MINOR IN ENERGY AND WATER SUSTAINABILITY

Program Learning Outcomes for the Minor in Energy and Water Sustainability

Upon completing the minor in Energy and Water Sustainability, students will be able to:

1. Analyze basic environmental issues related to energy and water sustainability, including the role of climate change.
2. Evaluate the role of social and political factors on energy and water sustainability issues.
3. Develop financial, environmental, and human impact analyses of energy and/or water related projects.

Requirements for the Minor in Energy and Water Sustainability

Students pursuing the minor in Energy and Water Sustainability must complete:

- A minimum of 7 courses (19 credit hours) to satisfy minor requirements.
- A minimum of 5 courses (16 credit hours) taken at the 300-level or above.
- A Design Practicum.[1]
- A minimum of 1 course (3 credit hours) of the Elective Requirements should be completed for the minor only (not shared or double-counted with a student's major core requirements).

The courses listed below satisfy the requirements for this minor. In certain instances, courses not on this official list may be substituted upon approval of the minor's academic advisor or, where applicable, the Program Director. (Course substitutions must be formally applied and entered into Degree Works by the minor's Official Certifier (https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/)). Students and their academic advisors should identify and clearly document the courses to be taken.

Summary

Code	Title	Credit Hours
Total Credit Hours Required for the Minor in Energy and Water Sustainability		19

Minor Requirements

Code	Title	Credit Hours
Core Requirements		
CEVE 301	ENGINEERING ECONOMICS AND PROJECT MANAGEMENT	3
or ECON 480 / ENST 480	ENVIRONMENTAL ECONOMICS	
CEVE 302 / ENGI 302	SUSTAINABLE DESIGN	3
or CEVE 406 / ENST 406	INTRODUCTION TO ENVIRONMENTAL LAW	
CEVE 307 / EEPS 307 / ENST 307	ENERGY AND THE ENVIRONMENT	3
Design Practicum [1]		
CEVE 499	SPECIAL PROBLEMS (at least 1 credit hour)	1
Elective Requirements [2]		
Select a total of 3 elective courses (minimum of 9 credit hours) from at least 2 of the following 3 categories:		*9*
Energy		
Select up to 2 courses from the following:		
CHBE 421	ANALYSIS OF ENERGY SYSTEMS	
ECON 437 / ENST 437	ENERGY ECONOMICS	
EEPS 437	EARTH'S NATURAL RESOURCES FOR THE ENERGY TRANSITION	
ENST 250	UNDERSTANDING ENERGY: ENERGY LITERACY AND CIVICS	
Water		
Select up to 2 courses from the following:		
CEVE 314 / BIOE 365 / GLHT 314	SUSTAINABLE WATER PURIFICATION FOR THE DEVELOPING WORLD	
CEVE 315	URBAN WATER SYSTEMS: SOURCES, TREATMENT, DISTRIBUTION, RESOURCE RECOVERY AND REUSE	
CEVE 412	HYDROLOGY AND WATER RESOURCES ENGINEERING	
CEVE 444	ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY	
Sustainability		
Select up to 2 courses from the following:		
ARCH 313 / ENST 313	CASE STUDIES IN SUSTAINABLE DESIGN	
ARCH 322 / ENST 322	CASE STUDIES IN SUSTAINABILITY: THE REGENERATIVE REPOSITIONING OF NEW OR EXISTING RICE CAMPUS BLDGS	
BIOS 280	SUSTAINABLE DEVELOPMENT AND REPORTING	
BIOS 559	SUSTAINABILITY IMPACT ASSESSMENTS [3]	
CEVE 406 / ENST 406	INTRODUCTION TO ENVIRONMENTAL LAW	
CEVE 421	CLIMATE RISK MANAGEMENT	
CEVE 425	SUSTAINABLE INFRASTRUCTURE MATERIALS	
CEVE 426	SMART MATERIALS FOR THE ENVIRONMENT	
CEVE 492	MODELING AND ANALYSIS OF NETWORKED SYSTEMS	
EEPS 438	THE SCIENCE OF NATURE-BASED CARBON SEQUESTRATION	

	ENST 210	SUSTAINABLE FUTURES: AN EXPLORATION OF GLOBAL SUSTAINABILITY CHALLENGES AND SOLUTIONS
	ENST 301	ENVIRONMENTAL JUSTICE
	ENST 302 / SOCI 304	ENVIRONMENTAL ISSUES: RICE INTO THE FUTURE
	POLI 332	URBAN POLITICS
	STAT 485	ENVIRONMENTAL STATISTICS AND DECISION MAKING
Total Credit Hours		**19**

Footnotes and Additional Information

1 Students are required to complete 1 special topics course (CEVE 499), typically during the fall semester of their senior year. Students in engineering and architecture will fulfill this requirement by preparing a report that describes the incorporation of sustainability concepts into their design effort in consultation with their 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 EWSU advisors.

2 No more than 2 electives courses can be drawn from any 1 of the 3 electives categories. At least 1 elective course must be taken from a different school than the school hosting the student's major. No more than 2 of the 3 electives can be used to also fulfill a student's major core requirements. Course offerings of interest that are not listed above can be approved via contacting the minor's Official Certifier, Jorge Loyo (jorge.loyo@rice.edu).

3 With permission and special registration, only juniors and seniors may register for BIOS 559.

Policies for the Minor in Energy and Water Sustainability

Program Restrictions and Exclusions

Students pursuing the minor in Energy and Water Sustainability should be aware of the following program restriction:

- As noted in Majors, Minors, and Certificates (https://ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates/), i.) students may declare their intent to pursue a minor only after they have first declared a major, and ii.) students may not major and minor in the same subject.

Transfer Credit

For Rice University's policy regarding transfer credit, see Transfer Credit (https://ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit/). Some departments and programs have additional restrictions on transfer credit. Requests for transfer credit must be approved for Rice equivalency by the designated transfer credit advisor for the appropriate academic department offering the Rice equivalent course (corresponding to the subject code of the course content). The Office of Academic Advising maintains the university's official list of transfer credit advisors (https://oaa.rice.edu/advising-network/transfer-credit-advisors/) on their website: https://oaa.rice.edu. Students are encouraged to meet with the applicable transfer credit advisor as well as their academic program director when considering transfer credit possibilities.

Additional Information

For additional information, please see the Energy and Water Sustainability website: https://cee.rice.edu/.

Opportunities for the Minor in Energy and Water Sustainability

Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see Latin Honors (https://ga.rice.edu/undergraduate-students/honors-distinctions/university/) (*summa cum laude*, *magna cum laude*, and *cum laude*) and Distinction in Research and Creative Work (https://ga.rice.edu/undergraduate-students/honors-distinctions/university/). Some departments have department-specific Honors awards or designations.

Additional Information

For additional information, please see the Energy and Water Sustainability website: https://cee.rice.edu/.