**Energy Economics and Policy**  
11:373:335 3 credits  
**Prerequisites:** 11:373:121 or 01:220:102  
*Environmental and Business Economics Curriculum*  
*School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey*

**Professor:**  
Gal Hochman  
55 Dudley Road, Room 114  
Cook Campus  
Rutgers, The State University of New Jersey  
New Brunswick NJ, 08901  
Phone: (848) 932-9142  
Fax: (732) 932-8887  

**Office hours:**  
Thursday from 2:10-3:10

**Texts:**  
These texts have been ordered for our class. Whether you purchase it is up to you; however, it is a widely accepted standard reference for our field, and would be a worthwhile addition to your personal library.


**Other publications with which you may want to be acquainted with:**


Learning Goals:

Learning goals will be achieved by providing students with ability to apply and communicate microeconomic principles for policy formulation and decision making in energy. By the end of the course, students should be able to:

1. Formulate energy-related policies (related to the transportation, power, heat, and electricity) to accomplish objectives that can be stated in economic terms.

2. Understand the most common economic and environmental causes of energy policy problems.

3. Diagnose potential energy policy problems and understand the economic policy used to correct these problems in market, as well as non-market, economies.

4. Extend the concepts discussed in class to understand renewable and alternative energy contexts, and develop and analyze new policies to address new concerns.

Course Policies:

A. Class Participation
This is a participatory class; you will frequently be asked during class discussions to (i) offer your opinions about the realism of major assumptions and (ii) draw on your personal experience to offer insights into the logical steps required to arrive at key conclusions. (These responsibilities are much easier to meet if you have done the reading ahead of time.)

B. Required Readings
Our discussions will draw upon an intermediate knowledge of microeconomics. To help you integrate energy economics with your prior knowledge of economics as quickly as possible, lectures have been prepared presuming you are familiar with the content of required readings before arriving in class. Each
required reading within a subject area will be indicated with an asterisk (*); read this before we begin to discuss the listed topic.

C. Other Related Readings
This syllabus has been prepared to serve not only as a guide to the course, but also to give you some exposure to literature in energy economics. For this reason, this syllabus includes some examples of recent published research from major publishers and journals. The citations are not intended to be an exhaustive list. They have been included to give you examples of influential or representative approaches and to help you gain more from our class discussions. Lectures will frequently make references to related material, but it will never be presumed that you have read any of the other related readings (in contrast to required readings, above). If you are interested in representative articles on subjects other than those listed in the syllabus, please contact me and I will attempt to provide you with additional citations.

D. Lecture Strategy
The lectures will use the readings as starting points, but will contain references to other readings, empirical results, syntheses of trends in the literature, and discussion of key points from the other relevant readings. Missing a lecture will cost you understanding and perhaps a key inspiration you are seeking. We have roughly thirty hours together.

E. Rutgers University Policies
All faculty, staff, and students at our University are bound by University policies. All aspects of this course will be conducted according to these policies. (Please see 7 for additional information.)

Grading Policies:

9% Instructor’s Discretion
21% Weekly Quizzes
40% Midterm Exams (2, 20% each)
30% Term paper

Weekly Quizzes

The course includes five general topic areas. A short quiz will be given in class each week based on concepts discussed in class. You can drop up to two quizzes for any reason. No makeup quizzes will be offered without written medical, religious, or legal documentation. Quizzes missed for documented medical, religious, or legal reasons must be made up within one week of returning to class.

Term paper

The term paper should be 10-15 pages long, and should address energy issues. It should provide an economic perspective and follow the format of a policy memo. The paper is to be handed in on the last day before Thanksgiving. No extensions will be given.
**Letter Grade Assignments:**
At any time you may calculate your grade in this course. There is a total of 100 points possible (see above). Final grades will be assigned using the scale given below. To calculate your expected final grade, simply add the grades from your completed exams with the grades you plan to get on forthcoming exams and refer to the table below.

90+ A  
85+ B+  
80+ B  
75+ C+  
70+ C  
60+ D  
60- F
Lecture/Discussion Schedule:

Session 0, week 1
Introduction to the course

Introduction

Session 1, week 1:
Basic principles in economics
(Quiz 1)

Review.

Sessions 2-14, weeks 2-7:
Oil & Gas
(Quiz 2, 3 & 4)

1. History of oil industry (sessions 2-4)
2. Principles of oil production (sessions 5-9)
   a. Importance of infrastructure
   b. Economic theory of the mine, as applied to petroleum
   c. Peak oil
3. Societal management of oil wealth (sessions 10-11)
4. Comparison of oil economics and gas economics (session 12-13)
5. Institutional issues related to natural gas production, distribution and sales (session 14)

Genie out of the Bottle: World Oil Since 1970, Morris Adelman;

Hubbert’s Peak: the Impending World Oil Shortage, Kenneth Deffeyes;

Petroleum Economics: Issues and Strategies of Oil and Natural Gas Production, Roğvaldur Hannesson


Session 15, week 8:
Review session

Session 16, week 8:
First midterm
Session 17-18, week 9:
Energy and the environment
(Quiz 5)


Energy and Environmental Policy in China

Sessions 18-24, weeks 10-12:
Alternatives to conventional fossil fuels
(Quiz 6 & 7)

1. Unconventional alternatives:  
   a. Tar sand  
   b. Shale gas
2. Renewable alternatives:  
   a. Biomass  
   b. Wind  
   c. Solar  
   d. Hydroelectric  
   e. Geothermal  
   f. Nuclear


Session 25-28, week 13-14 (Quiz 8):

1) Transportation, electricity, power, and heat

* Summary and chapter 1, “The Power of Renewables: Opportunities and Challenges for China and the United States.”

2) Evaluating energy policies


3) Energy security

4) Oil and Gas policy


5) The US biofuel policy


6) Transforming Transportation

* Summary and chapter 1, “Liquid Transportation Fuels from Coal and Biomass Technological Status, Costs, and Environmental Impacts,”

Session 29, week 15: Summary and Review

Session 30, week 15: Second midterm exam
Other Information:
During severe weather conditions, class cancellation information is available on the recorded message system at (732) 932-7799, or by following links at the Rutgers web site, www.rutgers.edu.

Rutgers University Policies:

A typical reference for Rutgers University policies that will be used in the conduct of this course is pp. 492-500 in Rutgers, The State University of New Jersey, Campus at New Brunswick. New Brunswick Undergraduate Catalog. 1997-1999. New Brunswick.

All sections of this discussion on policy are of vital importance to you as a Rutgers University student; however for the purposes of this course, please pay particular attention to sections on Registration, Attendance, Nondiscrimination, Policy Against Insult, Defamation, and Harassment, Sexual Harassment, Administrative Policy for Responding to Disruptions, Academic Integrity, and the University Student Disciplinary Hearing Procedure.

Should you have any questions about Rutgers University policies, please contact the personnel listed in the current Undergraduate Catalog.