

Economics of Energy Markets - Econ 3300¹

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Course Time: TTh 1.35-2.55pm
Course website on T-Square
Office Hours: Tuesday 9.30-10.30am
Thursday 12-1pm

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Office Hour: TBD

Course Overview: Why are we here?

Energy is the backbone of industrial economies. However, energy production and consumption has extensive externalities associated with it, from the emission of carbon dioxide and other airborne pollutants to national security implications due to the uneven distribution of fossil fuel resources around the globe. Balancing the benefits and costs of energy use is one of most important challenges facing the world today and into the foreseeable future. This course is designed to give you an understanding of how primary energy markets operate. We will also study the ancillary energy markets that have developed and are intertwined with the primary energy markets. We will examine the economic determinants of industry structure, the associated public policy challenges associated with these structures, and appropriate forms of government intervention in a market.

The course is divided into three roughly equal sections divided by exams. The first section of the course will develop the basics of your economic toolbox to analyze energy markets. We will include a brief review of basic economic analysis and then spend a substantive amount of time discussing the economic concepts that are most relevant to energy industries. The second section will delve into the economics of specific sections of the energy sector and the regulatory regimes for each. The final section of the course will study the specific externalities associated with energy production and consumption and possible different approaches to mediate the inefficiencies created by these externalities.

Learning Objectives

In this course you will:

- Describe economic structures and regulation schemes that are common in energy markets.
- Describe financial and product markets for energy and how fluctuations in these markets affect economic decisions of both domestic and international energy producers.
- Discuss when and how governments have economic rationale to intervene in markets and what particular forms of market structure and market failure can tell us about how to design and implement effective policy.
- Analyze the economic merits of policy proposals to intervene in energy markets.

¹This is the preliminary version of the syllabus and may be changed during the semester to accommodate changes in the course.

Readings

We will be drawing on many different resources for this class including journal articles, newspaper articles, and textbooks. There will be one textbook you will need to purchase for this class: Microeconomics by Jeffrey Perloff. (Do not purchase Microeconomics: Theory and Applications with Calculus.) There are currently seven editions of this book. I do not have a preference as to which edition you use.

We will also use *Economics of Regulation and Antitrust* by Viscusi, Harrington, and Vernon. There are a number of e-copies of this book available through the library website at:

<http://portal.library.gatech.edu/vufind/Record/1166028>

Since there are a limited number of e-copies available, sometimes when you want to view the e-book will be unavailable. For this reason, I have had students in the past suggest that it would have beneficial to rent or buy this book. Therefore, this is an option you may want to consider.

All other materials for the course will be available either through the library (marked with a [ER] for electronic reserves) or the T-Square course website under the Resources page (marked with a [TS]).

All materials available through course reserves can be accessed through:

<https://ereserves.library.gatech.edu/ares/>

Click on “Search Reserves” and then enter your GT username and password where prompted. You should then be able to click on our course and access the materials.

Assignments

Problem Sets: Problem Sets: The purpose of these problem sets is to help cement the theoretical economic foundations underlying the models we will discuss in class. You are welcome to work on problem sets with your classmates, but I expect everyone to write up their own set of solutions to each assignment. Writing up your own solution set will help ensure that you understand the concepts. **If you work with classmates on assignments, please make a note of who you worked with at the top of your assignment.**

OPEC Game: It is crucial to understand the operation of markets in order to appreciate the forces that determine prices and production levels in energy markets. We will simulate the world market for oil using an interactive strategy game developed by Severin Borenstein and James Bushnell (2004). More information about this game will be given out during class.

Grading

Your course grade will be based on these components:

Problem Sets	15%
OPEC Game	20%
Exam 1	15%
Exam 2	20%
Final Exam	25%
Class Participation	5%

Course grading will be based strictly on the number of points you receive on each assignment. Scores of 90% or more will be As, 80% - 89% will be Bs, 70% - 79% will be Cs, 60% - 69% will be Ds, and below 60% will be Fs.

If you are taking this class Pass/Fail, you will need to achieve at least a C to receive a passing grade.

Attendance and Participation

You are expected to attend all class sessions and be prepared to discuss the readings that have been assigned for that day. Class will be much more interesting and engaging if everyone has done the readings. Moreover, since a portion of the class is discussion-based, you will be a detriment to other students in the class if you have not completed the readings.

Technology Policy

You are expected to be engaged during class time and participate in classroom discussions and activities. This means that you should not be texting, Facebooking, etc. Moreover, these activities are distracting to your neighbors. It is acceptable to use your computer for note taking or to refer to readings during class, but be sure to confine your activities to these endeavors. If you cannot do this, I'll ask you to find non-electronic alternatives for readings and note taking.

Exams

There will be three exams (including the final) spaced at roughly equal intervals throughout the semester. Exams will consist of analytical problems, short answer questions, and essay questions. The exams will cover the all of the assigned material. The final exam will cover material from the entire semester but will focus more heavily on the material covered since the first exam.

In order to give you some extra room for improvement, the highest of your two grades from the first two exams will receive a 20% weight and the other will receive a 15% weight. This does not apply to the final exam. Everyone's final exam will be given 25% weight.

Make-up exams will not be given except with the approval of the Dean of Students. If you have an emergency, please let me know immediately to make alternative arrangements.

If the class mean on a particular test falls below 76%, I will add a curve to that test to bring it up to 76%. For example, if the class mean on the second exam is 73%, I will add a 3% curve to that exam. This protects you from tests that may be somewhat more difficult than others. If there is a curve, I will make a specific announcement about it. Only individual tests are curved if necessary.

There is no additional curve for the class at the end of the semester.

Honor Code and Plagiarism

You are expected to follow the Georgia Institute of Technology Honor Code at all times. As mentioned above, you are allowed to collaborate with your fellow classmates on the homework and studying for exams. However, exams are an individual endeavor and you may not consult any outside information sources (other students, textbooks, notes, etc.) except as noted on the exam. For any questions involving these or any other Academic Honor Code issues, please consult me or <http://www.honor.gatech.edu>. It is a violation of the honor code to copy answers from others as well as to knowingly provide answers to another person.

Email Policy

Substantiative questions are best asked in person during my office hours and will typically not be answered over email. However, you should feel free to email about clarifications and minor questions. I will do my best to answer your email within 48 hours (and hopefully sooner). It is your responsibility to ensure that you are regularly checking your email for class announcements.

Special Accommodations

If you need any special accommodations due to a physical or learning disability, please let me know during the first week of class. In order to receive the requested accommodations you will need to obtain a form from the Access Disabled Assistance Program for Tech Students (ADAPTS) and give me this form. The ADAPTS Office is located in the Smithgall Student Services Building, Suite 210 and the website is <http://www.adapts.gatech.edu>.

If you will be missing any classes for religious holidays or other events, let me know as soon as you know you will be missing class. You will still be required to know the material from that class period.

Important Dates

September 17	Exam 1
November 10	Exam 2
November 12	OPEC Memo Due
December 8	Final Exam

Keys to Success

- Practice all of the analytical problems multiple times and find similar types of problems to help you study for the exam. Simply watching someone else solve the problems or following along is much less helpful.
- Engage with all of the readings before class and come prepared to discuss the readings.
- Spend time carefully considering your strategy for the OPEC game.
- Come talk to me about any problems that you are having in the class or concepts you do not understand. Office hours are for you to use!