

Course 5324
Natural Resource and Energy Economics
Stockholm School of Economics, Fall 2022

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SYLLABUS

Purpose

Natural resources and energy are a vital part of our everyday life. They affect operations of every level and sector of the economy, from extraction to transportation to services, from North to South, from developing to the developed world. Understanding and managing energy and resources are crucial for effective entrepreneurship, for economic and institutional development, for healthy environmental standards and for the functioning of our society in general.

The purpose of this course is to explore different aspects of energy and natural resources and help students learn how to use insights and tools from economics to understand and evaluate resource and energy problems, policies and developments.

Content

The course of Natural Resource and Energy Economics provides a general overview of important aspects of provision, management, and economic and political importance of natural resources. It aims at giving the student knowledge about various topics related to natural resources and energy markets, energy market interactions and pricing, and regulation of the markets.

More specifically, we will look into specific features of electricity, oil, gas, coal and renewables markets, and into the prospects for transition to green energy. In this discussion, we will also cover the most recent developments in the energy field, such as the fracking revolution, as well as touch upon behavioral aspects of energy consumption. Our course will also address an important concern for energy security. Finally, we will study the interrelation between natural resources, and economic and institutional development.

Intended Learning Outcomes

By completing this course a successful student will be able to

- Understand the key issues in the functioning of electricity, oil and gas markets, and their influence on the market outcomes for consumers and producers;
- Analyze and discuss the interrelation between resources, institutional and economic development, and growth;
- Use basic game-theoretical models and analytical tools to analyze the issues of energy and efficient resource use;
- Gain insights into the broad complex of energy-related policy issues and assess the advantages and disadvantages of currently used and proposed policies and regulations;
- Discuss and conceptualize topical issues within the field of energy and resources economics with a group of peers.

The approaches learned in the course would also enable the student to examine economic problems in other related fields such as international trade, industrial organization or political economy.

Format and Structure:

The course will mix conventional lecturing with more interactive techniques, such as class discussions, experimental games, discussions of cases and group presentations.

The assignments will be a combination of group case discussion/presentation (15 % of the final grade), experimental game participation (10%), group presentation (25 %), and a final exam (50%).

Group case discussion/presentation will use the same case study for the entire class, with each group presenting a specific aspect of this case, followed by general discussion. For example, a case can address global oil and gas industry, with questions to groups including (i) a comparison of the profitability of the oil value chain segments, and reasons for variation in profitability, (ii) a comparison of the incentives to innovate of national vs. international oil companies, (iii) advantages of relying on natural gas vs. oil in historical perspective, etc.

Group presentations will be devoted to various topics within the course subject. Each group is expected to choose a topic (either from an offered list, or by its own initiative), get it approved by the lecturers by the 3rd week of the semester, and present an analysis of a topic. For example, the topics may be "Green energy in Sweden", "Shale revolution in Europe", "Cars with alternative fuels" etc.

The final exam will be a three-hour sit-in exam that will combine verbal and analytical questions. It will be based on readings and lectures.

Prerequisites

The students are expected to have background knowledge in microeconomics (including consumer optimization, producer optimization, social welfare analysis, regulation), be familiar with algebra, basic game theory (including simultaneous and sequential games with complete information, repeated games, and collusion), as well as understand and be able to interpret basic econometrics (including OLS, panel data, IV, difference-in-difference analysis). Students without the required training can take the course but they need to be prepared to work very hard to keep up with the pace of the course.

Attendance policy

Group case discussion/presentation, experiment, group presentations will take place during the seminars, and attendance of these is **mandatory (Sep 8th, Sep 29th, Oct 12th and Oct 13th, see schedule for the seminars)**.