Energy Studies is a multidisciplinary academic program (MAP) in Yale College. The curriculum is designed to provide selected undergraduates with the knowledge and skills needed for advanced studies, leadership, and success in energy-related fields. Energy Studies scholars must also complete the requirements of a Yale College major, as Yale does not offer a major in energy studies.

Multidisciplinary study of world energy systems—their past, present, and future—forms the content of Energy Studies. One of the biggest challenges today for the future of energy is to accelerate the transition to renewable sources capable of powering efficient transportation, heating, and electricity in ways that are less harmful to health and the environment than the fossil fuels—coal, oil, and natural gas—which still supply about 80% of the world’s primary energy. The task is large. Cheap, abundant fossil fuels have contributed to rising prosperity around the world, but their emissions are by far the leading contributors to harmful air pollution and to the greenhouse gases causing rapid climate change. Moreover, about one-third of the world still has limited access to modern energy: about 1 billion people remain without electricity, and 2.7 billion put their health at risk daily by the traditional use of solid biomass for cooking. Better energy science and technology are needed for the 21st century, but also needed to achieve the goal of clean, affordable energy for all is a better understanding of the environmental, social, political, and economic impacts of rising human energy use.

Students normally apply to Energy Studies in the fall term of sophomore year. The full requirements for the program are the completion of six courses from a list approved by the faculty advisory committee (see reverse side), plus a senior capstone project. The six courses must be distributed (two each) across the program’s three multidisciplinary tracks:

Track 1 Energy Science and Technology,
Track 2 Energy and the Environment, and
Track 3 Energy and Society: Economic, Political and Social Issues.

Additionally, only two of the six courses can be required courses in the department of the student’s major (double majors can use two required courses from each major). One of the six courses can be taken Pass/Fall; the others must normally be taken for full letter grade. Other program activities include field trips, special guest lectures, bi-weekly program dinners, and participation in the Yale Alumni in Energy Conference.

The capstone of the program is a senior project, which may take the form of a traditional senior essay (with permission, the student’s senior essay in the major may fulfill this requirement), a credited or uncredited independent study project, or a written report on an internship in an energy-related field.
Below are some of the courses accepted for Energy Studies. These lists are not exhaustive. See the website for further information.

In the Fall 2020 Term, ENRG 300, Multidisciplinary Topics in World Energy, will be offered as a seminar to junior Energy Studies Scholars.

In Spring 2021 term, ENRG 400 will be the Senior Capstone Seminar.

**Track 1 Energy Science and Technology**
APHY 100, Energy Technology and Society  
CENG 300, Chemical Engineering Thermodynamics  
CENG 315, Transport Phenomena  
CHEM 430, Statistical Mechanics and Thermodynamics  
EENG 406, Photovoltaic Energy  
EPS 274, Fossil Fuels and World Energy  
EPS 275, Renewable Energy  
MENG 211, Thermodynamics for Mechanical Engineers  
MENG 389, Mechanical Engineering IV: Fluid Thermal Energy Science  
PHYS 180, University Physics  
PHYS 420, Thermodynamics and Statistical Mechanics

*Only one of the following broad science courses count in Track 1.*  
CHEM 161/165, General Chemistry I and II  
CHEM 163/167, Comprehensive University Chemistry I and II  
CHEM 332/333, Physical Chemistry I and II  
PHYS 180/181, University Physics  
PHYS 200/201, Fundamentals of Physics  
PHYS 260/261, Intensive Introductory Physics  
PHYS 401/402, Advanced Classical Physics from Newton to Einstein

**Track 2 Energy and the Environment**
ENVE 120, Introduction to Environmental Engineering  
ENAS 360, Green Engineering and Sustainable Design  
ENVE 373, Air Pollution Control  
ENVE 377, Water Quality Control  
ENVE 416, Chemical Engineering and Process Design  
ENVE 448, Environmental Transport Processes  
ENVE 473, Air Quality and Energy  
EPS 101, Climate Change  
EPS 140, Atmosphere, Ocean, and Climate Change  
EPS 232, Earth Surface Processes  
EVST 431, The Physical Science of Climate Change

**Track 3 Energy and Society**
AMST 236, American Energy History  
ANTH 409, Climate and Society from Past to Present  
ANTH 473, Abrupt Climate Change and Societal Collapse  
ECON 330, The Economics of Natural Resources  
ECON 432, Economics of Social Catastrophes  
EVST 224, Writing About the Environment  
EVST 247, Politics of the Environment  
GMAN 167, Green Germany, History and Culture of Sustainability  
GLBL 253, Globalization Space  
GLBL 394, Climate and Society from Past to Present  
LITR 345, Climate Change and the Humanities  
PHYS 330, Science and Public Policy  
PLSC 212, Democracy and Sustainability

**SAMPLE COURSES OF STUDY**

**Energy Science & Technology Focus**
PHYS 180 · EPS 140 · ECON 330  
EPS 274 · EENG 406 · EVST 431  
PHYS 200 · EPS 275 · GLBL 384  
EPS 140 · ENVE 473 · MENG 389

**Energy & Sustainability Focus**
APHY 100 · EPS 232 · GLBL 217  
ECON 330 · EPS 275 · PLSC 212

**Energy & The Environment Focus**
CHEM 161 · ENVE 120 · EPS 140  
ENVE 473 · EPS 274 · ECON 330

**Energy Policy & Climate Change Focus**
PHYS 260 · EPS 140 · EPS 101  
ECON 330 · ANTH 409 · EVST 431  
CHEM 163 · EPS 101 · EPS 275  
ANTH 473 · ECON 432 · PHYS 320