Economics 435: Energy Economics

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Course Objectives:

This course will explore the economics of energy using tools of microeconomic theory, law and economics and public choice. By the end of the course students should have a familiarity with the application of microeconomic theory to the major issues in energy economics, including the world oil market, the environmental implications of energy, and deregulation and re-regulation. Students will also study major legal cases to understand the evolution of current energy policies. Students will synthesize this learning into a major research paper due on the last day of class.

Required Texts:

*Energy, Economics, and the Environment* by Fred Bosselman et al

*The Elements of Style* by William Strunk and E.B. White

Recommended Texts

*Mathematics for Economists* by Carl P. Simon and Lawrence E. Blume

Prerequisites

Intermediate Microeconomics (Econ 306) is a prerequisite for this course.

Enrollment Requirements

Students are responsible for verifying their enrollment in this class. Schedule adjustments should be made by the deadlines published in the Schedule of Classes. (Deadlines each semester are published in the Schedule of Classes available from the Registrar's Website registrar.gmu.edu.)

Last Day to Add Feb 8, 2011
Last Day to Drop Feb 25, 2011

After the last day to drop a class, withdrawing from this class requires the approval of the dean and is only allowed for nonacademic reasons. Undergraduate students may choose to exercise a selective withdrawal. See the Schedule of Classes for selective withdrawal procedures.
Course Requirements

The following elements will comprise your grade

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<thead>
<tr>
<th>Element</th>
<th>Percentage</th>
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<tr>
<td>Class Participation</td>
<td>10%</td>
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<tr>
<td>Take Home Mid-Term</td>
<td>25%</td>
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<tr>
<td>Term Paper Proposal</td>
<td>5%</td>
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<td>Term Paper Bibliography</td>
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<td>Draft Term Paper</td>
<td>10%</td>
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<td>Term Paper</td>
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<td>Final Exam</td>
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The grading scale is as follows:

- A: 85-100%
- A-: 80-84%
- B: 70-79%
- C: 60-69%
- D: 50-59%
- F: 50% -

Plus-Minuses for B through D grades will occur at the upper and lower 2.5% level. For example, 70-72.49 will be B-, 72.5-77.49 B, 77.5-79.9 B+ and so forth.

Writing Intensive

This course meets the writing intensive requirement of the economics major. It does this partly through the mid-term and final examination. However, the various requirements of the term paper, discussed above, provide the primary mechanism by which this course meets the requirements. The steps outlined in the term paper section are an important component of meeting the Writing Intensive Requirements. As such I will provide detailed feedback at each step indicating how you are progressing in your research. The first draft (due April 11, 2011) represents the most important step prior to submission of the final paper. I expect a fully formed paper upon which I can provide detailed comments for improvement. To the extent you do not provide a fully formed draft, I will grade it accordingly. I also welcome additional drafts before and after this date, and will happily provide guidance on how you can improve them.

Class Participation

You will note that the grade percentages sum to 105%. The extra percentage is contained in the class participation factor. At a minimum I expect you to complete the required
readings and make an occasional contribution to the class discussion. Meeting the minimum expectations will earn you the first 5% of the class participation factor. To the extent you contributions in class exceed these minimum expectations, demonstrate superior mastery of the subject matter through your comments etc in class you will earn up to an additional 5%. This provides you with an opportunity to raise your grade by approximately half a letter grade.

**Take Home Mid-Term**

I will hand out a mid-term at the end of class on Monday February 28, 2011. There will be 6 questions and you will be required to answer 4. There will be a strict word limit of 2000 words with substantial penalties for exceeding the word limit. In addition, the mid-term may be no less than 1000 words. Since the exam is take-home, you may use notes, books etc. The only limitation is that you may not consult another person. The exam will be due on Monday March 7, 2011 at 7:20 PM. Late midterms will be subject to the late policy below. Graduate Students will be required to complete 5 questions out of 6 (with a word limit of 2500 words).

**Term Paper**

As you will note the various elements of the term paper comprise nearly half your grade. As such, I consider the term paper the most important element of your work this term. The paper may address any topic reasonably categorized as economics and regulation. I expect both research of the existing literature on your topic as well as some original analysis. In terms of length, the paper should be no less than 14 pages (12 pt. font) and more realistically 15-20 pages plus a works-cited page(s) (for undergraduates). For graduate students I expect a paper that could represent the first draft of a dissertation chapter or the first draft paper that could be submitted to an academic journal. As such for graduate students I would expect the paper to be around twenty pages and have a substantial bibliography. I strongly encourage you to discuss term paper issues with me early and often, and am willing to read and comment upon drafts. To ensure that you devote sufficient time to your paper, and that your paper topic is feasible, I require that all undergraduate students to provide me with a paper proposal by February 14, 2011. As an incentive, meeting this deadline will constitute 5% of your total grade. This proposal should be a paragraph or two in length and provide a high level outline of what you intend to do. Next, I require you to provide me with an annotated bibliography containing at least five sources plus a sentence or two summarizing the findings of each source and how it will integrate into your paper. This bibliography will be due on March 28, 2011. I will grade this assignment based on the quality of your research, although I will still be somewhat liberal in my grading. Finally on April 11 2011 I require students to submit a rough draft of their paper. This will provide me with an opportunity to ensure that your research is proceeding in a reasonable direction. A complete paper is due on the last day of class, May 2 2010 at 7:20. Late papers will be subject to the late policy below.

