

ENRG 401 (FORMERLY: IF 401) – POLS 564

Energy: Supply Chain, Economics and Geopolitics

Course Syllabus

Spring 2023-2024

February 14th 2024, Version 3

Course Description

This introductory course on energy is composed of two parts. The first part (taught by Dr. Kaya) considers the supply and distribution of energy. The second part (taught by Dr. Evin) builds on the first part discussion and focuses on the geopolitics of energy resources. The course aims to provide a big-picture view of energy supply chains to help students understand the interdependencies between technology, business, economics, environment, and international politics regarding energy-related issues. Scientific and technological aspects of energy, which are covered in the FENS elective courses ENS 207 and ENS 315, are not at the core of this course.

Note that the course has a separate code (POLS 564) for graduate students. The main deliverable of the graduate course is a research paper (which may be a chapter of the student's master's or Ph.D. thesis.) POLS 564 students will be provided with an up-to-date bibliographical guide, depending on their research topic.

Instructors

Dr. Murat Kaya, FENS G020, mkaya@sabanciuniv.edu, Office hours: Tuesdays 14:40-15:30

Dr. Ahmet Evin, FASS 2105, aevin@sabanciuniv.edu, Office hours: Wednesdays 14:00-15:00

Teaching Assistants

Barış Almaç (FENS), barisalmac@sabanciuniv.edu

Samet Apaydın (FASS), samet.apaydin@sabanciuniv.edu

Prerequisites

None

Resources

There is no main textbook for the course. Instead, we will use various reading material including book chapters, white papers, and reports. Below, we list a number of sample reading material and resources. Additional readings will be posted at SUCourse from time to time.

- (Entry level): US Energy Information Administration (EIA) – Energy Explained webpage.
<https://www.eia.gov/energyexplained/>
- (Entry level): TOTAL Planete Energies
<https://www.planete-energies.com/en>
- IEA World Energy Outlook Reports

- <https://www.iea.org/topics/world-energy-outlook>
- International Energy Agency (for a wide variety of free reports)
<https://www.iea.org/>
- International Energy Agency ETP Clean Energy Technology Guide
<https://www.iea.org/articles/etp-clean-energy-technology-guide>
- BP Statistical Review of World Energy Reports
www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html
- BP Energy Outlook
www.bp.com/en/global/corporate/energy-economics/energy-outlook.html
- The World Nuclear Industry Status Reports
<https://www.worldnuclearreport.org/-The-Annual-Reports-.html>
- Renewables Global Status Reports
<https://www.ren21.net/reports/global-status-report/>
- International Renewable Energy Agency (IRENA)
<https://www.irena.org/publications>
- World Energy Council publications
www.worldenergy.org/publications/
- The Economist Journal: Articles and Special Reports on Energy
www.economist.com/topics/energy-industry
- McKinsey consulting:
www.mckinsey.com/industries/electric-power-and-natural-gas/how-we-help-clients
- Deloitte consulting:
www2.deloitte.com/global/en/industries/energy-resources-industrials.html
- The Oxford Institute for Energy Studies
www.oxfordenergy.org
- Agora Energiewende
<https://www.agora-energiewende.de/en/publications>
- Wood Mackenzie
<https://www.woodmac.com/our-expertise/capabilities/power-and-renewables/>
- IIEEC (Sabanci University Istanbul International Center for Energy and Climate)
iieec.sabanciuniv.edu/
- Shura Energy Transition Center
<https://shura.org.tr/en/>
- The Quest (Book): Energy, Security, and the Remaking of the Modern World. D. Yergin. 2012. (highly recommended. Turkish version title: Enerjinin Geleceği, 2 cilt)
- The Prize: The Epic Quest for Oil, Money and Power: D. Yergin. 1990. Turkish version title: Petrol. İş Bankası Yayınları.
- The Boom (Book): How Fracking Ignited the American Energy Revolution and Changed the World. Russell Gold. 2015.
- Oil 101 (Book). Morgen Downey. 2009.
- Newsletter: "The Energy Mix" by IEA. To subscribe:
<https://www.iea.org/newsletter>
- The Global Politics of Energy. Campbell and Price

- Ahmet O. Evin, Energy and Turkey’s Neighborhood: Post Soviet Transformations and Transatlantic Interests
- Ahmet O. Evin, Turkey’s Energy Policy and the EU’s Energy Demand
- Jamestown Foundation, Eurasia Daily Monitor
www.jamestown.org/programs/edm/

Podcasts

Energy-related podcasts offer a fun way to learn. The podcasts that I follow are:

- The Energy Transition Show with Chris Nelder (full episodes require payment)
- Redefining Energy
- The Energy Gang
- Columbia Energy Exchange
- The Interchange
- Energy Policy Now
- DNV GL Talks Energy
- Energy 360
- The Oxford Institute for Energy Studies

For a long list: https://blog.feedspot.com/energy_podcasts/

Week #	Week of	Topics
W1, Thr, 2-hours	Feb 15	Introduction (Dr. Kaya and Dr. Evin) <ul style="list-style-type: none"> • Course outline and policies • Course content introduction Energy and Electricity (Dr. Kaya)
W2	Feb 21-22	Energy and Electricity (Dr. Kaya) Energy supply: Oil (Dr. Kaya)
W3	Feb 28-29	Energy supply: Oil & Natural Gas (Dr. Kaya)
W4	March 6-7	Energy supply: Coal & Nuclear (Dr. Kaya)
W5	Mar 13-14	Energy supply: Renewables-1 (Dr. Kaya)
W6	Mar 20-21	Energy supply: Renewables-2 (Dr. Kaya)
W7	Mar 27-28	The Geopolitics of Energy: Yesterday and Today (Dr. Evin) <ul style="list-style-type: none"> • Producer and consumer nations • Cartels and interdependence • Supply and demand security • Energy as global, regional, and local commodity • Changing concept of energy security • The effect of renewables and electricity • Changing patterns of demand and energy markets

