Course Description:
Applies the tools of microeconomics, institutional economics, and econometrics to energy markets and policies. Focuses on empirical studies of the energy business including markets for natural gas, crude oil, gasoline, and electricity.

Course Outcomes:
The objective of this course is to provide the economist’s perspective on a broad range of topics surrounding energy supply and demand. Course goals are to understand: how markets work; the consequences of environmental externalities and other market failures; and how the characteristics of markets impact effective policy. Topics include: pricing non-renewable resources, transportation policies, and electricity markets.

Course Outline:
January 14-21 Upstream oil and gas
Nathaniel O. Keohane and Sheila M. Olmstead, *Markets and the Environment* (Chapter 6)
Quentin Grafton, Wiktor Adamowicz, Diane Dupont, Harry Nelson, Robert J. Hill, Steven Renzetti *The Economics of the Environment and Natural Resources* 25-33; 194-196
Griffin, James, David Teece, *OPEC Behavior and World Oil Prices* (pages 14-17)
Newell, Richard and Brian C. Prest, "Informing SPR Policy through Oil Futures and Inventory Dynamics" RFF Discussion Paper

January 23: Environmental regulation of oil and gas extraction
Lade, Gabriel, and Ivan Rudik, "Costs of Inefficient Regulation: Evidence from the Bakken," Working Paper

**Refining**
"Canada’s first refinery in 30 years could rescue battered oil producers," Financial Post, December 25, 2017
"Sport to make fun of’: New refinery in Alberta eager to prove the doubters wrong,” Financial Post, October 19, 2017
McRae, Shaun, "Vertical Integration and Price Differentials in the U.S. Crude Oil Market," 2015

**January 28 Oil transport—Pipelines and rail**
*Stata crash course 6:30PM-7:30PM Location: TBD*
National Energy Board "Canada’s Pipeline Transportation System 2016"
Clay, Karen, Akshaya Jha, Nicholas Muller, and Randall Walsh "The External Costs of Transporting Petroleum Products by Pipelines and Rail: Evidence from Shipments of Crude Oil from North Dakota" NBER Working Paper No. 23852 September 2017
Covert, Thomas and Ryan Kellogg "Crude by Rail, Option Value, and Pipeline Investment," NBER Working Paper No. 23855 September 2017

**Gasoline**

**February 4 OPEC**
*R crash course 6:30PM-7:30PM Location: TBD*
Viscusi, Harrington, and Vernon (2005), *Economics of Regulation and Antitrust*, Ch. 5, “Oligopoly, Collusion, and Antitrust”


**February 6 Intro Natural gas demand**

**February 11 Natural gas demand**


**February 13 Natural gas demand**

Muehlegger, Erich; Davis, Lucas W "Do Americans consume too little natural gas? An empirical test of marginal cost pricing" The RAND Journal of Economics 2010


**February 18-20 No class: reading week**

**February 25: Status on research project (which dataset will you use? What question will you answer?)**

**February 27: Quiz #1**

**March 3: Intro to transportation**

**March 5: Transportation**


**March 10: Intro to electricity demand**

**March 12: Electricity Demand**


McRae, Shaun "Efficiency and Equity Effects of Electricity Metering: Evidence from Colombia," Working Paper

**March 17: Intro to Electricity Supply**

**March 19: Electricity Supply**

**March 24 Electricity Supply in Developing Country Context**

**March 26-31 Energy Efficiency**
Burlig et al. "Machine Learning from Schools about Energy Efficiency" Working paper

**April 2 Boomtown—Labor market impacts**
Allcott, Hunt and Daniel Keniston, "Dutch Disease or Agglomeration? The Local Economic Effects of Natural Resource Booms in Modern America"

**April 7: Present final project**

**April 9: Course wrap up**

**April 14: Quiz #2**
Prerequisites/corequisites:
None

Required Textbook(s):
There is no required textbook for this course. Required course readings are journal articles and will be made available via D2L.

Desire2Learn:
This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at [http://d2l.ucalgary.ca](http://d2l.ucalgary.ca) through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

Grade Determination/Assessment:

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
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<tbody>
<tr>
<td>CLASS PARTICIPATION</td>
<td>5%</td>
</tr>
<tr>
<td>QUIZZES</td>
<td>20%</td>
</tr>
<tr>
<td>QUESTIONS ON READINGS</td>
<td>25%</td>
</tr>
<tr>
<td>PRESENTATION OF ARTICLE</td>
<td>10%</td>
</tr>
<tr>
<td>EMPIRICAL PROJECT</td>
<td>40%</td>
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<td>100%</td>
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5% Class participation
Class participation is determined based on attendance and engagement during student presentations.

