



Full Syllabus



Course Title

Energy Economics

Lecturer

Dr. Zvi Baum

Semester

Summer

Course requirements

Pre-requisite: Environmental Economics.
Attendance in person in at least 80% of the classes.
3 homework assignments.
Final exam.

Final grade components

3 Homework assignments: 30%.
Final exam: 70%.

Course schedule*

Class no. / Date	Subject and Requirements (assignments, reading materials, tasks, etc.)
1/July 4, 2022	Introduction: energy sources, energy economics in historical perspective, trends in global energy consumption, energy supply chain, national energy balance, cost-benefit analysis, methods for determining the discount rate, levelized cost of energy.
2/ July 6, 2022	Models for analyzing energy supply: the characteristics of energy markets, cost curves, resource allocation in a natural monopoly, investment and pricing decisions for energy products, investment and pricing decisions for energy products in low and high demand periods.
3/ July 11, 2022	Analyzing and forecasting energy demand: the derived nature of energy demand, the determinants of energy demand, stages in energy consumption decisions, capital-energy ratio, the link between economic development energy consumption and energy intensity, the relation between income and energy consumption, approaches for analyzing the demand for energy, energy intensity issues and challenges, modeling energy demand.
4/ July 13, 2022	Petroleum Markets: petroleum products, petroleum reserves and consumption trends, Hubert Peak, cartels, the dominant firm model, petroleum trade, benchmarks and futures, the behavior of petroleum markets. Optimal management of non-renewable natural resources: non-renewable resources theories, dynamic efficiency, static efficiency, Hotelling rules, Hotelling– subject elaboration.
5/ July 18, 2022	Natural Gas: natural gas production, advantages and disadvantages, conveying natural gas, natural gas markets, natural gas in Israel, projected demand for natural gas in Israel, Israel’s natural gas framework, regulation and taxation, the Dutch disease, sovereign wealth funds.



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6/ July 20, 2022	Nuclear Energy: Introduction, global trends, nuclear power cost components, market analysis, small modular reactors, environmental aspects of nuclear power.
7/ July 25, 2022 11:30-15:00	Renewable energies: global trends, renewable energy in power generation – potential and challenges, renewable energy in Israel, smart grids, energy storage, demand side management.
8/ July 27, 2022 11:30-15:00	Selected Topics in Energy policy: forming energy policy, policy measures, energy and the environment, emission abatement policies.
*Lectures listed by date are subject to change throughout the semester.	
Required course reading	
International Handbook on the Economics of Energy (2009). Edited by Lester C. Hunt and Joanne Evans, University of Surrey, UK. Edward Edgar.	
Optional course reading	
Tietenberg, T., Lewis, L. (2016), Environmental & Natural Resource Economics, 10 th Edition, London ; NewYork: Routledge, Taylor &Francis Group.	
Mez, L. (2012). Nuclear energy–Any solution for sustainability and climate protection?, Energy Policy 48, 56–63.	
Kessides, I. N. (2012).The future of the nuclear industry reconsidered: Risks, uncertainties, and continued promise, Energy Policy 48, 185–208.	
Bronski, P. et al. (2015). The economics of load defection. Rocky Mountain Institute. Available from WWW.RMI.ORG.	
Bronski, P. et al. (2014). The economics of grid defection. Rocky Mountain Institute. Available from WWW.RMI.ORG.	
Fitzgerald, G.etal. (2015). The economics of battery energy storage. Rocky Mountain Institute. Available from WWW.RMI.ORG.	
Bronski, P. et al. (2015). The economics of demand flexibility. Rocky Mountain Institute. Available from WWW.RMI.ORG	