

IF 401 - ES 504

Energy: Supply Chain, Economics and Geopolitics

Course Syllabus

Spring 2020-2021

February 1st 2021

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 (ES 504) 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.) ES 504 students will be provided with an up-to-date bibliographical guide, depending on their research topic.

Instructors

Dr. Ahmet Evin FASS 2105, aevin@sabanciuniv.edu

Dr. Murat Kaya FENS G020, mkaya@sabanciuniv.edu

Teaching Assistants

To be announced.

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.

- The Quest (Book): Energy, Security, and the Remaking of the Modern World. D. Yergin. 2012. (Highly recommended. Turkish version title: Enerjinin Geleceđi, 2 cilt)
- The Prize: The Epic Quest for Oil, Money and Power: D. Yergin. 1990. Turkish version title: Petrol. Iř Bankası Yayınları.
- The Bridge: Natural Gas in a Redivided Europe: T. Gustavson. 2020.
- Oilcraft: The Myths of Scarcity and Security That Haunt the U.S. Energy Policy: R. Vitalis. 2020.

- IEA World Energy Outlook Reports
www.worldenergyoutlook.org/
- IEA Technology Roadmaps (to understand the latest states of energy-related technologies)
www.iea.org/roadmaps/
- 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
- International Renewable Energy Agency, IRENA
www.irena.org
- 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
- US Energy Information Administration (EIA) – Energy Explained webpage
<https://www.eia.gov/energyexplained/>
- The Oxford Institute for Energy Studies
www.oxfordenergy.org
- GTM research
www.greentechmedia.com/research
- The World Nuclear Industry Status Reports
- Sustainable energy without the hot air. D. J. MacKay. Free pdf book.
www.withouthotair.com/
- The Boom (Book): How Fracking Ignited the American Energy Revolution and Changed the World. Russell Gold. 2015.
- Oil 101 (Book). Morgen Downey. 2009.
- IICEC (Sabanci University Istanbul International Center for Energy and Climate)
iicec.sabanciuniv.edu/
- Shura Energy Transition Center
www.shura.org.tr/eng/
- 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/
- Energy-related **podcasts** offer a great and fun way to learn: Check the current list at
https://blog.feedspot.com/energy_podcasts/

Schedule

| Week # | Date (Mondays) | Topics |
|--------|------------------------|---|
| 1 | Feb. 22 nd | Introduction (Dr. Kaya) <ul style="list-style-type: none"> • Course outline and policies • Course content introduction Energy and Electricity (Dr. Kaya) |
| 2 | March 1 st | Energy supply: Oil-1 (Dr. Kaya) |
| 3 | March 8 th | Energy supply: Oil-2 & Natural Gas (Dr. Kaya) |
| 4 | March 15 th | Energy supply: Coal & Nuclear (Dr. Kaya) |
| 5 | March 22 nd | Energy supply: Renewables-1 (Dr. Kaya) |
| 6 | March 29 th | Energy supply: Renewables-2 (Dr. Kaya) |
| 7 | April 5 th | 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 • Changing patterns of demand and energy markets |
| 8 | April 12 th | Changing Outlook on Energy (Dr. Evin) <ul style="list-style-type: none"> • Changes in the global flow of hydrocarbons • New resources and new technologies • The future of natural gas • Demand for electricity and power production • Hydrocarbons and power |
| 9 | April 19 th | The U.S. and the Middle East: Domination and Dependence (Dr. Evin) <ul style="list-style-type: none"> • The Shale Revolution • The end of U.S. dependence on external markets? • Market response to Green Energy • New markets for the Middle East producers • Twilight of the Rentier State? |

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| 10 | April 26 th | The China Effect on Global/Regional Energy Markets (Dr. Evin) <ul style="list-style-type: none"> • China's energy demand and supply sources • China's effect on regional and global markets • Overseas investments • Why does China support the Paris Climate Agreement • Changing energy mix and power production • Why does India's energy outlook differ from that of China? • Energy and Development: a Case Study of India • Energy and Development: a Case Study of Africa |
| 11 | May 3 th | The Geopolitics of Eurasian Resources: Russia & the Caspian (Dr. Evin) <ul style="list-style-type: none"> • Russia as energy producer and its competitors • Russia's export dependence and market security • New destinations for Russian oil and gas? • Challenges facing the Caspian hydrocarbon reserves • Transatlantic considerations |
| | May 10 th | BAYRAM HOLIDAY, No lectures |
| 12 | May 17 th | EU Energy Policy and Responses to Climate Change (Dr. Evin) <ul style="list-style-type: none"> • Europe and its energy suppliers • Post-Soviet realities, INOGATE, Energy Charter Treaty • Supply security, sustainability, and environmental considerations • Energy Community to Energy Union; EU competition policies • The continued geopolitics of Russian natural gas: Nordstream 1&2 • Natural gas as a transition fuel? • Energiewende: power production, renewables, hydrogen |
| 13 | May 24 th | Turkey's Energy Challenges <ul style="list-style-type: none"> • Turkey's energy outlook • Turkey's neighborhood and supply security issues • Turkey as an energy transit country: TANAP & Turkstream • The Balkans and Eastern Mediterranean • Turkey's green energy potential |

Course Policies

- All lectures, as well as exams and quizzes will be online due to Covid-related restrictions.
- All three hours per week will be conducted live online (synchronously) via Zoom software.
- 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 IF 401

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|-------------------|-----|
| Assignments | 16% |
| Quizzes | 18% |
| Top Hat questions | 16% |
| Midterm Exam | 25% |
| Final Exam | 25% |

Grading for ES 504 (That is, for graduate students)

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

Notes on Grading

- Numerous Top Hat questions will be asked in each course session. There is no make-up opportunity for missed Top Hat questions.
- 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; hence, please do not even bother to ask, especially at the end of the semester. If we receive any email about your letter grade, we delete it without reading its 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 makeup exams.
- A student who wants to take the make-up exam needs to document the reason to miss the regular exam (such as sickness or official appointment) and inform the instructors immediately before/after missing the regular exam.

Important Note on Online Exams

- Students are expected to answer online exam questions **using their own sentences, based on the concepts discussed in our lectures**. Online exams are not research assignments. Students

cannot use text from online or offline resources. Our lecture presentations or other course material can be used as references, but their text shall not be simply copied and pasted.

- Answers will be checked against Plagiarism through TurnItIn software. Students submitting very similar answers to a question will raise suspicion. Such an act cannot be defended with statements such as "we studied and prepared answers to potential questions together". Each student is expected to answer in his/her own sentences. Answers that are irrelevant to our lecture discussions may also raise suspicion of web search during exam.
- Students whose online exam answers seem suspicious will need to attend to **recorded oral exams with the Instructors**. The oral exam questions will not be limited only to the suspicious answers in exams, instructors may ask other questions to evaluate the students' understanding of course material. Depending on the oral exam performance, the student may directly get an F grade or be subjected to lesser penalties.

Attendance Policy

- Attendance to lectures is mandatory and will be recorded.
- 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 (a lecture is defined as the three-hour class meeting):
 - missing up to 2 lectures: OK, no need for explanation
 - missing 3 or more lectures: direct effect on course grade
 - missing a high number of lectures may cause failure in the course
- Please email the TAs if you will miss (or have missed) a class session with a valid reason. Your non-attendance will still be counted, but having a valid reason would help in our evaluation in case you miss three or more sessions.