EES 205 Course Overview

Course title: Sustainable Energy and the Environment

Pre-requisites: None

Number of credits: 3

Catalog course description: An Introductory course that evaluates the environmental impacts of power generation based on fossil fuels and nuclear fission and describes alternatives to these technologies, including conservation, mass transit, electric and hybrid electric vehicles, passive solar energy, solar thermal systems, photovoltaic power systems, hydroelectric power, wind energy, tidal power, ocean thermal energy, biomass, fuel cells, hydrogen fuel systems, and nuclear fusion. The course evaluates the environmental, economic, and social issues related to the transition to sustainable energy systems.

Required instructor qualifications: Master's in a relevant scientific discipline or Master's in Education with relevant coursework

Course's audience and role in Eastern's curriculum: This course is a part of Eastern's liberal arts core curriculum, so it is taken by students across the university, usually in their first or second year. This course fulfills the liberal arts learning outcome of quantitative literacy as well as the Science and Math requirement.

This course counts toward the major in Environmental Earth Science and the minors in Sustainable Energy Studies and Environmental Science. It also fulfills a major requirement for future elementary and early childhood educators completing the Liberal Studies major with a concentration in Natural Sciences or Earth Science.

Learning outcomes: Please include the following course-specific outcomes, as well as the definitions of quantitative literacy and critical thinking:

The United States and other nations are moving their economies away from using fossil fuels and embracing sustainable, renewable energy sources. This course will provide you with an understanding of why this transition must occur and how it can be achieved. Thus, by the conclusion of this course you will:

- Understand the basic concepts of climate, climate change and the need for sustainable energy;
- Understand of the current state of global energy sources and how they must change;
- Have a basic knowledge of sustainable energy sources such as wind, solar, hydro, etc.;
- Know of actions you can take to help lessen your impact on the environment; and
- Understand how you can be an active citizen to help foster beneficial environmental change.

Quantitative Literacy (Primary Liberal Arts Learning Outcome) is competency in working with numerical data to reason or solve problems, the ability to make judgements and draw conclusions supported by quantitative evidence, and the ability to communicate

those arguments utilizing quantitative tools. Critical Thinking (Secondary Liberal Arts Learning Outcome) is the analysis and evaluation of complex ideas, artifacts, information, and arguments as a basis for formulating a well-reasoned belief, judgment, or conclusion.
Primary modes of instruction: Each course in Eastern's liberal arts core includes at least one high impact practice. The high impact practice you must include in this course is collaborative assignments and projects, following the AAC&U definition. Modes of instruction in this course include lectures, discussions, and in-class exercises.
Primary modes of assessment: Instructors may exercise their discretion in deciding grading percentages, as professors do so on campus. This course generally includes multiple cumulative exams, quizzes, and other assignments, including collaborative assignments that reflect the course's required high-impact practice. All exams may include calculations, short answers, and essay questions.
Other notes for instructors:

Approved by the Department of Environmental Earth Science on
12/15/2025

Signature of department chair or faculty liaison: Stephen A. Nathan