

## ECONOMICS 132 – FALL 2008

### ENERGY ECONOMICS

Genevieve Peters  
Economics Building 110B  
(858) 534-7974  
send2gpeters@cox.net

Office Hours: MWF 11:00 am – 12:30 pm  
Classroom: Ledden Auditorium  
Class Time: MWF 2:00 – 2:50 p.m.  
Class Web Page: <http://webct.ucsd.edu/>

#### COURSE DESCRIPTION

In this class you will be introduced to the way that economists view energy markets by examining the markets for petroleum (oil and natural gas) and electricity. In particular, we will discuss recent trends in energy production and consumption, the issue of energy scarcity, the regulation of energy markets, and energy market reforms around the world.

#### PREREQUISITES

Econ 1A-B or Econ 2 or Econ 100A and Math 10C or Math 20C.

#### COURSE READINGS

Required readings (listed below) have been provided on the course website. The pace of the discussion will be rapid, so you are strongly encouraged to read the required materials ahead of each lecture.

#### ATTENDANCE

Class attendance is an individual student responsibility. Although daily attendance is not recorded, the lectures will cover more material than the readings, and I will frequently provide analysis during lectures that doesn't appear in the readings but will be fair game for examination. Thus frequent absences may adversely affect your performance in this course.

#### STATEMENT OF ACADEMIC INTEGRITY

Students are expected to do their own work, as outlined in the UCSD policy on Academic Integrity published in the UCSD General Catalog. Cheating will not be tolerated, and any student who engages in suspicious conduct will be confronted and subjected to the disciplinary process. Students found guilty of academic misconduct will receive a failing grade on the exam and/or in the entire course. They may also be suspended from UCSD.

#### EXAMINATIONS

Two midterm exams and one final exam will be given in this section.

- The midterms will be given during class time on **Monday October 20<sup>th</sup>** and **Wednesday November 12<sup>th</sup>**.
- The final exam will be given on **Wednesday December 10<sup>th</sup> from 3:00 – 6:00 p.m.**

No notes, books, calculators, or other personal electronic devices will be allowed in these exams.

**All three exams must be taken at the scheduled time and place.** Students who arrive late will not receive extra time to complete their exam. Once a student completes the exam and leaves the exam room, no other student will be permitted to start the exam.

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**MISSED EXAMINATIONS**

No make-up exams will be given in this class. Students who miss the midterm exam without a university accepted excuse will receive a grade of zero (0) for that exam. Students who miss the midterm with a university accepted excuse will have the weight of the final exam increased accordingly. You must take the final exam to receive a grade in this course.

Excuses for missed exams must be **pre-approved** by the instructor (except when this is not possible in an emergency situation). Students who make initial contact after the exam will have to document why they could not make contact prior to the exam. In addition, any student who misses an exam due to physical illness will be required to provide documentation from a health care professional indicating why the student was physically unable to take the exam. All documentation and an additional signed written statement explaining the relevant circumstances of the absence must be provided to the instructor within two working days of the student's return to campus. Failure to comply with any of the above in the specified manner will result in a grade of zero (0) for the exam.

**GRADING**

Your raw numerical score will be determined as follows:

Midterm Exam 1	=	20%
Midterm Exam 2	=	30%
Final Exam	=	50%
Total Raw Score	=	100%

Your final letter grade will be determined by the distribution of raw numerical scores in the class.

**IMPORTANT DATES**

Monday, October 20 <sup>th</sup>	Midterm Exam 1 (In class)
Wednesday, November 12 <sup>th</sup>	Midterm Exam 2 (In class)
Friday, November 28 <sup>th</sup>	University Holiday – Lecture and Office Hours Cancelled
Wednesday, December 10 <sup>th</sup>	Final Exam (3:00 – 6:00 p.m.)

**LECTURE TOPICS AND READING ASSIGNMENTS**

**Introduction to Energy Resources**

**Cassedy, E.S. & P.Z. Grossman.** Chapter 4 – The Demand for Energy. *Introduction to Energy: Resources, Technology, and Society, 2<sup>nd</sup> Edition.* (1998): 64-70.

**Field, B.** Chapter 11 - Energy. *Natural Resource Economics - An Introduction.* (2003): 199-221.

**OPEC Secretariat.** Energy Indicators. *OPEC Review* Vol. 31, No. 4 (Dec. 2007): 281-299.

**Econ 132 Handout:** "Energy Types"

**Econ 132 Handout:** "Template for Analyzing Articles" adapted from *The Miniature Guide to Critical Thinking Concepts and Tools* by R. Paul and L. Elder, 2007.

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**Petroleum Markets: Theory and Background**

**Cassedy, E.S. & P.Z. Grossman.** Chapter 2 – Energy Resources. *Introduction to Energy: Resources, Technology, and Society, 2<sup>nd</sup> Edition.* (1998): 9-35.

**Viscusi, W.K., J.E. Harrington Jr., and J.M. Vernon.** *Economics of Regulation and Antitrust, 4<sup>th</sup> Edition.* (2005).

