

ENV 382H1

Special Topics in the Environment: Big Ideas in Energy 2 – Economics, Politics and Security

CALENDAR DESCRIPTION: This special topics course will examine a range of issues related to energy and the environment, with a broad focus on economics, politics and security. It is the second of two new Special Topics courses on the Environment and Energy.

The pursuit of energy has fundamentally shaped human civilization. It has led to great progress, but it could also profoundly change our environment. This course will focus on the central ideas in economics, politics and security that are essential to understanding today's complex energy and environmental decisions.

The interdisciplinary nature of energy issues calls for a 'big ideas' approach to both energy teaching and research. This course will begin by suggesting ten 'big ideas' that are fundamental to understanding energy issues and that will help to form a thematic framework for course material. The course will then cover energy markets – their successes and failures, and outline basic remedies for the latter. It will discuss how energy security has shaped world politics in the 20th and 21st centuries. It will then proceed to a discussion of regulatory institutions, their design, efficiency and efficacy. The importance of resources and energy in shaping Canada's past, present and future will also be discussed. Whatever the specialization of the student, this course will seek to instill a search for connections with other disciplines, as well as the development of a broad perspective on understanding energy issues.

Prerequisites: None. Students must have completed a minimum of 9.0 FCEs to register for the course. Exclusion: BIG101Y

INSTRUCTORS:

Ben Akrigg, Classics, 125 Queen's Park (Lillian Massey Building); Room 117

ben.akrigg@utoronto.ca

Stephen Morris, Physics, MP505B, 60 St. George St. smorris@physics.utoronto.ca

Adonis Yatchew, Economics, 150 St. George Street (Max Gluskin Building), Room 278

yatchew@chass.utoronto.ca

LOCATION AND TIME: Winter (S) term. Lecture 9-11 AM Tuesday, ES B149. Tutorials Tuesday 11-12 BL 112 and Wednesday 10-11 BF 323, locations TBA.

EVALUATION: Evaluation for this course consists of a research paper worth 50%, Midterm worth 25% (held Tuesday February 14, 2017) and a Final Exam worth 25%. The only generally acceptable reason for missing an exam or term test is illness. A medical certificate is required.

Research paper: Outline, which is worth 10 out of the 50 marks allocated to the paper, is due Wednesday March 1, 2017. Please submit the outline electronically as an attachment and name the file using your name. For example, my outline would be “YatchewOutline.doc” or “YatchewOutline.pdf”. Please put “ENV 382 Outline” in the subject line of your email. Your outline must contain the following: a thesis statement, a bibliography, an outline of the structure of the paper, and your preliminary conclusions. The outline should be about two pages in length. The final paper is due Wednesday April 5, 2017.

COURSE MATERIALS¹

Required:

1. Richard Muller, *Energy for Future Presidents, The Science Behind the Headlines*, Norton 2012. Hardcopy and Kindle editions available.
2. Bryne Purchase, *Navigating on the Titanic, Economic Growth, Energy and the Failure of Governance*, McGill-Queen’s University Press, 2013. Hardcopy and Kindle editions available.
3. Jeffrey Sachs, *The Age of Sustainable Development*, Columbia University Press, 2015. Hardcopy and Kindle editions available.

Recommended:

1. Vaclav Smil, *Energy: Beginner's Guide*, 2006. Available electronically at Amazon.ca on Kindle.
2. Daniel Yergin, *The Quest*, The Penguin Press, 2011. Hardcopy and Kindle versions available.

Additional Resources:

1. *Encyclopedia of Energy*, ed. Cutler Cleveland. Available electronically through UT Libraries.
2. David Buchan, *The Rough Guide to the Energy Crisis*, Rough Guides, 2010. Hardcopy is difficult to obtain as it is out of print. Available electronically at Amazon.ca on Kindle.
3. BP (formerly British Petroleum) www.bp.com/statisticalreview, Statistical Review of World Energy, Statistical Review Workbook (Excel spreadsheet).
4. Lawrence Livermore Laboratories. Energy and Carbon Flow Charts.

