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**ENV 462H1: Energy and Environment:
Economics, Politics, and Sustainability**

CALENDAR DESCRIPTION:

This is an interdisciplinary course that examines key ideas in economics, politics and security that are essential to understanding energy and environmental issues. The course will cover energy markets, energy security, and the increasing role that sustainability plays in setting policies.

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 century and continues to do so in the 21st century. It will then proceed to a discussion of regulatory institutions, their design, efficiency and efficacy. Considerable time will be devoted to alternative energy resources. 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.

INSTRUCTOR:

Adonis Yatchew, Economics, 150 St. George Street (Max Gluskin Building), Room 278
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LOCATION AND TIME: Winter (S) term 2-5, Tuesday, Earth Sciences B142.

EVALUATION: Evaluation for this course consists of a research paper worth 50%, a midterm Tuesday February 15, 2022 and an exam during the final exam period, each worth 25%. For University policies on missed tests and evaluations please refer to Absence Declaration in Acorn.

RESEARCH PAPER: An outline, worth 10 out of the 50 marks allocated to the paper, is due by midnight Wednesday, March 2, 2022. Your two-page outline must contain the following:

- a. Title
- b. Abstract not exceeding 250 words
- c. Research question and a clear thesis statement **in bold**.
- d. A list of key references (be sure to do a citation search)
- e. An outline of how your analysis will be conducted

The final paper is due by midnight Sunday April 3, 2022. **Late penalties of 10% per day will apply to the outline and the paper.** The target length should be about 3000 words, not including tables, graphs and bibliography. The structure of the paper should be as follows:

- a. Cover Page
 - i. Title, name and student number, date submitted, word count
 - ii. Abstract not exceeding 250 words
- b. Introduction – the last sentence in this section must contain the thesis statement.
- c. Literature Review

- d. Analysis
- e. Conclusions
- f. References

The “Conclusions” section should discuss policy implications. Longer papers are acceptable. Use a citation format with which you are familiar (APA, Chicago...). Please submit the paper electronically through Quercus in pdf or Word format.

READINGS ¹

Required:

1. Daniel Yergin, *The New Map: Energy, Climate and the Clash of Nations*, Penguin Press, 2020.
2. Richard Muller, *Energy for Future Presidents, The Science Behind the Headlines*, Norton 2012.
3. Jaccard, M. *The Citizen’s Guide to Climate Success*, Cambridge University Press, 2020. Entire pdf version available at <https://www.cambridge.org/core/books/citizens-guide-to-climate-success/49D99FBCBD6FCACD5F3D58A7ED80882D>
4. Jeffrey Sachs, *The Age of Sustainable Development*, Columbia University Press, 2015. Chapter summaries available at <https://cup.columbia.edu/extras/supplement/sachs-9780231173148>. Hardcopy and Kindle editions available. Also available electronically through UofT Libraries.
5. Bruce Usher, *Renewable Energy: A Primer for the Twenty-First Century*, Columbia University Press, 2019. Available electronically through University of Toronto libraries. Also, hardcopy and Kindle versions available.
6. Jaffe, Amy Myers. *Energy's Digital Future: Harnessing Innovation for American Resilience and National Security*, New York Chichester, West Sussex: Columbia University Press, 2021. <https://doi-org.myaccess.library.utoronto.ca/10.7312/jaff19682>

Additional Resources:

1. *Encyclopedia of Energy*, ed. Cutler Cleveland. Available electronically through UT Libraries.
2. BP (formerly British Petroleum) www.bp.com/statisticalreview, *Statistical Review of World Energy, Statistical Review Workbook (Excel spreadsheet)*.
3. Lawrence Livermore Laboratories. *Energy and Carbon Flow Charts*.
4. BP (formerly British Petroleum) www.bp.com/statisticalreview, *Statistical Review of World Energy, Statistical Review Workbook (Excel spreadsheet)*
5. Lawrence Livermore Laboratories. *Energy and Carbon Flow Charts*.
6. World Resources Institute – GHG gas data, slide presentation, papers, annual “Stories to Watch”.
7. *Economics in the Age of Covid-19* –Joshua Gans, MIT Press, April 2020. Kindle Edition available on Amazon.ca. An earlier open access draft is available at <https://economics-in-the-age-of-covid-19.pubpub.org/>.

