Duluth Campus

Environmental Science Minor

D Earth & Environmental Sci

Swenson College of Science and Engineering

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2019
- Required credits in this minor: 27 to 28

The environmental science minor enhances a student's understanding of the scope of environmental problems, the biochemical and physical processes of environmental degradation, the sciences of non-renewable and renewable resources, and economic and political issues surrounding environmental problems. The minor provides valuable background for many environmental careers and applications.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Minor Requirements

ES Minor Requirements (23 - 24 cr)

Geological and Earth Sciences Requirements

GEOL 1110 - Geology and Earth Systems [LE CAT4, NAT SCI, SUSTAIN] (4.0 cr)
or GEOL 1610 - Oceanography [LE CAT5, NAT SCI, SUSTAIN] (3.0 cr)
or GEOG 1414 - Physical Geography [LE CAT4, NAT SCI, SUSTAIN] (4.0 cr)
ESCI 2010 - Surface Processes (4.0 cr)
ESCI 3201 - Mineral Resources (3.0 cr)
ESCI 3202 - Energy Resources (3.0 cr)

Chemistry I with lab

CHEM 1153 - General Chemistry I [LE CAT5, NAT SCI] (4.0 cr)
CHEM 1154 - General Chemistry Lab I [LE CAT4, NAT SCI] (1.0 cr)

Chemistry II with lab

CHEM 1155 - General Chemistry II (4.0 cr)
CHEM 1156 - General Chemistry Lab II (1.0 cr)

Minor Electives (4 cr)

Take 2 or more course(s) totaling 4 or more credit(s) from the following:
· BIOL 3760 - Marine Biology (3.0 cr)
· BIOL 3761 - Field Studies in Marine Biology (4.0 cr)
· BIOL 3830 - Aquatic Food Webs (3.0 cr)
· BIOL 3835 - Freshwater Ecology (3.0 cr)
· BIOL 4839 - Coral Reef Field Studies [GLOBAL PER] (3.0 cr)
· BIOL 5777 - Plankton Biology (2.0 cr)
· BIOL 5801 - Microbial Ecology (2.0 cr)
· BIOL 5805 - Fisheries Ecology and Management (3.0 cr)
· BIOL 5807 - Mathematical Ecology (3.0 cr)
· BIOL 5808 - Landscape Ecology: Theory and Application (3.0 cr)
· BIOL 5833 - Stream Ecology (3.0 cr)
· BIOL 5861 - Lake Ecology (3.0 cr)
· BIOL 5863 - Ecosystems Ecology and Geochemistry (3.0 cr)
· BIOL 5865 - Conservation Biology (2.0 cr)
· BIOL 5870 - Wetland Ecology (3.0 cr)
· CHE 2111 - Material and Energy Balances (3.0 cr)
· CHE 2121 - Chemical Engineering Thermodynamics (3.0 cr)
· CHE 3111 - Fluid Mechanics (3.0 cr)
· CHE 5022 - Transport Processes in Wells and Pipelines (3.0 cr)
· CHEM 2541 - Organic Chemistry I (3.0 cr)
· CHEM 2542 - Organic Chemistry II (3.0 cr)
· CHEM 2543 - Organic Chemistry I Laboratory (1.0 cr)

· CHEM 2544 - Organic Chemistry II Laboratory (1.0 cr)
· ECON 3721 - Natural Resource and Energy Economics (3.0 cr)
· ECON 3777 - Environmental Economics (3.0 cr)
· GEOG 3401 - Weather and Climate (3.0 cr)
· GEOG 3422 - Natural Hazards (3.0 cr)
· GEOG 3461 - Geography of Global Resources [SUSTAIN] (3.0 cr)
· GEOG 4446 - Water Processes and Management (3.0 cr)
· GEOG 4451 - The Geography of Soils (4.0 cr)
· GEOL 3710 - Introduction to Geochemistry (3.0 cr)
· GEOL 3800 - Principles of Geophysics (4.0 cr)
· GEOL 4355 - Economic Geology (4.0 cr)
· GEOL 4710 - Geochemistry (4.0 cr)
· GEOL 5210 - Glacial and Quaternary Geology (4.0 cr)
· GEOL 5220 - Advances in Paleoclimatology (3.0 cr)
· GEOL 5240 - Physical Hydrogeology (4.0 cr)
· GEOL 5250 - Hydrogeology (4.0 cr)
· GEOL 5251 - Well Hydraulics (3.0 cr)
· GIS 3563 - Geographic Information Science I: Theory and Analysis (4.0 cr)
· GIS 5572 - Environmental Application of GIS (4.0 cr)
· GIS 5581 - Digital Image Processing and Analysis (4.0 cr)
· LIM 5101 - Physical Limnology (3.0 cr)
· LIM 5102 - Chemical Limnology (3.0 cr)
· LIM 5103 - Geological Paleolimnology (3.0 cr)
· MATH 3280 - Differential Equations with Linear Algebra (4.0 cr)
· PHYS 5053 - Data Analysis Methods in Physics (3.0 cr)
· PHYS 5541 - Fluid Dynamics (3.0 cr)
· STAT 5411 - Analysis of Variance (3.0 cr)