## GEOG/ENST 3331, Fall 2017

## **ENVIRONMENTAL ISSUES: A CLIMATOLOGICAL APPROACH**

 Instructor:
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**Lecture Schedule:** Tuesday and Thursday, 5:30 – 7:00 (ATAC 5401)

### **Course Content:**

This course explores the interactions between humans and the atmosphere, particularly where these interactions lead to environmental issues. Topics include weather forecasting, meteorological hazards, air quality, contaminant transport, acid rain, global warming, ozone depletion, and other consequential developments. In each case consideration is given to the causes, impacts, and potential solutions or adaptations.

## Textbooks (suggested):

Ahrens, Jackson and Jackson (2016). *Meteorology Today*, 2<sup>nd</sup> Canadian Edition. Nelson.

Students may also find it helpful to refer to the textbook from GEOG/ENST 1170: Dearden and Mitchell (2012). *Environmental Change and Challenge*, 4<sup>th</sup> edition. Oxford University Press.

#### **Evaluation Scheme:**

Exercises	10%	Quasi-weekly
Midterm	25%	October 24
Discussion	5%	Starting October 26
Research Paper	10%	April 5
Final Examination	50%	November 30

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

The discussion and paper constitute an independent project described in the syllabus.

Dates	Tuesday	Thursday
Sep 5 & 7	Introduction	Atmospheric composition
Sep 12 & 14	Radiation budget	Atmospheric mechanics
Sep 19 & 21	Atmospheric stability	Atmospheric circulation
Sep 26 & 28	Meteorological observations	CLIMATE CHANGE FORUM
Oct 3 & 5	Weather forecasting	Numerical modelling
Oct 10 & 12	STUDY WEEK	STUDY WEEK
Oct 17 & 19	Biogeochemical cycles I	Biogeochemical cycles II
Oct 24 & 26	MIDTERM	Air pollution
Oct 31 & Nov 2	Pollution exposure	Urban air quality
Nov 7 & 9	Acid rain	Arctic pollution
Nov 14 & 16	Stratospheric ozone depletion	Ozone holes
Nov 21 & 23	Urban heat islands	Drivers of climate change
Nov 28 & 30	Global climatic change	Engineering solutions

## Lecture Schedule, Fall 2017 (subject to changes)

## Accommodations

Lakehead University is committed to achieving full accessibility for all persons. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you think you may need accommodations, whether your situation is ongoing or temporary, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please visit: <u>http://studentaccessibility.lakeheadu.ca</u>.

# Individual Projects, Fall 2017

### 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.

Your sources must include the original article, and at least two articles from **peer-reviewed**, **academic journals** (e.g. *Nature*, *Science*, *Journal of Climatology*, *Monthly Weather Review*, *Bulletin of the American Meteorological Society*, etc.). Material in addition to this may be drawn 'grey' literature (published reports from government agencies or other responsible organizations). Other popular media (including web sites) will not be sufficient; consult with the instructor if necessary.

Once you have selected your print media starting point, **notify the instructor** so that there is no duplication and the article can be distributed. **This must be done by October 19**. All students in the class will be expected to read this article prior to your discussion.

#### Discussion

You will be allotted 5 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 print 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?
- What was the perspective taken in the print media? Do you believe this was justified?
- How does the additional material you found fit with the story?

#### **Research Paper**

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 analyze the material you have collected and critically evaluate the story told by the print media.

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, regardless of your intent. 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 and condense the material into three pages. Avoid redundancies in your writing, such as the words "and condense" 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 will find discussed in popular media. This list is not exhaustive; you may decide on a topic that doesn't fit any of these categories.

Climate and weather

El Niño Weather forecasting Atmospheric circulation Cyclones (hurricanes) and storms

Air pollution

Urban air quality Transboundary pollution Acid rain

Persistent organic pollutants

#### Global issues

Ozone depletion Global climate change Mitigation

#### **Important Dates**

October 19 – Submit print media article October 26 – November 28 – Discussions November 30 – Research Paper due