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://energy.mit.edu/news/>. Classes will usually begin with a brief discussion of the week’s developments in energy. Students should regularly visit MIT

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

Technology Review <http://www.technologyreview.com/> to review advances in energy. For insightful commentary on a range of issues, visit Project Syndicate which is available through our library system through <https://login.library.utoronto.ca/index.php?url=https://www.project-syndicate.org/>.

LECTURE TOPICS and READINGS

1. Ten Big Ideas, Weeks 1 and 2
 - a. Yatchew, A. 2014, "Economics of Energy: Big Ideas for the Non-Economist", *Energy Research and Social Science*, 1(1), 74-82.
 - b. Jaccard – Ch. 1
 - c. Usher – Ch. 1, 2

2. Background and Introduction, Weeks 3 and 4
 - a. Muller – Ch. 1-6.
 - i. Review of Richard Muller's book by Bill McKibben: "The Scientist Who Made a Total Turnaround", *New York Review of Books*, October 11, 2012.
 - ii. Reply by Richard Muller: "On Turning Down the Heat", *New York Review of Books*, November 22, 2012.
 - b. Sachs – Ch. 1, 3, 4, 6, 12, 14, read Chapter summaries, available at <https://cup.columbia.edu/extras/supplement/sachs-9780231173148>.
 - c. Yergin, Introduction

3. Geopolitics, Politics and Regulation, Weeks 5, 7 and 8 (Midterm held in Week 6)
 - a. Yatchew, A. 2014, "Economics of Energy: Big Ideas for the Non-Economist", *Energy Research and Social Science*, 1(1), 74-82.
 - b. Yergin, *Russia's Map* Ch. 9-16, *China's Map* Ch.17-25, *Maps of the Middle East* Ch. 26-36, Conclusion.
 - c. "2018 Diplomat of the Year Chrystia Freeland: Read the Transcript", *Foreign Policy*, June 14, 2018, <https://foreignpolicy.com/2018/06/14/2018-diplomat-of-the-year-chrystia-freeland-read-the-transcript/>
 - d. Jaffe, Chapter 3, *China's Energy Strategy*

4. Renewables, Environmental Issues and Policies (Weeks 9, 10, 11, 12)
 - a. Usher Ch. 4, 5
 - b. Muller Ch. 3, 8-10, 16.
 - c. Jaccard, M. Ch. 4, 6, 10-12.
 - d. Brander, James, "Easter Island: Resource Depletion and Collapse", *Encyclopedia of Energy*, 2004 edited by Cutler Cleveland.
 - e. Nordhaus, William, "The Climate Club: How to Fix a Failing Global Effort", *Foreign Affairs*, May/June 2020.
 - f. Nordhaus, William, "The Pope & the Market", *New York Review of Books*, October 8 2015. <http://www.nybooks.com/articles/archives/2015/oct/08/pope-and-market/>
 - g. Yatchew, A. 2016, "Rational vs. 'Feel-Good' Carbon Policy – Transferability, Subsidiarity and Separation" *Energy Regulation Quarterly*, 4:3, 31-40.

- h. Climate Leadership Council, February 2017, “The Conservative Case for Carbon Dividends”, available at <https://www.clcouncil.org/media/2017/03/The-Conservative-Case-for-Carbon-Dividends.pdf> .
- a. Yergin Climate Map Ch. 41-46.
- b. Pineau, Pierre-Olivier “Canadian Energy in Multiple Crises: From Pipeline and Climate to Covid-19”, Slides from webinar, April 15, 2020, posted on Quercus.

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. submissions may be processed through plagiarism software. 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 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).