ECON 336: Energy Economics
MW 1:30-2:45pm WEB104

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Course Description and Learning Objectives
This course examines economic and policy aspects of energy issues. Topics include the economics of major nonrenewable and renewable energy options as well as the energy mix between various energy sources. Students will learn about:

- Basic economic concepts for analyzing energy supply and demand;
- Criteria used in policy discussions and their validity;
- Positive and normative issues and analytical tools in energy economics and policy;
- The current market structures of nonrenewable and renewable energy options;
- How to apply economic tools to assess energy policy issues (with a focus on Hawai‘i).

Prerequisites
ECON130 or an equivalent microeconomics course.

Assessment
Class participation, quizzes and problem sets* 15%
Group presentation** 15%
Writing Assignment (graded draft is worth 10%) 20%
2 Midterms (October 3 & November 21)*** 20%
Final exam (Monday, Dec 12 from 2:15-4:15pm)**** 30%

*Not all problem set questions are graded.
**Peer evaluations will be considered in grading group presentations.
***There are no make-up exams except under extraordinary circumstances.

Class Participation and Quizzes
Students are encouraged to participate in class discussions. For attendance purposes, there will be occasional pop quizzes.

Problem Sets
There will be 3-4 problem sets to understand microeconomic theory and apply it in the context of energy policies. Problem sets consist of (1) exercises that involve graphical analysis and computations in order to understand decision making by energy producers, consumers, and regulators as well as market allocations of energy; (2) cost-benefit analysis exercises; and 3) short-essay questions on energy policies.

Group Presentation
In groups, students will present an overview of a selected energy source from an economics point of view, applying a cost-benefit analysis as well as other research tools introduced in the class. The instructor will guide students in terms of the references and the content of the presentations.

Writing Assignment
Students will examine an energy issue specific to Hawai‘i or the U.S. The objective is to present a framework for conducting a benefit-cost analysis. The paper should introduce and provide a thorough background on the issue before identifying the costs and benefits. Data sources and variables should be included. The instructor will provide an example in class. Prior to the final submission, students will submit an outline and draft (graded).
Textbooks
There are no required textbooks. All course materials will be made available on Google Classroom. Reading assignments will be updated periodically at the Google Classroom course website.

Optional:
1) Microeconomics 8th edition (Pindyck and Rubinfeld)
2) Markets and the Environment (Keohane and Olmstead)
3) Harnessing Renewable Energy in Electric Power Systems (Moselle, Padilla and Schmalensee)

Topics
• Introduction
  o Why energy economics, history of energy use, measurements and key concepts
• Economic Fundamentals in an Energy Context
  o Supply, demand, market equilibrium, elasticities (price, income, substitution), efficiency, consumer and producer surplus, deadweight loss, effect of policies (price controls, taxes, subsidies, import tariffs), gains from trade
  o Market failure: market power, externalities, public goods
  o Economics of producer behavior
  o Discounting and cost-benefit-analysis, levelized cost of energy
• Overview of non-renewable and non-renewable options
  o Oil, natural gas, coal, nuclear, geothermal, hydropower, biofuels, wind, solar
• Economics of Regulation
  o Policy instruments, overview of the regulatory process, the theory of regulation, regulation of a natural monopoly
• Electricity market structure and regulation
  o Generation, transmission, distribution, and retail
  o Public utility regulation, rates-of-return regulation, electricity pricing, electricity industry restructuring
• Renewable Energy Policies
  o Price-based instruments (feed-in-tariff), quantity-based instruments (renewable portfolio standards), subsidies and tax credits, net energy metering, revenue decoupling for electric utilities, welfare consequences (gains to consumers and producers, distributional impacts)
• Transportation Energy and Policies
  o Fuel economy standards, renewable fuel standards, electric vehicles

Disability Access
If you feel you need reasonable accommodations because of the impact of a disability, please: (1) contact the KOKUA Program (V/T) at 956-7511 or 956-7612 in room 013 of the QLCS (Queen Lili‘uokalani Center for Student Services); (2) speak with me privately to discuss your specific needs. I will be happy to work with you and the KOKUA Program to meet access needs related to a documented disability.

Academic Honesty
Acts of dishonesty, including cheating and plagiarism, subjects a student to the disciplinary process and sanctions as described at the following UHM website.
http://studentaffairs.manoa.hawaii.edu/policies/conduct_code/proscribed_conduct.php

Acknowledgement
This syllabus is based on Professor Nori Tarui’s ECON336 syllabus.

8/13/16 (Tentative)