GEOG/ENST 4351, Winter 2014: CLIMATE CHANGE

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Course Content

Climatic change has become a major area of concern, as we enter a period of human-induced global warming. The goal of this course is to provide a thorough understanding of climatic change and its processes, causes and likely effects.

Course Text:

Dessler, A. E. (2012). *Introduction to Modern Climate Change.* New York: Cambridge University Press.

There will be required readings chosen from the academic literature and available either through the library or Desire2Learn.

Evaluation Scheme:

Midterm Examination	**25%**	February 12
Seminar	**15%**	March 12 – April 2
Paper	**10%**	April 4
Final Examination	**50%**	

There will be one term test, plus a final examination. Each student will conduct a 30 minute seminar in class. The seminars will be based on readings that **will be required for all students**. Students will also write an original paper of no more than five pages on the same topic as their seminar.

Lecture Times and Place:

Monday: 5:30 – 7:00 (RC 2003)
Wednesday: 5:30 – 7:00 (RC 2003)

GEOG/ENST 4351 Course Schedule: W14 (*subject to changes)*

Dates	Monday	Wednesday
Jan 6 & 8	Introduction	Radiative Forcing
Jan 13 & 15	Ancient Climate Change	Recent Climate Change
Jan 20 & 22	Anthropogenic Forcing	Energy and Carbon Dioxide
Jan 27 & 29	Carbon Cycle	Climate Models
Feb 3 & 5	Global Warming	Sea Level
Feb 10 & 12	Agriculture	MIDTERM
Feb 17 & 19	Water Resources	Forests
Feb 24 & 26	Other Ecosystems	Mitigation, Part I
Mar 3 & 5	Mitigation, Part II	Policy
Mar 10 & 12	Seminars	Seminars
Mar 17 & 19	Seminars	Seminars
Mar 24 & 26	Seminars	Seminars
Mar 31 & Apr 2	Seminars	Wrap-Up

GEOG/ENST 4351 Individual Projects: Winter 2014

Introduction
4351 is a course loaded with content from the instructor. However, as a fourth year course it is expected that students will seek out exposure to a wider range of knowledge and viewpoints. These seminars provide the opportunity for each student to gain familiarity with an area of current research related to global climate change. ***The goal of the project is to present new material to the class and solicit opinions and discussion.***

Material
The basis for each project is current research, represented by articles chosen from academic journals and emphasizing ones that were published within the last five years. ***This research must go beyond what is covered in the course.***

Your sources should ideally be peer-reviewed journal articles, although reports from *trusted* organizations may be acceptable (consult with the instructor if necessary). Web sites and blog posts will generally not be sufficient.

Look for articles that cover the same or closely related subjects but also *complement* rather than duplicate each other. Consider both quality and quantity of papers in your research; 4-10 should be sufficient, but you must acquire a good grasp of a subject that is new and interesting.

You must select one key reading to be assigned to the class in advance of your seminar so that there is a common starting point for discussion. All students in the class will be expected to read this paper.

Seminars
You will be allotted 30-40 minutes of class time to share your research with your peers. You may organize your seminar in many ways: presentations, discussions, games, debates, etc. You should ***assume that the rest of the class has completed the readings and come to class prepared***.

Seminars will be evaluated according to the following criteria:

- Was the seminar well-organized? Was it clear that the presenter understood the material?
- Was the material new and interesting? Did the presenter include his/her own insight and opinions?
- Was it pitched at a level appropriate to the class? How well did it solicit participation from the other students?
- Was the delivery professional? Was originality or creativity evident?

You may make use of the presentation equipment in the classroom. Other equipment can be provided if necessary.

Papers
Each student will write a summary paper on their seminar topic that is not more than five pages in length. The paper should review material you have collected for that topic, ***plus incorporate some viewpoints or consensus from the seminar itself***.

While this is a short paper, it should still have a formal style ***with an abstract and a concluding section***. Tables, figures, and the reference list (which will probably be short) can be outside the five page limit.

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 seem difficult to distill the material and opinions in your seminar into five pages of content. Papers will be evaluated according to:

- Content
- Analysis
- Writing style
- Formatting and referencing

Suggested Topics
Listed below are some suggested starting points for individual research. This list is not exhaustive; you may decide on a topic that doesn't fit any of these categories. Topics will frequently be focussed on a particular region, sector, or ecosystem, but could also have a global scope.

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 and goes beyond the basic course material.

Climatology
- Paleoclimate
- Global observation networks
- Emissions projections
- Climate models

Impacts
- Agricultural impacts
- Forest impacts
- Sea level rise
- Water resource impacts
- Biodiversity
- Biological surprise
- Polar impacts
- Disease
- Economic costs

Mitigation
- Setting targets for emission reductions
- Policy mechanisms
- Ethics and politics
- International cooperation
- Public perspectives