W8	Apr 3-4	Changing Outlook on Energy (Dr. Evin) <ul style="list-style-type: none"> • Paris Agreement • The European Green Deal • New resources and new technologies • Green energy and sustainable fuels • The future of natural gas • Demand for electricity and power generation • Hydrocarbons and power • Changes in the global flow of hydrocarbons
SEMESTER BREAK		
W9	Apr 17-18	Case Study 1: The Ukrainian Crisis (Dr. Evin) <ul style="list-style-type: none"> • The geopolitical situation of Ukraine • Russian gas supplies and export routes • Nordstream and Turkstream • EU energy demand and energy security • Russia's energy markets and export dependence • Natural gas: global or regional commodity?
W10	Apr 24-25	Case Study 2: China and Eurasian Geopolitics (Dr. Evin) <ul style="list-style-type: none"> • Eurasian energy supplies and export markets • New destinations for Russian oil and gas? • Challenges facing the Caspian hydrocarbon reserves • New pipelines and LNG competition • China's energy demand and supply sources • China's effect on regional and global markets
W11, Thr, 2- hours	May 2	Turkey's Energy Outlook and Energy Sector <ul style="list-style-type: none"> • Guest speakers from IICEC
W12	May 8-9	Case Study 3: Turkey's Energy Supply Security (Dr. Evin) <ul style="list-style-type: none"> • High import dependence and geopolitical factors • Russian, Azerbaijani and Iranian gas deliveries • Southern Corridor and TANAP • Turkey as a transit country: TANAP and Turkstream • Resources and geopolitical competition • The Black Sea, Balkans, and East Med
W13	May 15-16	Case Studies 4 & 5: Energy and Development (Dr. Evin) <ul style="list-style-type: none"> • India: increasing energy demand, sustained high-rate coal consumption, and challenges of financing cleaner energy and energy transition. • Africa: Why is a high economic growth rate expected of Africa which has the world's lowest per capita GDP?

W14	May 22-23	Responses to Climate Change (Dr. Evin) <ul style="list-style-type: none"> • Energiewende • Electrification and power production • Are natural gas and nuclear coming back? • Renewables • Green and Blue Hydrogen • Outlook for future fuel mix
W15, Wed, 1-hour	May 29	Review Hour

Course Policies

- Partial (not complete) lecture slide sets will be posted to SUCourse+.
- Students cannot share (or post to the Web) any document or recording of the course material with third parties.
- The instructors may have to modify the syllabus due to unforeseen reasons. Students are responsible for such modifications that will be announced in lectures and/or in SuCourse+.

Grading for ENRG 401

Midterm Exam	30%
Final Exam	30%
Assignments	16%
Top Hat questions in Dr. Kaya's lectures	12%
Top Hat questions in Dr. Evin's lectures	6 %
Quizzes (in Dr. Evin's lectures)	6 %

Grading for POLS 564 (That is, for graduate students)

- In addition to taking the quizzes and the exams, answering Top Hat questions and turning in the assignments, graduate students are also required to write a paper on a topic chosen in consultation with Dr. Evin.

Top Hat Software

- During lectures, both instructors will ask quick questions (true/false, multiple choice etc.) using the Top Hat software. The students will need to respond to these quickly.
- The students shall familiarize themselves with the Top Hat software (www.tophat.com) if they have not used it previously. The Top Hat app should be installed on student smartphones/tablets, or it can be accessed via their laptop's web browser.
- The join code required to enroll in ENRG 401 Top Hat page for Dr. Kaya's lectures is 309249, and Dr. Evin's lectures is 406414.
- Students need to register to Top Hat using their SU email address, true name & surname with Turkish characters (if any), and their five-digit student ID number (in the student ID field).

- The lowest 10% of the Top Hat scores for each student will be dropped from consideration, separately for both instructors. No other make-up opportunity exists for Top Hat questions.

Notes on Grading

- Dr. Evin will conduct quizzes in his lectures. The lowest graded quiz for each student will be dropped from consideration. Beyond this, there is no make-up opportunity for quizzes.
- Late assignment submissions will not be accepted.
- Grading-related objections should be discussed with the TAs before bringing the issue to the instructors.
- The letter grade achieved in this course will be determined according to the weights outlined above; not according to what letter grade the student might need. If a student needs a high letter grade, he/she should perform accordingly. We will be happy to provide students with guidance and support for that during the semester.
- We do NOT discuss grading-related issues with students. We delete emails about letter grading without reading their contents.
- There will not be any extra opportunity, e.g., an extra project work or assignment, to increase an individual student's course grade.

Make-up Exam Policy

- The midterm exam and the final exam each will have their own separate make-up exams.
- A student who wants to take a make-up exam needs to document the reason for missing the regular exam (such as sickness or official appointment) and inform the instructors immediately before/after missing the regular exam.

Attendance Policy

- Attendance to lectures is mandatory and will be followed through in-class signature sheets.
- Students do not receive course grade due to attendance.
- Attendance records start with the first lecture. This is also the case for students who add the course during the add-drop period.
- The attendance policy is as follows:
 - missing up to 6 hours of lecture: OK, no need for explanation
 - missing 7 or more hours: a direct effect on course grade
 - missing a high number of lectures may cause failure in the course.
- Students need to email the TAs if they will miss (or have missed) a class session with a valid reason. Non-attendance will still be counted, but having a valid reason helps in our evaluation in case the student misses 3+ lectures.