Energy Studies is a multidisciplinary academic program (MAP) in Yale College. The curriculum is designed to provide selected undergraduates the broad 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. Yale College does not offer a major in energy studies.

Multidisciplinary study of world energy forms the content of Energy Studies. One of society’s biggest challenges for the 21st century is the creation of sustainable energy systems. Basic energy services such as heating, lighting, and transportation should not only be accessible to all in today’s world, but also available in ways that are less harmful to health and the environment than current systems based on combustion of fossil fuels. Better energy science and technology are needed, but also needed to achieve the goal of clean, affordable energy for all is a better understanding of the environmental, economic, political and social impacts of rising human energy use.

Students normally apply to Energy Studies in the fall term of sophomore year. Successful applicants are expected to take the gateway course “Energy Technology and Society” during the next spring term. 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. Three of the courses must be distributed across the three tracks of Energy Studies,

I Energy Science and Technology,
II Energy and the Environment, and

Additionally, three of the courses must be outside the department of the student’s major. Double majors can use three courses from each of their two majors provided that the six courses meet the distributional requirement across the three tracks of Energy Studies. Courses must be taken for a full letter grade to qualify for Energy Studies. Other 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 group project culminating in a substantial report, or a written report on a summer job or internship in an energy-related field. Jobs and internships are normally coordinated through the Energy Studies office and the Yale Center for International and Professional Experience.
COURSES IN ENERGY STUDIES

The following courses in YCPS 2018-19 are accepted for Energy Studies. These lists are not exhaustive. See the website for further information.

I  Energy Science and Technology
APHY 100b, Energy Technology and Society (Gateway Course)
CENG 300a, Chemical Engineering Thermodynamics
CENG 315b, Transport Phenomena
CHEM 430a, Statistical Mechanics and Thermodynamics
EENG 406b, Photovoltaic Energy
EENG 401b, Semiconductor Silicon Devices and Technology
G&G 274a, Fossil Fuels and Energy Transitions
G&G 275b, Renewable Energy
MENG 211b, Thermodynamics for Mechanical Engineers
MENG 389b, Mechanical Engineering IV: Fluid Thermal Energy Science
PHYS 180a, University Physics
PHYS 420a, Thermodynamics and Statistical Mechanics
The following broad full-year science courses count as one course in Track I.
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 200/201, Fundamentals of Physics
PHYS 260/261, Intensive Introductory Physics
PHYS 401/402, Advanced Classical Physics from Newton to Einstein

II  Energy and the Environment
ENVE 120b, Introduction to Environmental Engineering
ENVE 360b, Green Engineering and Sustainable Design
ENVE 373a, Air Pollution Control
ENVE 377a, Water Quality Control
ENVE 416b, Chemical Engineering and Process Design
ENVE 448a, Environmental Transport Processes
ENVE 473b, Air Quality and Energy
G&G 010a, Earth, Resources, Energy, and the Environment
G&G 120a, Earth’s Changing Climate
G&G 140a, Atmosphere, Ocean, and Environmental Change
G&G 207b, The Science of Water
G&G 216b, Global Warming: Climate Physics
G&G 322a, Physics of Weather and Climate

III  Energy and Society: Economic, Political and Social Issues
AMST 236b, American Energy History
AMST 425b, American Culture and the Rise of the Environment
ANTH 409a, Climate and Society from Past to Present
ANTH 473b, Abrupt Climate Change and Societal Collapse
ARC 226a, Global Environmental History
ECON 330b, The Economics of Natural Resources
ECON 412b, International Environmental Economics
EVST 226a, Global Environmental History
EVST 228a, Climate Change and the Humanities
EVST 247b, Politics of the Environment
EVST 255b, Environmental Politics and Law
GLBL 217a, Sustainability in the 21st Century
HIST 042a, Oil and Empire
PLSC 212a, Democracy and Sustainability
PLSC 219b, Politics of the Environment

SAMPLE CURRICULA

Energy Science & Technology Focus
APHY 100 · G&G 140 · ECON 330
G&G 274 · EENG 406 · PHYS 420
APHY 100 · G&G 275 · GLBL 217
G&G 322 · ENVE 373 · MENG 389

Energy & Sustainability Focus
APHY 100 · G&G 216 · GLBL 217
ECON 330 · ENVE 360 · PLSC 212
APHY 100 · ECON 330 · PLSC 212
G&G 140 · ENVE 360 · EVST 255

Energy & The Environment Focus
APHY 100 · ENVE 120 · G&G 140
ENVE 473 · G&G 274 · ECON 330
APHY 100 · G&G 140 · PLSC 219
G&G 275 · EVST 255 · ECON 412

Energy Policy & Climate Change Focus
APHY 100 · G&G 140 · G&G 322
ECON 330 · ANTH 409 · EVST 247
APHY 100 · G&G 207 · G&G 322
ANTH 473 · ECON 412 · PLSC 219