IN THE NEWS

Students will follow current issues in energy by signing up for news alerts (e.g., through Google Alerts). Subscribe to MIT Energy Initiatives updates by visiting <http://mitei.mit.edu/about/contact>. Each class will begin with a brief discussion of the week’s developments in energy. Students should regularly visit MIT Technology Review <http://www.technologyreview.com/> to review advances in energy. For insightful commentary

¹ In some cases Kindle editions are available and considerably less costly than hardcopy. You do not need a Kindle device as Kindle books can be read on Macs and PCs.

on a range of issues, some related to energy, please sign up for the weekly briefing from Project Syndicate <http://www.project-syndicate.org/>.

LECTURE TOPICS and READINGS

(Optional readings are marked with an asterisk *)

1. Ten Big Ideas
2. Background and Introduction
 - a. Muller – Chapters 1-6
 - b. Review of Richard Muller’s book by Bill McKibben: “The Scientist Who Made a Total Turnaround”, *New York Review of Books*, October 11, 2012. Reply by Richard Muller: “On Turning Down the Heat”, *New York Review of Books*, November 22, 2012.
 - c. Sachs – Chapters 1, 3, 4, 6
 - d. *Muller – Part IV What is Energy?
3. Politics, Economics and Regulation of Energy
 - a. Yatchew, A. 2014, “Economics of Energy: Big Ideas for the Non-Economist”, *Energy Research and Social Science*, 1(1), 74-82.
 - b. Nordhaus, W. “The Pope and the Market”, *The New York Review of Books*, issue dated October 15, 2015.
 - c. Muller, Section V. “Advice for Future Presidents”
4. Energy and Security
 - a. Amy Myers Jaffe, “Geopolitics of Energy”, in *Encyclopedia of Energy, Volume 2*.
 - b. Vaclav Smil, “War and Energy”, in *Encyclopedia of Energy, Volume 6*.
 - c. *Alan Riley, “The Geostrategic Implications of the Shale Gas Revolution”, NATO Paper 10, 2012.
5. Alternative Energy
 - a. Muller – Chapters 7-19
 - b. Sachs – Chapter 12
 - c. Yatchew, A. 2016, “Rational vs. ‘Feel-Good’ Carbon Policy – Transferability, Subsidiarity and Separation” *Energy Regulation Quarterly*, 4:3, 31-40.
Available at <http://www.energyregulationquarterly.ca/articles/rational-vs-feel-good-carbon-policy-transferability-subsidiarity-and-separation#sthash.u6itvAJI.dpbs>.
 - d. Socolow, R. and S. Pacala “A Plan to Keep Carbon in Check”, *Scientific American*, pp. 50-57. September 2006.
 - e. Ted Nordhaus, Shaiyra Devi, Alex Trembath “Debunking Microenergy, The Future Lies with Urbanization” *Foreign Affairs*, August 2016.

6. Energy Policy

- a. Energy Policy, Canadian Encyclopedia
<http://www.thecanadianencyclopedia.com/en/article/energy-policy/>
- b. *Energy in Society, Canadian Encyclopedia
<http://www.thecanadianencyclopedia.com/en/article/energy-in-society/>

ACCESSIBILITY

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 Accessibility Services as soon as possible: email disability.services@utoronto.ca or consult <http://studentlife.utoronto.ca/accessibility>.

ACADEMIC INTEGRITY

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. (www.governingcouncil.utoronto.ca/policies/behaveac.htm). Potential offences include, but are not limited to:

In papers and assignments:

1. Using someone else's ideas or words without appropriate acknowledgement.
2. Submitting your own work in more than one course without the permission of the instructor.
3. Making up sources or facts.
4. Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

1. Using or possessing unauthorized aids.
2. Looking at someone else's answers during an exam or test.
3. Misrepresenting your identity.

In academic work:

1. Falsifying institutional documents or grades.
2. Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see www.utoronto.ca/academicintegrity/resourcesforstudents.html).