

**Environmental Engineering (ENE)****Minor in Environmental Engineering****Department of Materials Science and Engineering, College of Engineering and Applied Sciences**

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**Environmental Engineering (ENE)**

Environmental engineering is the application of science and engineering principles to improving the environment (air, water, and/or land resources), to providing healthful water, air and land for human habitation and for other organisms, and to investigate the possibilities for remediation of polluted sites. Environmental engineering also involves design and application of technology, including development of new materials, in support of the principles of sustainability and green manufacturing. The coursework of the minor emphasizes the chemical mechanisms at work behind environmental processes that govern production and transport of pollutants, bioavailability and toxicity, changing ecological and geochemical factors, and design of remediation and pollution prevention methodologies. The minor also provides coursework on materials and technology development for sustainable development and manufacturing.

**Requirements for the Minor in Environmental Engineering (ENE)**

The minor in Environmental Engineering is composed of the following courses:

A. Two required courses:

ESM 212 Introduction to Environmental Materials Engineering

or BME 305 Biofluids\*

or CME 318 Fluid Mechanics\*

or MEC 364 Fluid Mechanics\*

One course selected from CHE 312: Physical Chemistry, short course or CHE 301: Physical Chemistry I

\*May be taken as a technical elective if not taken as a required course.

B. Technical electives (choose four, of which at least one must be an ESG or ESM course):

ESG 301: Sustainability of the Long Island Pine Barrens

ESG 332: Materials Science I: Structure and Properties of Materials

ESM 334: Materials Engineering

ESM 488 Cooperative Industrial Practice or ESM 499 Research in Materials Science or ESG 487 Cooperative Research in Technological Solutions: at least 3 credits, with permission of Director of the Minor.

BIO 386/ENS 311: Ecosystem Ecology and the Global Environment

CHE 302: Physical Chemistry II

GEO 315: Groundwater Hydrology

GEO 316: Geochemistry of Surficial Processes

GEO 318: Engineering Geology and Coastal Processes

MAR 301: Environmental Microbiology

MAR 336: Marine Pollution

MAR 392: Waste Management Issues

MAR 394: Environmental Toxicology and Public Health

ATM 397: Air Pollution and Its Control

CHE 310: Chemistry in Technology and the Environment

Note: Students in the College of Arts and Sciences (but not CEAS majors) may also use

ESG 302: Thermodynamics of Materials

or CME 304: Chemical Engineering Thermodynamics I

as a technical elective for the minor in Environmental Engineering.

Any substitution of a course outside this list for a technical elective requires the permission of the director of the minor prior to registering for the desired course.

No courses are associated with this academic program.