Energy, Technology, and Society APHY S120, ENAS S120, PHYS S120, EVST S121, G&G S120

Session B
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Lecture/seminar that examines the technology and use of energy. Impacts on the environment, climate, security, and economy. Application of scientific reasoning and quantitative analysis. Intended for non-science majors with good backgrounds in math and science. Enrollment limited to 24.

This course can be applied towards the following Yale College distributional requirements:

- Quantitative Reasoning
- Sciences

Content:

This course emphasizes the technology, use and impacts of energy on the environment, climate, security and economy. In addition, we will be discussing policy and ethical issues related to energy use. This course is ideal for any student interested in economics, political science, international relations, or business fields with an interest in the environment, energy generation/use, or climate issues. Throughout this course you will be exposed to all plausible forms of alternative energy and asked to think critically about their viability, practicality, and the ways in which they impact society and the environment. We will become familiar with specific energy facilities at Yale via virtual field trips. This course will be taught online for the 2020 Summer Session.

Text:
Energy, Environment and Climate by Richard Wolfson [Middlebury College] WW Norton Company, Second or Third Edition. This book is current, very well written, and entertaining to read. It is available used from various used book sellers, including Amazon. Electronic versions are available from Amazon, and from the publisher.

We will also make use of web resources, and will post lecture notes for each lecture. Yale exhibits some of these advanced technologies, and we will use Yale examples where appropriate, with virtual ‘class trips’.

Background required:
Knowledge of high school math, chemistry, and physics is assumed/required. This course is not overly quantitative in nature, but a student will be expected to make quantitative judgements and form opinions related to the topics discussed.

Homework:
There will be problem sets assigned during the course. Problem sets will be posted on the course server, and solutions can be submitted there also, as scans or photographs. Optional homework help sessions will be held.
Midterm exam:
This will be open book, with a 1-day time limit. The day can be chosen by the student.

Final paper:
Each student will also submit an individual paper at the end of the term. The topic will be developed with the instructor.

Grading:
a. Homework______ 30%
b. Midterm exam________ 30%
c. Final paper_______ 30%
d. Class participation_10% includes answering questions in class on Zoom via Chat

Examples of Yale topics we will discuss in the course; pictures from the Yale campus:
a. (upper left) Yale’s new residential colleges and energy efficiency  b. Kroon Hall, with solar and geothermal renewable energy  c. Yale power plant, co-generation  d. Yale solar plant