

ENERGY AND WATER SUSTAINABILITY

THE GEORGE R. BROWN SCHOOL OF ENGINEERING

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DEGREES OFFERED: NONE

The Civil and Environmental Engineering Department in collaboration with several other Rice University departments offers undergraduate students the opportunity to select a minor in energy and water sustainability (EWSU). Sustainable development is a societal goal that challenges traditional ways of thinking and requires alternative approaches and solutions to balance environmental, economic, and social interests. Carbon management strategies and renewable resources will be key elements of energy policy for the coming decades. Similarly, the long-term viability of existing water use and human settlement patterns must be reconsidered given the effect of climate change in freshwater availability, as well as increasing competing demands for this limited resource. More generally, the dedication of materials, energy, and ecological resources will become more important in economic decision-making, while more and more members of society will demand equity in decision-making processes.

Students choosing this minor will gain knowledge of both the science and policy issues associated with the evaluation of sustainable energy and water strategies that will form a cornerstone of 21st century social systems. Students completing this minor will be better prepared for a global society that is attempting to understand and address the challenge of meeting basic human needs today and in the future while maintaining a functional natural system and social order.

REQUIREMENTS FOR MINORING IN EWSU

Students must complete seven courses, comprising three required core courses, a design practicum and three elective courses that focus on energy, water, or sustainability. To promote educational breadth, no more than two of these electives should be used to meet a student's major requirements.

REQUIRED COURSES

- CEVE 202/ENGI 202 *Sustainable Design*
- CEVE 307/ENST 307/ESCI307 *Energy and the Environment*
- CEVE 322/ENGI 303 *Engineering Economics* or ECON 480/ENST 480 *Environmental Economics*

ELECTIVE COURSES

Students must choose three electives, with no more than two drawn from any one of three different defined areas of specialization. No more than two of these electives can be used also to fulfill major requirements, and at least one elective course must be taken from a different school than the one hosting the student's major. A complete list of the approved elective courses may be found at www.ewsu.rice.edu.

DESIGN PRACTICUM

Students are required to enroll in a 1-credit (integrative) independent study for one semester, typically fall of the senior year. Students in engineering and architecture who must take a senior design course will typically fulfill this requirement by preparing a report that describes the incorporation of sustainability concepts into their design effort, in consultation with the senior (capstone) design course instructor. Students not engaged in a suitable design project will either consult with an extant design group or pursue a project related to their own area of study in consultation with the advisors for this interdisciplinary minor.