EBGN 430/530

Course Title: Energy Economics

Section: A

Semester/year: Fall 2014

Syllabus

Instructor: Professor Carol Dahl

Contact information

(Office/Phone/Email): EH 128/303-273-3921/cdahl@mines.edu

Office hours: MW 5:45-7:00, 2-4 T

Other days feel free to make an appointment or email your questions

Please start each email subject with 530 to get priority attention.

Class meeting days/times: MW 4:30-5:45

Class meeting location: Green Center 265

Teaching Assistant: Muhammad Imam Akimaya

Contact information

(Office/Phone/Email): EH 123/makimaya@mymail.mines.edu

Office hours: W: 2-4

Instructional activity: 3 hours lecture

Course designation: Economic and Public Policy Specialization

Course description from Bulletin: Application of models to understand markets for oil, gas, coal, electricity, and renewable energy resources. Models, modeling techniques, and issues included are supply and demand, market structure, transportation models, game theory, futures markets, environmental issues, energy policy, energy regulation, input/output models, energy conservation, and dynamic optimization. The emphasis in the course is on the development of appropriate models and their application to current issues in energy markets. Prerequisites: Principles of Microeconomics, MATH111, EBGN509, EBGN510, EBGN511; or permission of instructor.

Student learning outcomes: At the end of the course, the student will have gained a better understanding of the functioning of international energy markets and developed the tools and techniques to continue to learn even more and analyze these markets beyond the course. The student will:

- master theoretical models relating to energy markets, energy regulation and policy, environmental issues, risk management, energy and the economy, energy sustainability
- be able to work out quantitative examples and use computer applications to increase intuitive understanding of theoretical models
- understand the economic principles developed in the models
- understand how models can be used for forecasting, policy analysis and project evaluation
- have an understanding of terminology along with key drivers and interactions in energy markets
- be able to acquire and use information in major international energy data bases
- be familiar with important institutions, technologies, concepts, and public policy issues
- think critically and recognize energy myths and misconceptions

Here is the table of contents from the book. We will cover chapters 1-7 and as many other topics as time permits.

Introduction to Markets, Modeling and Policy

1. Introduction
2. Energy Lessons from the Past and Modeling the Future
3. Perfect Competition and the Coal Industry
4. Energy Taxes, Subsidies, and Social Welfare

Market Structure

5. Natural Monopoly and Electricity Generation
6. Restructuring in the Electricity Sector
7. Monopoly, Dominant Firm and OPEC
8. Transaction Costs and U.S. Natural Gas Markets
9 Monopsony - Japan and the Asia Pacific LNG Market
10 Game Theory in W. European Natural Gas Market
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Energy and the Environment

11. Externalities and Energy Pollution
12. Public Goods and Global Climate Change
13. Energy Accidents

Dynamic Models and Model Inputs

14. Allocating Fossil Fuel Production over Time and Oil Leasing
15. Supply and Costs
16. Modeling Energy Demand
17. Refining, Transportation, and Linear Programming

Managing Risk

18. Energy Futures Markets for Managing Risk
19. Energy Options Markets for Managing Risk

Development and Sustainability

20. Climbing the Energy/Development Ladder to a Sustainable Energy Future
21. Sustainable Wealth in Fossil Fuel Rich Developing Countries

The End of the Journey

22. Managing in the Multicultural World of Energy

Policy on academic integrity/misconduct: The Colorado School of Mines affirms the principle that all individuals associated with the Mines academic community have a responsibility for establishing, maintaining an fostering an understanding and appreciation for academic integrity. In broad terms, this implies protecting the environment of mutual trust within which scholarly exchange occurs, supporting the ability of the faculty to fairly and effectively evaluate every student’s academic achievements, and giving credence to the university’s educational mission, its scholarly objectives and the substance of the degrees it awards. The protection of academic integrity requires there to be clear and consistent standards, as well as confrontation and sanctions when individuals violate those standards. The Colorado School of Mines desires an environment free of any and all forms of academic misconduct and expects students to act with integrity at all times. Academic misconduct is the intentional act of fraud, in which an individual seeks to claim credit for the work and efforts of another without authorization, or uses unauthorized materials or fabricated information in any academic exercise. Student Academic Misconduct arises when a student violates the principle of academic integrity. Such behavior erodes mutual trust, distorts the fair evaluation of academic achievements, violates the ethical code of behavior upon which education and scholarship rest, and undermines the credibility of the university. Because of
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the serious institutional and individual ramifications, student misconduct arising from violations of academic integrity is not tolerated at Mines. If a student is found to have engaged in such misconduct sanctions such as change of a grade, loss of institutional privileges, or academic suspension or dismissal may be imposed. The complete policy is online.

