

Bachelor of Arts with a Major in Sustainable Energy

This course of study is intended for students who wish to pursue a career in sustainability, energy policy or law.

Learning Objectives:

1. Graduates will be able to explain the principles of energy and its transfer, the production of solar energy and its distribution, the human and political factors in changing the way that energy is supplied.
2. Graduates will be able to explain the engineering design process and will have hands-on experience with the design process.
3. Graduates will have a knowledge of Ignatian (Jesuit) Pedagogy and will have developed related life-long learning skills.
4. Graduates will be able to communicate technology to a wide variety of audiences.
5. Graduates will be able to explain effective project team operation and will have worked effectively in this environment.
6. Graduates should emerge from the program having demonstrated a commitment to social and global responsibility including an awareness of Catholic Social Teaching.
7. Graduates will demonstrate advanced problem solving skills.
8. Graduates will have knowledge of how to implement the social science and ethical understanding relevant to a program like this that promotes cultural change.
9. Graduates will have obtained the competencies needed for graduate study in policy, law or business or an entry-level position in a sustainability related field.

Required Courses:

Design and Rapid Prototyping Lab I (3 cr: 1 cr. ERG 211, 1 cr. ENG 151, 1 cr. COM 153)
Design and Rapid Prototyping Lab II (3 cr: 1 cr. ERG 212, 2 cr. JMC 202)
ERG 241 Introduction to Energy Transfer (3 cr)
History and Technology in the Modern World (5 cr; 2 cr. ERG 251, 3 cr. HIS 110)
ERG 301 Modeling Electrical Load and Yield (3 cr)
Design and Rapid Prototyping Lab III (3 cr: 1 cr. ERG 311, 1 cr. ENG 152, 1 cr. COM 154)
Design and Rapid Prototyping Lab IV (3 cr: 1 cr. ERG 312, 1 cr. ENG 153, 1 cr. COM 155)
ERG 321 Introduction to Solar Energy (3 cr)
ERG 351 Energy Policy (3 cr)
ERG 481 Senior Project in Energy Studies I (3 cr)
ERG 482 Senior Project in Energy Studies II (3 cr)
ERG 361 Internship (3 cr)
ERG 551 Grants and Funding for Sustainable Technology (3cr)
PHL 255 Ethics, Energy, and Environment (3 cr)
PHY 157 Energy in Modern Society (3 cr)

The following General Education (Core) courses are also part of the program:

THL 101 Theology, Cosmology, and the Environment (3 cr)
THL 336 Divine Providence, Catholic Social Teaching, and the Problem of Climate Change (3 cr)

And at least one of the following (if both are taken, the second course can count as an elective for the major):

ANT 112 Introduction to Anthropology – Energy, Culture, and Sustainability

AMS 355/ANT 355/SOC 355/EVS 355 Environment and Society

The list of required includes courses that can be used to address two of the core Theology courses, the core Science requirement, the core Mathematics requirement, the core Introductory Composition requirement, the core Communication requirement, part of the Core History requirement, and both courses in the Social Sciences core.

Students are strongly encouraged to include courses in quantitative analysis, qualitative analysis and statistical methods as part of their program.

Electives (18 credits from the following):

ART 155 Welded Metal Sculpture I

ART 156 Bronze Casting I

ART 211 Introductory Ceramics

ART 255 Welded Metal Sculpture II

ART 256 Bronze Casting II

ART 311 Intermediate Ceramics I

ART 312 Intermediate Ceramics II

AMS 307/ANT 307/SOC 307/EVS 307 Demography: World Population Issues

AMS 312/HAP 312/SOC 312 Quantitative Methods in the Social Sciences

ANT 314/SOC 314 Statistics for the Social Sciences

AMS 316/ANT 316/SOC 316/NAS 316 Qualitative Methods in the Social Sciences

ANT 350/SOC 350 Social Change

ANT 424/NAS 424/SRP 424/SOC 424 Sustainability and Rural America

ATS 533/EVS 533 Physical Climatology and Climate Change

BUS 201 Legal Environment of Business

BUS 479 Catholic Social Teaching and Social Entrepreneurship

COM 360 Organizational Communication

COM 362 Small Group Communication

COM 441 Deliberation on Sustainability

ECO 353/EVS 353 Environmental Economics

ERG 131 Installation and Maintenance of Photovoltaic Systems

ERG 132 Convection and Passive Solar Energy Systems

ERG 493 Directed Independent Readings

ERG 495 Directed Independent Study

ERG 497 Directed Independent Research

ERG 595 Special Topics in Energy Studies

ENG 315 Technical and Professional Writing

ENG 381 Literature and the Environment

ENG 440 Introduction to Green Cultural Studies

ENT 312 Innovation and Creativity

ENT 314 Business Planning for Social Entrepreneurs

EVS 333/PLS 333 Environmental Politics and Policy

EVS 354/PHL 354 Environmental Ethics
EVS 374 Management of Environmental Risk
EVS 452/JMC 452/PHL 452/SRP 452 Science, Media and Risk
HRS 303 Sources and Methods: Fuzzy Math Logic
HRS 311 Sources and Methods: Graph Theory
HRS 312 Sources and Methods: Gödel, Escher and Bach
HRS 315 Sources and Methods: Innovation and Creativity
HRS 334 Sources and Methods: Green Chemistry and Sustainability
HRS 342 Sources and Methods: Modeling Global Issues
JRN 215 Information Concepts and Practices
JRN 220 Professional Writing
PHY 223 Project Physics Laboratory I
PHY 224 Project Physics Laboratory II
PHY 591 Seminar in Engineering
PLS 235 Interest Group Politics
PLS 310 Political Science Research Methods
PLS 331 Managing Public and Non-profit Sectors
PLS 436 Politics and Ethics of Science and Technology
PLS 463 Game Theory and Political Choice
PLS 520 Statistical Methods for Public Administration and Policy Analysis
SOC 335 Technology and Human Values
SOC 570 Geographic Information Systems
SRP 437 Environment, Race, Class and Gender
THL 565 Catholic Social Teaching