ENERGY, MINOR

Energy Minor

Energy touches all aspects of the human experience and is central to nearly every global challenge the world faces today, from raising the standards of living around the world to the existential threat of climate change. The scientific basis of energy is inherently multidisciplinary, and social and behavioral sciences are also crucial to understanding the economics and policy driving technology adoption. The Energy minor program addresses the growing need for trained engineers and scientists in the many sectors that develop, manage, and propagate these technologies.

The Energy minor is jointly administered by the Department of Earth and Planetary Sciences in the Krieger School of Arts and Sciences and the Department of Electrical and Computer Engineering in the Whiting School of Engineering and is affiliated with the Ralph O'Connor Sustainable Energy Institute (https://energyinstitute.jhu.edu/) (ROSEI) which provides additional support and co-curricular opportunities to students in the program. If you have questions regarding the minor, please direct them to Professor Susanna Thon at susanna.thon@jhu.edu if you are in the Whiting School and Professor Jerry Burgess at jerry.burgess@jhu.edu if you are affiliated with the Krieger School.

Students can review the sample program of study on the Undergraduate Energy Minor website (https://energyinstitute.jhu.edu/energy-minor/#1650287821444-896c8e32-8bff).

MINOR PREREQUISITES

Code	Title	Credits
AS.110.106	Calculus I (Biology and Social Sciences)	4
or AS.110.108	Calculus I (Physical Sciences & Engineering)	
AS.110.107	Calculus II (For Biological and Social Science)	4
or AS.110.109	Calculus II (For Physical Sciences and Engineering)	
AS.171.101	General Physics: Physical Science Major I	4
or AS.171.103	General Physics I for Biological Science Majors	
or AS.171.105	Classical Mechanics I	
or AS.171.107	General Physics for Physical Sciences Majors (AL)	
AS.173.111	General Physics Laboratory I	1
or AS.173.115	Classical Mechanics Laboratory	
Total Credits		**13**

MINOR REQUIREMENTS

In addition to the prerequisites, the energy minor requires 17-19 credits, which are comprised of Fundamentals, Science and Policy Context Electives, and Technical Energy Electives. Grades of C- or higher are required. No Satisfactory (S) grades will be accepted.

Fundamental Required Course

Code	Title	Credits
EN.520.370	Introduction to Renewable Energy Engineering	3

Fundamental Science Courses

Code	Title	Credits
Option One [1]		
AS.171.102	General Physics: Physical Science Major II	4
or AS.171.104	General Physics/Biology Majors II	
or AS.171.106	Electricity and Magnetism I	
or AS.171.108	General Physics for Physical Science Majors (AL)	
AS.173.112	General Physics Laboratory II [3]	1
or AS.173.116	Electricity and Magnetism Laboratory	
or EN.560.312	Electromagnetism & Sensors Lab	
Option Two [2]		
AS.030.301	Physical Chemistry I	3-4
or AS.171.312	Statistical Physics/Thermodynamics	
or AS.250.372	Biophysical Chemistry	
or EN.510.312	Thermodynamics/Materials	
or EN.530.231	Mechanical Engineering Thermodynamics	
or EN.540.203	Engineering Thermodynamics	
or EN.580.241	Statistical Physics	

1. Recommended for students completing a major that does not require a thermodynamics course.
2. Recommended for students completing a major that requires a thermodynamics course.
3. Exam credits and waivers cannot be used to satisfy the requirements. Course must be taken at JHU.

Science and Policy Context Electives

Code	Title	Credits
At least 6 credits of approved electives with the POS Tag: ENGY-SCIPOL [1]		6

1. Students should select electives that fit their particular interests and career goals.

Technical Energy Electives

Code	Title	Credits
At least 6 credits of approved electives with POS Tag: ENGY-TECH [1]		6

1. Students should select electives that fit their particular interests and career goals.