



TEXAS TECH UNIVERSITY

Rawls College of Business™

ENCO 4312: Energy Economics

Syllabus

2014 Spring

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<i>Office hours</i>	MTWR 2:00-3:00 PM, F 12:00-1:00 PM, and by appointment.
<i>Office</i>	BA W324
<i>Class</i>	MWF 11:00-11:50 AM, BA 029
<i>Website</i>	http://giberson.ba.ttu.edu/ENCO4312

Course description

The course will focus on oil and gas project economics, with emphasis on project cost and revenue forecasting; interaction of wholesale and retail energy markets; the relationship between energy markets and broader economic conditions; and economic analysis of natural resources.

Course materials

- The course will rely heavily on readings available online. Links will be provided via the class website. There is no assigned textbook.
- Students should also read Energy Information Administration's daily series "Today in Energy" (<http://www.eia.gov/todayinenergy/>). Sign up for email service here: <http://www.eia.gov/tools/emailupdates/>.

Expected Learning Outcomes

After completing this course, students will be able to:

- Describe current energy market trends and relate current conditions to historical market performance;
- Explain basic oil market and gas market dynamics, focusing on consumer and producer responses to prices;
- Evaluate project economics for an oil or gas resource and understand related industry practices and standards;
- Identify uncertain factors in long-term forecasts (especially as relate to project evaluation) and employ analytical tools to guide decision making under uncertainty;
- Explain concepts fundamental to the economics of natural resources; and,
- Identify economic concepts relevant to understanding peak oil, resource growth and exhaustion.

own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.”

Disability Accommodation: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

Attendance: In general, I expect that you will be in class and assume that if you choose not to be in class it is for good reason. A student who will miss class due to a university-approved trip or to observe a religious holy day should make that intention known to the instructor prior to the absence so that accommodations can be made as necessary. You do not need to present me with doctor’s notes in the event of an illness. However, please do contact me if an illness will keep you from attending multiple classes.

When you miss class, it is your responsibility to catch up or cover missing materials or assignments. The class website and your fellow students should be your first recourse in such cases, not your instructor.

Religious Holy Day Observance: A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day will be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.

Course Communication: Course announcements, assignments, supplemental readings, and any changes to this syllabus will be discussed in class and posted to the class website at <http://giberson.ba.ttu.edu/ENCO4312>.

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Course Outline 2014 Spring

Outline of topics

1. Energy supply and demand

- a) Introducing the course
- b) Economic fundamentals applied to energy

2. Oil resources – economic considerations

- a) Discounted cash flow analysis and oil reserves
- b) Reserves and resources
- c) Oil markets and prices
- d) Forecasting prices, arbitrage, speculation

- e) Oil demand, oil supply, and OPEC

3. Natural gas resources– economic considerations

- a) Gas prices and oil prices
- b) Role of natural gas liquids
- c) Exporting natural gas

4. Risk and uncertainty in reserve evaluation

- a) Sensitivity analysis, scenario analysis and decision trees
- b) Applying decision trees; Options and portfolios
- c) Monte Carlo analysis

Mid Term exam

5. Downstream oil markets

- a) Refinery issues; the crack spread
- b) Pipeline issues
- c) Retail gasoline
- d) Energy markets and the macroeconomy

6. Natural resource and environmental economics

- a) Common pool resources
- b) Tragedy of the commons
- c) Unitization
- d) Hubbert and peak oil
- e) Hotelling and the economics of depletable resources
- f) The future of oil and gas resources
- g) Malthusians and Cornucopians

Final Exam