

GEOG/ENST 3431, Winter 2017

ENERGY AND ENVIRONMENT

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Course Content:

Energy is a keystone to human society; its availability has a powerful influence on the way we live our lives. The goal of this course is to illuminate how and why we make use of the energy sources available to us, and to appreciate the consequences that our energy use has on the environment around us. In addition to reviewing the basic terms and concepts required to understand energy on a physical basis, the course will examine the nature of world energy resources and the changing patterns of their distribution, production and consumption.

Textbook:

Everett, R., G. Boyle, S. Peake, and J. Ramage (2012). *Energy Systems and Sustainability: Power for a Sustainable Future, 2nd Edition* (Oxford University Press).

Evaluation Scheme:

Exercises	10%	Quasi-weekly
Midterm	25%	March 2
Discussion	5%	Starting February 9
Paper	10%	April 6
Final Examination	50%	TBA

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.

Lecture Times and Place:

Tuesdays and Thursdays: 4:00 – 5:30 (ATAC 1005)

Lecture Schedule, Winter 2017 (subject to changes)

<i>Dates</i>	<i>Tuesday</i>	<i>Thursday</i>
January 10 and 12	Introduction	Primary Energy
January 17 and 19	Energy Services	Forms of Energy
January 24 and 26	Coal	Heat Engines
Jan 31 and Feb 2	Oil and Gas	Other Fossil Fuels
February 7 and 9	Transportation	Electricity
February 14 and 16	Electricity Generation	Nuclear Energy
February 21 and 23	READING WEEK	
Feb 28 and Mar 2	Nuclear Generation	MIDTERM
March 7 and 9	Nuclear Waste	Pollution
March 14 and 16	Mitigation	Global Problems
March 21 and 23	Global Remedies	Hydro and Wind
March 28 and 30	Solar	Biomass and Geothermal
April 4 and 6	Energy Markets	Summary

Individual Projects, Winter 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*, *Maclean's*, *New York Times*, *Guardian*, etc.) published in the past five years. **The article must describe 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 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

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 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 short 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 the material and opinions into four 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 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.

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.

Energy development

Tar/Oil/Bituminous Sands
Hydraulic fracturing for gas extraction
Transcontinental pipeline projects

Socio-economic issues

International conflict
Economic development
Markets and subsidies
Carbon taxes

Environmental issues

Cap-and-trade programs
Air quality
Global climate change
Impacts of energy extraction