Energy Economics

ECN 125 — Kelsey Fortune
Spring Quarter 2018 — kfortune@ucdavis.edu
UC Davis — SSH 143

Course Description: In the past fifty years, some of the largest industries have transitioned from regulated to market-based paradigms. The energy industry features a unique mix of regulation and market driven incentives. Drawing on the tools of economics, we study the business and public policy issues that recent changes have raised in energy markets. Topics include traditional and alternative models of utilities in electricity and natural gas, the political economy of deregulation, climate change, environmental policy and markets for green energy, competition and market power in energy markets, transportation and storage constraints in energy commodities, and the development of organized spot, futures, and derivative markets in energy. We examine the impact of regulation in these industries, study firms' competitive strategies, and explore rationale for and effects of public policies in energy and environmental markets.

Lectures: This class meets twice a week: Tuesday and Thursday from 4:40 to 6 pm in Wellman Hall 230.

Sections: I strongly recommend you attend sections. Sections will be invaluable in preparing for homework, projects, and exams. Our teaching assistant this quarter is Xiaotong Su (xtsu@ucdavis.edu). There are two discussion sections: Wednesday 6:10 pm and 7:10 pm in SSH 90.

Office Hours:
Kelsey Fortune: Thursdays 10 am to noon and by appointment in SSH 143
Xiaotong Su: Tuesdays 10 am to noon in SSH 120

Course Prerequisites: ECN 100 or equivalent (ARE 100A and 100B or ECN 100A and 100B)

Readings: Required readings will be available on Canvas. They include articles from the press, papers from government agencies and NGOs, and journal articles. Classes will include discussions based on the readings, so you are required to complete all readings before class. The syllabus gives an approximate listing of which readings will be covered each day. Depending on our pace, this list may be updated during the quarter. There is no required text for this course, however you may find the following helpful:

Perloff, J. "Microeconomics: Theory and Applications with Calculus."

Keohane, N. and S. Olmstead. "Markets and the Environment"

Problem Sets: There are six homework assignments throughout the quarter. The intent is to prepare you for the types of questions that will be asked on exams. You can work in groups of up to four on these assignments, and each group only needs to turn in one assignment with the names of all team members listed. Each will be graded out of three points. Problem sets will comprise 5% of the course grade. Your lowest score will be dropped when calculating your final grade. **No late problem sets will be accepted.**

Electricity Strategy Game: This game is worth 15% of your grade and will require you to work in teams to replicate the real world strategic trading in the electricity market. More information can be found on the introductory reading for this game.

Exams: There are five quizzes and a final for this course. Quizzes are not cumulative, however the final is. Of the five quizzes, your lowest quiz score will be dropped when calculating your final grade. Quizzes are 40% of your grade, and the final is 40% as well. **There will be no makeup exams offered.** If you know that you have a conflict with the final (June 12th at 3:30 pm), you should take this class another quarter. In the case of a documented illness or family emergency, you are required to notify me prior to the start of the exam, and points will be reallocated proportionally.

Grading: Your grade will be comprised of the 6 homework assignments, the game, 5 quizzes, and a final. Your final grade will be calculated as follows:

- 5% Problem Sets (highest 5 of 6)
- 15% Electricity Strategy Game
- 40% Quizzes (highest 4 of 5)
- 40% Final

Any regrade requests must be submitted in writing within a week of initial return. All regrade requests will result in a full regrading.

Grade Distribution: Final grades will be curved to follow the economics department guidelines for upper division courses. Therefore, the mean grade will be a 2.7 (B-). This translates to approximately 20% As, 35% Bs, and 45% Cs and below.

Acknowledgements: This syllabus and course draws upon material taught by Jim Bushnell and Dave Rapson. I extend my sincere gratitude to them both.

Date:		Lecture Material:	Notes:
4.3:	Lecture 1	Industry Overview	
4.5:	Lecture 2	Scarcity and Pricing	
4.10:	Lecture 3	Market Power	
4.12:	Lecture 4	Market Power and Regulation	due: Homework 1
4.17:	Lecture 5	Natural Monopoly	Quiz 1
4.19:	Lecture 6	Auctions	
4.24:	Lecture 7	Intro to ESG	due: Homework 2
4.26:	Lecture 8	(Catch up)	Quiz 2 ESG meeting
5.1:	Lecture 9	Externalities and Public Goods	
5.3:	Lecture 10	Taxes vs. Caps	ESG auction
5.8:	Lecture 11	Carbon Revenues	due: Homework 3
5.10:	Lecture 12	Environmental Legislation Limits	Quiz 3 ESG meeting
5.15:	Lecture 13	Congestion	
5.17:	Lecture 14	Exhaustible Resource Extraction	due: Homework 4
5.22:	Lecture 15	(Catch up)	Quiz 4
5.24:	Lecture 16	Alternative Energy	
5.29:	Lecture 17	Net Metering	due: Homework 5
5.31:	Lecture 18	ESG Debrief	Quiz 5
6.5:	Lecture 19	Deregulation	
6.7:	Lecture 20	Energy Efficiency	due: Homework 6
6.12:	Final	Final Exam at 3:30 pm	Final Exam