Course Requirements and Grading Procedures:

300 points – Exams – 2 Midterms

September 22

October 29

200 points – Final

100 points – Assignments & Quizzes (8-10 @15 points each)

(For most assignments you will be allowed to work in groups of up to 3)

(I will eliminate your two weakest grades and scale the rest to 100 points)

15 points – class activities

50 points – Extra chapter. As we will not have time to cover all chapters, you will pick a later chapter to read and develop supplemental materials including updating data.

Coursework Return Policy: Graded material will be returned within two weeks of due date except under unusual circumstances.

Absence Policy:

Homework: Homeworks are to be turned in during class on the due date unless otherwise announced. Homeworks can be turned in early if you know you will miss a class. Homeworks will be accepted up until midnight of the day they are due without penalty. Homeworks turned in later than that will only be accepted under unusual circumstances.

Exams: If you will be absent during a scheduled exam, you should schedule a make-up time before the exam if at all possible.

Self Tests: There are self tests posted at (http://dahl.mines.edu/530) for each chapter to help you with homeworks and to study for exams. Answers to the questions are online. Self tests are not to be handed in.

Edit4Credit: I will give one point of extra credit (up to 10 points per person) to the first person who finds substantive errors in the reading material, self tests or lecture notes. (Formatting issues won’t count.) Post the errors on the discussion board in blackboard called Edit4Credit. Label topics as follows. If the correction is for:

1. Lecture notes put LMonthDayPage#

Sample if the lecture was on August 24, Page 7: L0824P7
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1. use 2 digits for month and day to avoid ambiguity and so they sort in order:

2. Book chapters put BChapterPage#.
   Sample for chapter 7, Page 26: B07P026
   use 2 digits for chapter, three digits for page number

3. Self test question put SqTest2#.
   Sample selftest 10, question 6: Sq1006

4. Self test incorrect answer put SiTestq#.
   Sample for selftest 2, question 7, incorrect answer: Si0207

5. Self test correct answer put ScTestq#.
   Sample selftest 21, question 8, correct answer: Sample: Sc2108

Extra Credit: Up to 10 points for edits4credits or see me for other opportunities

Grading Policy: Grades are based on % of total points using the following scale

A > 92.5 %
A- 89.5-92.5%
B+ 87.5% – 89.5%
B 82.5% – 87.5%
B- 79.5% – 82.5%
C+ 77.5% – 79.5%
C 72.5% – 77.5%
C- 69.5% – 72.5%
D+ 67.5% – 69.5%
D 62.5% – 67.5%
D - 59.5% –62.5%

Blackboard: The course will use Blackboard. To login, go to http://blackboard.mines.edu
Click on login.
Then type in your username and password.
If you have ever used Blackboard before, your old password should work.
If you have forgotten or never had a password click on
forgot your password and fill in the requested information
You will be sent a password within 24 hours or so. Change this password when you get into blackboard by clicking on Personal information.
You should automatically be enrolled in the course when you are registered.
I will use powerpoint for most of my lectures. These lectures notes will be posted on blackboard under ppt usually in the evening after class. Assignments, handouts, and review materials will be also be available on blackboard.
Prerequisites for the Course (See me if you do not have the prerequisites)

EBGN 509 Mathematical Economics or Calculus I, II, II, and simple Matric Algebra
To review math skills needed take self tests at
http://dahl.mines.edu/courses/dahl/alg/
http://dahl.mines.edu/courses/dahl/690-MatA-st.htm
http://dahl.mines.edu/courses/dahl/calc/
Introduction to Probability and Statistics
http://dahl.mines.edu/courses/dahl/micro/
Introduction to Microeconomics
http://dahl.mines.edu/courses/dahl/micro/
EBGN 511 Microeconomics

Cell phones are to be off during class. Students whose cell phones ring will be asked to leave for the remainder class if it happens more than once.

If you have a notebook computer, I will sometimes post a request by noon of the class day to please bring to class as we will do some in-class activities using excel. We will work in groups so 1 notebook for 2-3 students usually works fine.