



Subject: EBGN Number: 330

Course Title: Energy Economics

Section: 1

Semester/year: Fall 2018

Date: 08/15/18. Schedule may be updated.

Instructor or Coordinator: Peter Maniloff

Contact information (Office/Phone/Email): EH 324, maniloff@mines.edu

Office hours: Tuesdays 1-2

Class meeting days/times: Tuesdays and Thursdays, 11:00-12:15

Class meeting location: BE 108

Web Page/Blackboard link (if applicable):

Teaching Assistant (if applicable):

Contact information (Office/Phone/Email):

Instructional activity: 3 hours lecture hours lab semester hours

Course designation: Common Core Distributed Science or Engineering
 Major requirement Elective Other (please describe _____)

Course description from Bulletin: Study of economic theories of optimal resource extraction, market power, market failure, regulation, deregulation, technological change and resource scarcity. Economic tools used to analyze OPEC, energy mergers, natural gas price controls and deregulation, electric utility restructuring, energy taxes, environmental impacts of energy use, government R&D programs, and other energy topics. Prerequisite: [EBGN201](#). 3 hours lecture; 3 semester hours.

Textbook and/or other requirement materials:

Required text: No required text

Other required supplemental information: There is no required text. If you're having a hard time following or want to go into more depth, a few references are below. For the textbooks, old editions are fine.

Micro: Goolsbee, Levitt, and Svyerson *Microeconomics* or Pindyck & Rubinfeld *Microeconomics*

Regulation: Viscusi and Harrington, *Economics of Regulation and Antitrust*

Energy, especially oil and gas: Dahl, *International Energy Markets*

Fracking: Raimi, *The Fracking Debate* (this one is really good and is reasonably cheap!)

Also, I highly recommend EIA's Today in Energy, the Utility Dive email,

Student learning outcomes: At the conclusion of the class students will...

1. Students will get an introduction to energy markets.
2. Students will understand the nature of market failures and potential policy responses.
3. Students will gain familiarity

Brief list of topics covered:

1. Introduction to oil markets.
2. Introduction to natural gas markets.
3. Introduction to electricity markets.
4. Renewable energy markets and policy.
5. Energy efficiency policy and outcomes.
6. Environmental policy and interactions with energy markets.
7. Market structure and its impacts on market outcomes.

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 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](#).

Coursework Return Policy: Course staff will endeavour to return graded materials within two weeks.

Absence Policy (e.g., Sports/Activities Policy): Attendance and participation are mandatory. Please notify the instructor of any planned absences.

Homework:

- Homework assignments are due at the beginning of class on the given due date.
- Exams: If you will be absent during a scheduled exam, you should schedule a make-up time before you leave.

Students with Disabilities: In guidance put forth by the Department of Justice and the Office for Civil Rights, it is incumbent upon us as an institution to ensure that students know where to seek assistance for disability-related accommodations or information. Inclusion of a disability support statement in syllabi is a national best practice and standard supported by ADA enforcement agencies and AHEAD (Association on Higher Education and Disability), as part of a multi-pronged approach to supporting an inclusive culture on campus.

As such, please include the following statement (*italicized*) in your course syllabi at Mines. Additionally, please make sure to underscore the statement pertinence and directive as part of your course welcome.

Disability Support Services - The Colorado School of Mines is committed to ensuring the full participation of all students in its programs, including students with disabilities. If you are registered with Disability Support Services (DSS) and I have received your letter of accommodations, please contact me at your earliest convenience so we can discuss your needs in this course. For questions or other inquiries regarding disabilities or academic accommodations, I encourage you to visit disabilities.mines.edu for more information.

Discrimination, Harassment and Title IX - All learning opportunities at Mines, including this course, require a safe environment for everyone to be productive and able to share and learn without fear of discrimination or harassment. Mines' core values of respect, diversity, compassion, and collaboration will be honored in this course (More information can be [found here](#)) and the standards in this class are the same as those expected in any professional work environment. **Discrimination or harassment of any type will not be tolerated.** As a participant in this course, we expect you to respect your instructor and your classmates. As your instructor, it is my responsibility to foster a learning environment that supports diversity of thoughts, perspectives and experiences, and honors your identities. To help accomplish this:

