Schedule:**      Wednesday and Friday, 8:30 – 9:30 (RC 2003)

## Course Content:

This course is an examination of current environmental issues and how they affect or are affected by the Earth's climatology. The course emphasizes the relationships between society and environment, which are central to all of the issues.

## Textbooks:

Ahrens, Jackson and Jackson (2016). *Meteorology Today, 2nd Canadian Edition*. Nelson. First edition is also acceptable.

Students may also find it helpful to refer to the textbook from GEOG/ENST 1140:
Dearden and Mitchell (2012). *Environmental Change and Challenge*, *4th edition*. Oxford University Press.

## Evaluation Scheme:

| | | |
|---|---|---|
| **Exercises** | 10% | Quasi-weekly |
| **Midterm** | 25% | February 24 |
| **Conference prep** | 5% | February 5 |
| **Paper** | 10% | March |
| **Conference** | 10% | March |
| **Final Examination** | 40% | TBA |

The course includes take-home exercises which will be submitted **in class** and then discussed. Completing the exercises will be worth 10% of the final grade. Late submissions will **not** be accepted.

# Lecture Schedule, Winter 2016 (*subject to changes*)

| Dates | Wednesday | Friday |
|---|---|---|
| **Jan 6 & 8** | Introduction | Atmospheric composition |
| **Jan 13 & 15** | Radiation budget | Atmospheric mechanics |
| **Jan 20 & 22** | Atmospheric stability | Atmospheric circulation |
| **Jan 27 & 29** | Meteorological observations | Weather forecasting |
| **Feb 3 & 5** | Numerical modelling | Biogeochemical cycles I |
| **Feb 10 & 12** | Air pollution Discussion: assignments to date | Pollution exposure |
| **Feb 24 & 26** | MIDTERM | Acid rain, various legislation |
| **Mar 2 & 4** | Arctic pollution<br><br>"IISD Experimental Lakes Area: Climate change and its effects on our lakes".<br>Wed, Mar 2, 2016 2:00 PM<br><br>See Class email | Urban heat islands, long-range transport of transport of toxins |
| **Mar 9 & 11** | TBA | Stratospheric ozone depletion, Montreal protocol |
| **Mar 16 & 18** | Drivers of climate change | Climate change conference simulation: Session 1 |
| **Mar 23 & 25** | Technical briefings: pricing carbon, engineering solutions | Holiday |
| **Mar 30 & Apr 1** | Climate change conference simulation: Session 2 | Summary and discussion |
| **Apr 6** | Post course review | |

# Individual Projects, Winter 2016

**Introduction**
University graduates are expected to possess the skill of critical thinking. This includes the ability to evaluate information that is presented to you at more than face value. The goal of this project is to examine media reports about current issues relating to course material.

**Material**
The basis for each project is a **print** article chosen from mainstream media (newspapers or magazines; e.g. *Globe and Mail*, *Toronto Star*, *Macleans*, *New York Times*, *Guardian*, etc.) published in the past five years. The article must make reference to recent research from a peer-reviewed journal.

Your sources will include the original article, the academic article it refers to, and **at least one** additional article. The additional material must consist of either academic journals or 'grey' literature (published reports from government agencies or other responsible organizations). Other popular media or (including web sites) will not be sufficient; consult with the instructor if necessary.

Once you have selected your popular media starting point, **notify the instructor** so that there is no duplication and the article can be distributed. All students in the class will be expected to read this article prior to your discussion.

**Discussion (potentially subject to revision)**
You will be allotted 10 minutes of class time to lead a discussion of this subject with your peers. Audio/visual aids are not necessary. You should assume that the rest of the class has completed the popular media article and so is familiar with your topic.

Your discussion should include the following:
- What were the objectives and methods of the original researchers?
- What were their conclusions?
- Were these conclusions reported on accurately in popular media? Were there any important errors or omissions?
- What was the perspective taken in the popular media version? Do you believe this was justified?
- How did the additional material you found fit with your original sources?

**Papers**
Each student will write a summary paper on their topic that is not more than four pages in length (1.5 line spacing; roughly 1200 words). The paper should review the material you have collected and reflect on the critical evaluation from your discussion.

While this is a short paper, it should still have a formal style ***with an abstract and a concluding section***. An abstract is a single paragraph that describes the contents and conclusions of your paper. Most likely 3-4 sentences will be sufficient.

Remember to cite your sources within your paper! **Failure to refer to your sources constitutes plagiarism.** All papers are to be fully referenced using the author-date style of referencing (e.g., Hanson et al. 2008). If you are unsure, follow the format described in the Department of Geography Undergraduate Thesis Manual, available through the department web site: https://www.lakeheadu.ca/academics/departments/geography/thesis

A short paper may seem like an easier task, but in practice it may be difficult to distill the material and opinions into three pages. Avoid redundancies in your writing, such as the words "and opinions" in the previous sentence. Papers will be evaluated according to:
- Content
- Analysis
- Writing style
- Formatting and referencing

**Suggested Topics**
Listed below are some examples of topics that you may find discussed in popular media. **This list is not exhaustive**; you may decide on a topic that doesn't fit any of these categories.

You should discuss your topic with the instructor before the end of January in order to avoid duplication, and to ensure that your topic is relevant.

*Climate and weather*
      El Niño
      Weather forecasting
      Frequency of hurricanes/cyclones/typhoons
      Changes in frequency/intensity of heavy precipitation events
*Air pollution*
      Urban air quality
      Transboundary pollution
      Acid rain
      Long-range transport of mercury
      Persistent organic pollutants
*Global issues*
      Ozone depletion
      Global climate change
      Carbon pricing: tax vs cap-and-trade
      Mitigation