Bachelor of Science degree  
with a major in Environmental Resources Engineering  
See Environmental Systems for the Master of Science degree with concentrations in Environmental Resources Engineering (ERE) and Energy Technology & Policy (ETaP).

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For a complete description of the ERE program, including its program goals, see our webpage at engineering.humboldt.edu.

Mission Statement  
The mission of the ERE program is to educate students to identify and solve complex environmental resources engineering problems. The program prepares responsible leaders who will sustain, restore and protect our natural resources and the environment.

The Program  
Students completing this program will have demonstrated:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

HSU offers one of the largest and oldest undergraduate accredited environmental engineering programs in the United States. While studying in one of the most environmentally interesting areas of California, Environmental Resources Engineering students will learn to apply an interdisciplinary approach to understanding and resolving resource planning and management problems in their social, economic, ethical, and historical contexts.

Program coursework and research are in three primary areas: water quality, water resources, and energy resources. Students prepare for work in industry, private practice, or government, or for continued studies in graduate school.

Studies of the ERE program are accredited by the Engineering Accreditation Commission of ABET, abet.org.

Preparation  
Students interested in becoming an ERE major should take courses in biology, chemistry, physics, mathematics, critical thinking, and oral/written communications.

REQUIREMENTS FOR THE MAJOR  

Modifications to General Education Requirements  
The ERE program has approval for the following GE requirements to be fulfilled by completion of all ERE major coursework. Lower Division GE Areas A: Oral Communication (3 units), A: Critical Thinking (3 units), D (3 units), and E (3 units); Upper Division GE Area B: (3 units). In addition, the ERE program has approval for courses fulfilling requirements in American Institutions (6 units) to count as fulfilling Lower Division GE Area D requirements (6 units).

Students who change out of the ERE major are encouraged to contact the Office of the Registrar or the Academic & Career Advising Center regarding completion of GE requirements.

The following degree requirements must be fulfilled in addition to those listed below for the major, please see “The Bachelor’s Degree” section of the catalog, pp. 67-82.

- Lower Division GE Area A: Written Communication [3 units]
- Lower Division GE Area C (9 units)
- American Institutions [6 units]
- Upper Division GE Area C (3 units)
- Upper Division GE Area D (3 units)
- Diversity & Common Ground (0-6 units)

Unit Requirements  
Total units in the major: 96  
Total units required to graduate: 120

Special Grade Requirements  
A minimum grade of C is required for all courses in the major. Grades of D+, D, F, WU, and NC count as failed attempts. Required courses in the major may not be repeated more than one time. If a student has two failed attempts in a required course, the student will not be able to graduate with an ERE degree.

Lower Division  
BIOL 105 (4) Principles of Biology  
CHEM 109 (5) General Chemistry I  
CHEM 110 (5) General Chemistry II  
MATH 109 (4) Calculus I  
MATH 110 (4) Calculus II  
MATH 210 (4) Calculus III  
PHYX 211 (4) General Physics C  
ENGR 115 (3) Intro to Environmental Resources Engineering  
ENGR 210 (3) Solid Mechanics: Statics  
ENGR 211 (3) Solid Mechanics: Dynamics  
ENGR 215 (3) Introduction to Design  
ENGR 225 (3) Computational Methods for Environmental Engineering I

Upper Division  
ENGR 313 (3) Systems Analysis  
ENGR 322 (4) Environmental Data Modeling & Analysis  
ENGR 325 (3) Computational Methods for Environmental Engineering II  
ENGR 326 (3) Computational Methods for Environmental Engineering III

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ENGR 330  (3) Mechanics & Science of Materials
ENGR 331  (3) Thermodynamics & Energy Systems I
ENGR 333  (4) Fluid Mechanics
ENGR 351  (4) Introduction to Water Quality
ENGR 410  (3) Environmental Health & Impact Assessment
ENGR 416  (3) Transport Phenomena
ENGR 440  (3) Hydrology I
ENGR 492  (3) Capstone Design Project

**Major Elective Program**

With advice and approval of an Environmental Resources Engineering faculty advisor and the department chair, select one upper division science or natural resources course and three senior engineering design courses from the following lists to form a coherent elective program.

One science/natural resources course:

- BIOL 330  (4) Principles of Ecology
- CHEM 341  (5) Quantitative Analysis
- CHEM 370  (3) Earth Systems Chemistry
- FISH 320  (3) Limnology
- GEOL 303  (3) Earth Resources & Global Environmental Change
- GEOL 306  (3) General Geomorphology
- PHYX 315  (3) Intro to Electronics & Electronic Instrumentation
- SOIL 360  (3) Origin and Class of Soils
- SOIL 363  (3) Wetland Soils

Three engineering design courses:

- ENGR 418  (3) Applied Hydraulics
- ENGR 421  (3) Advanced Numerical Methods for Engineers I
- ENGR 434  (3) Air Quality Management
- ENGR 436  (3) Solid Waste Engineering
- ENGR 441  (3) Hydrology II
- ENGR 443  (3) Groundwater Hydrology
- ENGR 445  (3) Water Resources Planning & Management
- ENGR 448  (3) River Hydraulics
- ENGR 452  (3) Drinking Water Treatment Engineering
- ENGR 453  (3) Wastewater Treatment Engineering
- ENGR 455  (3) Engineered Natural Treatment Systems
- ENGR 471  (3) Thermodynamics & Energy Systems II
- ENGR 473  (3) Building Energy Analysis
- ENGR 475  (3) Renewable Energy Power Systems

ENGR 478  (3) Electricity Grids & Distributed Renewable Energy
ENGR 481  (3) Selected Topics with Engineering Design
ENGR 498  (3) Directed Design Project