- Course rosters are provided to the instructor with the student's legal name. I will honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.
- If something is said or done in this course (by anyone, including myself) that made you or others feel uncomfortable, or if your performance in the course is being impacted by your experiences outside of the course, please report it to:
 - Me (if you are comfortable doing so)
 - Wellness Center- Counseling (<https://www.mines.edu/counseling-center/>)
 - Speak Up (<https://www.mines.edu/speak-up/>)- Anonymous Option

In this course, we will cultivate a community that supports survivors, prevents interpersonal violence, and promotes a harassment free environment. Title IX and Colorado State law protects individuals from discrimination based on sex and gender in educational programs or activities. Mines takes this obligation seriously and is committed to providing a campus community free from gender and sex-based discrimination. Discrimination, including sexual harassment, sexual violence, stalking, and domestic violence, is prohibited and will not be tolerated within the Mines campus community. If these issues have affected you or someone you know, you can access the appropriate resources here: <http://www.mines.edu/title-ix/>. You can also contact the Mines Title IX Coordinator, Karin Ranta-Curran, at 303-384-2558 or krcurran@mines.edu for more information.

It's on us, all of the Mines community, to engineer a culture of respect

Grading Procedures:

The weighting of the final grade will be determined as follows:

Exam 1 –	20%
Exam 2 –	20%
Final –	20%
OPEC Strategy Game -	15%
Electricity Strategy Game -	15%
Homework –	10%

Exams 1 and 2 will be closed-note, closed-book, in-class exams tentatively scheduled for the 5th and 10th weeks of class. The final will be comprehensive and be given at the normally scheduled time for this course. There will be 3 to 4 short homeworks given throughout the semester as well. These are intended to be done as individual assignments, though students may work together on these assignments. The homeworks will be due at the beginning of class on the assigned due dates. Homework turned in late will not be accepted without prior approval. Participation grades will be assigned based on student

attendance and student participation in the general discussions. Finally, there will be two different group projects – the OPEC Game and the Electricity Strategy Game. Information about these games are given below.

OPEC Game: The OPEC game is a series of simulations of the world oil market. In the first stage of the game there are 7 independent producers, each of which has to make an independent strategic output decision. In the second stage, the 7 independent producers are allowed to meet and attempt to form a cartel. Grading will be based on performance in the game, the strategy memo, and quality of participation in the OPEC cartel meeting in class. The schedule for the OPEC game is on the last page of the syllabus. Depending on enrollment, teams will be 3 to 4 students per team. Assignment to teams will occur as we approach the beginning of the game.

Electricity Strategy Game: The Electricity Strategy Game (ESG) is an electricity market simulation in which each utility owns a portfolio of generation unit and bids those units into an electricity market. The game starts with a relatively simply bidding structure. Later rounds add the complexity of a tradable emissions permit market. Grading will be based on the performance in the game, the strategy memo, and the quality of participation in the ESG debriefing in class. The schedule for the ESG is on the last page of the syllabus. If teams are assigned, they will not be the same as in the OPEC game.

Common Exam Policy (if applicable):

Detailed Course Schedule:

Part 1. Microeconomic Refresh and Market Power Issues

8/21 – 8/28

- Economic efficiency
- Monopolistic outcomes
- Oligopsony outcomes

Part 2. Oil and Gas Markets

8/30 – 9/20

- Introduction to Oil and Natural Gas Markets
- Pricing and Extracting Exhaustible Resources
- Resource Production & Local Communities
- Introduction to OPEC Strategy Game
- The Economic Role of Energy Transportation
- The Economics of Energy Storage
- OPEC cartel meeting
- Commodities and Futures Markets
- Related transportation policies
- OPEC Game

(Tentative) September 20th, Midterm Exam # 1

PART 3: Electricity Markets

9/27 – 10/18

- Introduction to electricity sector in U.S.
- Electricity Restructuring
- Nuclear power
- Renewable power
- Energy efficiency

- Introduction to the Electricity Strategy Game

(Tentative) October 25th, Midterm Exam #2

PART 4: ENVIRONMENTAL POLICIES FOR ENERGY MARKETS & MISC. TOPICS

10/25 – 12/06

- Environmental Externalities in Energy Markets
- Emissions Trading
- Climate Change Policy
- Policies for Renewable Fuel
- Energy Issues in CO
- Energy Markets in the Developing World
- Auction Design

Final Exam as Scheduled During Exam Week