

Economics 427 (L01) (Energy Economics & Policy)

Instructor: W. D. Walls
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Lecture Location: Zoom Delivery
Lecture Days/Time: MWF 9--9:50AM

Office: Zoom Delivery
Office Hours: MW 11--11:50AM

(SEMESTER AND YEAR) Fall 2021

Course Description:

This course applies microeconomic theory and empirical analysis to the study of energy markets. Student will gain a working knowledge of individual and industrial demand for energy, energy supply, energy markets, and public policies affecting energy markets. Students will learn to apply the tools of economics to the energy industries including crude oil, natural gas, coal, electricity, and nuclear power. Specific topics will include energy taxation, price regulation, deregulation/restructuring, and linkages between spot, storage and futures markets.

Course Learning Outcomes:

Students who successfully complete this course will:

- a) be familiar with sources of energy data and proficient at collecting, collating, and analyzing energy data for the purpose of analyzing energy markets.
- b) be proficient at applying the concepts of cost, demand, and price formation in competitive markets and in markets where participants may not behave competitively.
- c) understand the mechanics of various short-run and long-run demand models and be able to analyze econometric estimation output of these demand models.
- d) understand the theory of energy supply, the standard theory of depletable resources, and be knowledgeable of the empirical evidence of supplier behavior in energy markets.
- e) be knowledgeable of the mechanics of a computable model of the world oil market; be familiar with various models of OPEC behavior and the empirical tests of these models; be familiar with how a world oil model can be used to evaluate energy security policies.
- f) be knowledgeable of regulatory institutions in North American natural gas markets, deregulation and open access transportation in natural gas markets, and empirical tests of competition in markets with a network structure.
- g) be knowledgeable of regulatory institutions in electric market power markets, regulatory restructuring and market design, and empirical tests for market power.
- h) be knowledgeable of linkages between cash, storage, and futures markets, and be able to articulate price dynamics in response to shocks to net demand and cash market volatility.
- i) be able to mathematically articulate the relationship between futures market prices and expected future spot prices for energy commodities; be able to understand econometric tests of the unbiasedness of futures market prices as predictors of future spot prices.
- j) be knowledgeable of the efficiency of environmental policies under cost uncertainty, and also be knowledgeable of the empirical evidence on the effectiveness of implemented environmental policy measures.

- k) be knowledgeable of international coal markets, including econometric models used to quantify and test market linkages.
- l) be knowledgeable of important issues surrounding nuclear power.
- m) be able to produce a twenty-page written report on an energy market topic that combines economic theory, market institutions, and empirical analysis; the written report may form the basis for the capstone project for Econ 493 Empirical Energy Economics.

Course Outline:

1. Energy Data and Statistics
2. Energy Demand: Short run, long run, econometric models and estimation
3. Energy Supply and Economics of Depletable Resources
4. World Oil Markets and Energy Security
5. Natural Gas Markets: Open Access Transportation and Market Linkages
6. Electricity Markets: Restructuring, Market Design, Diagnosing Market Power
7. Linkages between Cash Markets, Storage Markets, and Futures Markets
8. Energy and Environmental Policies
9. Coal Markets
10. Nuclear Power

Prerequisites/corequisites:

Econ 357,359,395

Required Textbook(s):

None.

Recommended Textbook(s):

None.

Online Delivery:

This course will be delivered online. Students are expected to be able to participate online in accordance with this Course Outline. Lectures, assignments, office hours, exams, readings and other course material, etc. all require online access and this access is the responsibility of the student.

In order to remotely participate in online courses, students will need to have: computer with a current and updated operating system (macOS or Windows will work with all university-supported online learning technologies), a current and updated web browser installed – the latest versions of Firefox, Safari, Chrome or Edge will help to avoid compatibility issues, secure and reliable internet, microphone / headphones, webcam (optional), scanner (or camera to scan your work).

Lectures:

Lectures will be delivered online at the Registrar scheduled times using ZOOM; recordings will be posted on 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> 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 and Final Examination Details:

Quizzes (3 @ 15 % each)	45%
Video Presentation of Term Project	5%
Written Term Project	<u>50%</u>
	100%

The official grading system will be used. See <http://www.ucalgary.ca/pubs/calendar/current/f-1-1.html>.