20% Quizzes
There will be two short quizzes on material from the reading list.

25% Questions on readings
At the beginning of class on days in which papers are presented, each non-presenting student will submit a written response to pre-specified questions on each paper (~ 1 page).

10% Presentation of a journal article
Each student will give a 15-20-minute presentation (depending on class size) summarizing the findings in a recently published paper. I will distribute a list of papers and you can email me (lmuehlen@ucalgary.ca) your top two choices for presentation, and I will assign papers on a first-come first-serve basis. Presentations will be evaluated by me and your classmates.

40% Empirical project
The goal of this assignment is to give you practice conducting research, writing, and analyzing data.

Grade Determination and Final Examination Details
Department of Economics Criteria for Letter Grades. Economics professors use the following criteria when assigning letter grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Point Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
<td>Outstanding</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
<td>Excellent-superior performance, showing-comprehensive understanding of subject matter</td>
</tr>
<tr>
<td>A-</td>
<td>3.70</td>
<td>Very good performance</td>
</tr>
<tr>
<td>B+</td>
<td>3.30</td>
<td>Good performance</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Satisfactory performance</td>
</tr>
<tr>
<td>Grade</td>
<td>Minimum Pass</td>
<td>Notes</td>
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<tr>
<td>B-</td>
<td>2.70</td>
<td>Minimum pass for students in the Faculty of Graduate Studies</td>
</tr>
<tr>
<td>C+</td>
<td>2.30</td>
<td>All grades below “B-” are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements. Individual programs may require a higher passing grade.</td>
</tr>
</tbody>
</table>

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

Tests and exams will not involve multiple choice questions.

Absence from a Test/Exam

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES under any circumstances, nor may the quizzes be written early. Students unable to write the quizzes because of documented illness, family emergency, religious observance, or university-sanctioned event will have the weight shifted to the final examination; otherwise a grade of zero will be assigned. If a student cannot write their final exam on the date assigned by the Department, they need to arrange for a deferred exam with the department.

Reappraisal of Grades and Intellectual Honesty:
For reappraisal of graded term work, see Calendar I.2
http://www.ucalgary.ca/pubs/calendar/current/i-2.html

For reappraisal of final grade, see Calendar I.3
http://www.ucalgary.ca/pubs/calendar/current/i-3.html

Statement of Intellectual Dishonesty, see Calendar K.4
http://www.ucalgary.ca/pubs/calendar/current/k-4.html

Plagiarism and Other Academic Misconduct, see Calendar K.5
http://www.ucalgary.ca/pubs/calendar/current/k-5.html

Academic Accommodations:
Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf.

Freedom of Information and Protection of Privacy (FOIP) Act:
Personal information is collected in accordance with FOIP. Assignments can only be returned to the student and will be accessible only to authorized faculty and staff. For more information, see http://www.ucalgary.ca/legalservices/files/legalservices/faq-students.pdf and http://www.ucalgary.ca/legalservices/files/legalservices/faq-faculty_0.pdf.

Internet and Electronic Communication Device information:
The use of cell phones for any purpose in class is prohibited. Computers and tablets may be used for note taking only unless otherwise authorized by the instructor.
Copyright Legislation:
See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf. Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Important Dates:
Please check: http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html

Student Organizations:
Faculty of Grad Studies website: http://grad.ucalgary.ca/home
Graduate Students Association: http://gsa.ucalgary.ca/
Professional Development for Grad Students
   Workshops and resources can be found at http://www.ucalgary.ca/mygradskills/
Economics Graduate Association: http://econ.ucalgary.ca/ega/

Student Support and Resources:
- See https://www.ucalgary.ca/registrar/registration/course-outlines for information on campus mental health resources, the Student Ombuds’ Office, Student Success Centre, Safewalk, and Emergency Evacuation and Assembly.
- Online writing resources are available at https://ucalgary.ca/student-services/student-success/writing-support.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Library Block.

Notes:
Students are responsible for all assigned material, e.g., supplementary material posted on D2L, regardless of whether or not the material was covered in class.

LM
2019-12-2