**Final Exam**
The final examination will be distributed on the last day of class and will be due by email on May 16, 2011 by 8 PM. The basic format will be that of a problem for which your client requires a solution employing the tools we have learned in this class. For example, you might be asked to analyze the desirability of a particular energy policy proposed by Congress. You will have several problems to choose from. You will focus on one problem and provide a 10-15 page memorandum analyzing the relevant factors and providing a solution.

Late Policy

Late mid-terms, term papers and finals will only be accepted in extraordinary circumstances with documentation from a medical or other relevant professional.

Plagiarism

I take issues of academic integrity EXTREMELY seriously. Plagiarism may take several forms. Using an idea of another author without proper citation, even if you change the words, constitutes plagiarism. To the extent I find evidence of this type of plagiarism in your work, I will refer the matter to the Honor Committee, most likely with a recommendation that the student fail the course. A more severe form of plagiarism involves copying a substantial portion of a published work and turning it in as your own. I subject all papers to a variety of electronic measures to detect this type of plagiarism. To the extent I detect evidence of this type of plagiarism, I will refer the matter to the Honor Committee, most likely with a recommendation for a severe sanction up to and including expulsion from the University.

Students with Disabilities

As part of George Mason University's continuing commitment to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities, the university established and maintains the Office of Disability Services. Under the administration of University Life, the center implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students requiring reasonable accommodation for disabilities should contact ODS at 703-993-2474.

Honor Code

George Mason University, consistent with 150 years of Virginia tradition has an honor code. Under this Honor Code giving and receiving assistance on exams and all other forms of cheating are strictly forbidden, and will be severely sanctioned. In the event that I suspect cheating, I will pursue all appropriate measures.
COURSE OUTLINE and READING LIST

**Week 1 (Jan 24):** Mathematics: the Language of Economics:

Functions and Calculus of One Variable: Chapter 2 of Simon and Blume.

Calculus of Several Variables: Chapter 14 of Simon and Blume

Unconstrained and Constrained Optimization: Chapters 17-18 of Simon and Blume

**Applications of Math Principles:**

Profit Maximizing Firms, in Situations of Monopoly, Cournot Oligopoly, and Perfect Competition

Modeling Input Markets

**Week 2 (Jan 31):** Discussion of the Writing Process and Modeling Time, Externalities, and Principles of the Common Law; Regulation of Public Utilities

* Bosselman Chapters 1-3


**Week 3: (Feb 8):** Natural Gas Part 1

*Bosselman Chapter 8 Parts A-C

**Week 8: (Feb 14):** Natural Gas Part 2

Guest Lecture by Bill Williams, Partner at Sidley Austin

*Bosselman Chapter 8 Part D


**Week 5: (Feb 21): Accounting in an Energy Context**
Guest Lecture: Matthew A. Petersen, CPA

Readings TBA.

**Week 6: (Feb 28): Auctions and Futures Markets (Midterms Handed Out)**


* Krugman and Wolak on Improperly Designed Auctions http://www.pkarchive.org/economy/Wolak.html

**Week 7 (March 7, 2011) Oil Part 1 (Background History) Midterms Due:**

* Bosselman Chapter 6 Part A-C

**SPRING BREAK MARCH 14, 2011: No Class**

**Week 8: (March 21): Oil Part 2 (Offshore Production and the Environment)**
PAPER PROPOSALS DUE

* Bosselman Chapter 6 Part E and G


**Week 9: (March 28): Oil Part 3 International Oil Annotated Bibliography Due**

* Bosselman Chapter 7 A-C

Week 10: (Apr 4): Oil Part 4: Gasoline and National Security Implications of Oil

* Bosselman Chapter 15 Parts A and B.


Week 11: (Apr 11): Electricity Part 1 History and Concepts Draft Papers Due

* Bosselman Chapter 10 Parts A-B

Week 12: (Apr 18): Electricity Part 2

* Bosselman Chapter 11 Part C and Chapter 12 Part B3


Week 13: (Apr 25): Environmental Issues Part 1

*Bosselman Chapter 15 Parts C and D and Chapter 16.


Environmental Protection Agency. "Trends in Greenhouse Gas Emissions"
http://www.epa.gov/climatechange/emissions/downloads06/06Trends.pdf

Intergovernmental Panel on Climate Change (IPCC). "Climate Change 2007: The Physical Science Basis: Summary for Policymakers" (February 2007)

Week 14: (May 2): Environmental Issues Part 2
TERM PAPERS DUE


Final Exam May 16, 2010 Due By Email 8 PM.