Students must receive a passing grade on the **written term project and video presentation** to pass the course.

If a student's letter grade on the written term project exceeds his or her or their midterm letter grade, the weight of the midterms is transferred to the written term project. The student must have written the midterm(s) or provided supporting documentation for the absence(s) such as a medical note or statutory declaration.

As per the Writing Across the Curriculum Statement in the Calendar, writing and grading thereof will be a factor in the evaluation of student work. See <https://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

Course material dealing with a particular assignment will typically be covered in class at least 3 days before the assignment is due; thus, assignments can be completed at any time up to and including the due date. Given these factors, only situations where someone can document illness or domestic affliction for an extended period would possibly warrant shifting the assignment weight to the final exam. Furthermore, technical problems can be expected to occur with computer systems (and internet availability) so it may be a good idea not to wait until the last minute to submit your work.

The midterm exam(s) is designed and intended to be completed in 50 minutes. The exam(s) will be **CLOSED** book and CLOSED notes. Only a non-programmable calculator will be permitted. The exam(s) will be available on D2L. The student will download the exam from D2L, complete the exam, scan it, and submit using Dropbox in D2L. As a form of universal design, all students will have 75 minutes (50% time extension) to complete the exam. Common assessment time for exam will be during class on:

- Monday October 4th,
- Monday November 1st,
- Monday December 6th **during the regularly scheduled lecture time.**

For students who cannot write during the common assessment time the exam will be available the evening before the exam date:

- Sunday October 3rd at 8PM,
- Sunday October 31st at 8PM,
- Sunday December 5th at 8PM.

This course has no final examination. Instead, the course emphasizes writing and presentation skills. The final project and video presentation are to be submitted using Dropbox in D2L. The written project and the video presentation are due in the D2L Dropbox by 9AM on Monday December 13th.

Tests and exams WILL NOT involve multiple choice questions.

Programmable calculators, cellphones, textbooks, course notes, and other electronic devices **will not be** allowed during the writing of tests. Students are reminded that simply being able to access their cellphone during an exam is academic misconduct.

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES/TESTS/EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the quizzes/tests/exams 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.

Reappraisal of Grades:

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>

Academic Misconduct:

Academic Misconduct refers to student behavior that compromises proper assessment of students' academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

Students committing academic misconduct during the final exam will not receive a passing grade for the course.

For information on the Student Academic Misconduct Policy, Procedure and Academic Integrity, please visit: <https://www.ucalgary.ca/pubs/calendar/current/k-3.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

<https://www.ucalgary.ca/legal-services/university-policies-procedures/accommodation-students-disabilities-procedure>

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 <https://www.ucalgary.ca/legal-services/access-information-privacy>

Copyright Legislation:

See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at <https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy> Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be

reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

Recording of Lectures:

Recording of lectures is **prohibited**, except for audio recordings authorized as an accommodation by SAS or an audio recording for individual private study and only with the written permission of the instructor. Any unauthorized electronic or mechanical recording of lectures, their transcription, copying, or distribution, constitutes academic misconduct. See <https://www.ucalgary.ca/pubs/calendar/current/e-6.html>.

Important Dates:

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

Student Organizations:

Faculty of Arts Students' Association (F.A.S.A.):
Economics Department Representative
E-mail: econrep@fasaucalgary.ca
Website: www.fasaucalgary.ca.

Society of Undergraduates in Economics: <https://www.ucalgarysue.com/>.

Society of Undergraduates in Economics is a student run organization whose main purpose is to assist undergraduate economics students to succeed both academically and socially at the University of Calgary. Services include access to the exam bank, career events such as Industry Night and information sessions, mentorship programs, and social events for members. They invite you to join by contacting SUE at societyofundergradsineconomics@gmail.com.

Faculty of Arts Program Advising and Student Information Resources:

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580, or email them at artsads@ucalgary.ca. You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate>, which has detailed information on common academic concerns, including program planning and advice.
- 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 MacKimmie Tower.

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>.

Notes:

1. 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.