- Chapter 4 – Efficiency and Technical Progress
- Chapter 5 – Oligopoly, Collusion, and Antitrust
- Chapter 18 – Economic Regulation of Energy: Crude Oil and Natural Gas

**Econ 132 Handout:** “The Hubbert Curve”

**Petroleum Markets: Applications**

**Adelman, M.A. and G.C. Watkins.** Costs of Aggregate Hydrocarbon Additions. *The Energy Journal* Vol. 25, No. 3 (2004): 37-51.

**Adelman, M. and G.C. Watkins.** Reserve Prices and Mineral Resource Theory. *The Energy Journal* Special Issue to Acknowledge the Contribution of Campbell Watkins to Energy Economics (2008): 1-16.

**Atkins, F.J. and A.J. MacFadyen.** A Resource Whose Time Has Come? The Alberta Oil Sands as an Economic Resource. *The Energy Journal* Special Issue to Acknowledge the Contribution of Campbell Watkins to Energy Economics (2008): 77-98.

**Bahgat, G.** Russia’s Oil Potential: Prospects and Implications. *OPEC Review* Vol. 28, No. 2 (June 2004): 133-147.

**Bahgat, G.** Africa’s Oil: Potential and Implications. *OPEC Review* Vol. 31, No. 2, (June 2007): 91-104.

**LeClair, M.S.** Achieving Gasoline Price Stability in the U.S.: A Modest Proposal. *The Energy Journal*, Vol. 27, No. 2 (2006): 41-54.

**Holland, S.P.** Modeling Peak Oil. *The Energy Journal* Vol. 29, No. 2 (2008): 61-79.

**Hughes, J.E., Knittel, C.R. and D. Sperling.** Evidence of a Shift in the Short-Run Price Elasticity of Gasoline Demand. *The Energy Journal* Vol. 29, No. 1 (2008): 113-134.

**OPEC Secretariat.** Oil Outlook to 2025. *OPEC Review* Vol. 30, No. 4, (Dec. 2004): 203-234.

**Porter, E.D.** Are We Running Out of Oil? *Advances in the Economics of Energy and Resources* Vol. 10 (1997): 185-251.

**Rietveld, P. and S. van Woudenberg.** Why Fuel Prices Differ. *Energy Economics* Vol. 27, No. 1 (Jan. 2005): 79-92.

**Econ 132 Handout:** “USGS World Oil Resource Estimates”

**Econ 132 Handout:** “Energy Units: Conversion and Comparison”

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**Electricity Markets: Theory and Background**

**Viscusi, W.K., J.E. Harrington Jr., and J.M. Vernon.** *Economics of Regulation and Antitrust*, 4<sup>th</sup> Edition. (2005)

- Chapter 4 – Efficiency and Technical Progress
- Chapter 5 – Oligopoly, Collusion, and Antitrust
- Chapter 6 – Market Structure and Strategic Competition
- Chapter 11 – Theory of Natural Monopoly
- Chapter 12 – Natural Monopoly Regulation and Electric Power
- Chapter 14 – Public Enterprise

**Rosenberg, N.** The Role of Electricity in Industrial Development. *The Energy Journal* Vol. 19, No. 2 (1998): 7-24.

**Electricity Markets: Applications**

**Borenstein, S., Bushnell, J., and C.R. Knittel.** Market Power in Electricity Markets: Beyond Concentration Ratios. *The Energy Journal* Vol. 20, No. 4 (1999): 65-88.

**Bushnell, J.** California's Electricity Crisis: A Market Apart? *Energy Policy* Vol. 32, No. 9 (June 2004): 1045-1052.

**Faruqui, A. and R. Earle.** Demand Response and Advanced Metering. *Regulation* Vol. 29, No. 1 (Spring 2006): 24-27.

**Gabriele, A.** Policy Alternatives in Reforming Energy Utilities in Developing Countries. *Energy Policy* Vol. 32, No. 11 (July 2004): 1319-1337.

**Gruenspecht, H. and T. Terry.** Horizontal Market Power in Restructured Electricity Markets. Office of Policy, U.S. Department of Energy (March 2000): 1-17.

**Hale, D.R., Overbye, T.J., and T. Leckey.** Competition Requires Transmission Capacity: The Case of the U.S. Northeast. *Regulation* Vol. 23, No. 2 (Summer 2000): 40-45.

**Hobbs, B.F., Rijkers, F.A.M. and M.G. Boots.** The More Cooperation, The More Competition? A Cournot Analysis of the Benefits of Electric Market Coupling. *The Energy Journal* Vol. 26, No. 4 (2005): 69-97.

**Percebois, J.** Electricity Liberalization in the European Union: Balancing Benefits and Risks. *The Energy Journal* Vol. 29, No. 1 (2008): 1-19.

**Singh, A.** Power Sector Reform in India: Current Issues and Prospects. *Energy Policy* Vol. 34, No. 16 (Nov. 2006): 2480-2490.

**Xu, S. and W. Chen.** The Reform of Electricity Power Sector in the PR of China. *Energy Policy* Vol. 34, No. 16 (Nov. 2006): 2455-2465.

**Wolfram, C.** Measuring Duopoly Power in the British Electricity Spot Market. *The American Economic Review* Vol. 89, No. 4 (1999): 805-826.

**Wolfram, C.** Electricity Markets: Should the Rest of the World Adopt the United Kingdom's Reforms? *Regulation* Vol. 22, No. 4 (1999): 48-53.