ENVIRONMENTAL ENGINEERING

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FACULTY ASSOCIATED WITH THE PROGRAM IN ENVIRONMENTAL ENGINEERING

Professors Paul Anastas (Forestry & Environmental Studies), Michelle Bell (Forestry & Environmental Studies), Gaboury Benoit (Forestry & Environmental Studies), Ruth Blake (Geology & Geophysics), Stephen Edberg (School of Medicine), Menachem Elimelech (Chemical & Environmental Engineering), Thomas Graedel (Forestry & Environmental Studies), Edward Kaplan (School of Management), Yehia Khalil (Forestry & Environmental Studies), Jachong Kim (Chemical & Environmental Engineering), Jordan Peccia (Chemical & Environmental Engineering), Lisa Pfefferle (Chemical & Environmental Engineering), Joseph Pignatello (Adjunct) (Chemical & Environmental Engineering), James Saiers (Forestry & Environmental Studies)

Associate Professor Julie Zimmerman (Chemical & Environmental Engineering)

Assistant Professors Drew Ganttner (Chemical & Environmental Engineering), Desiree Plata (Chemical & Environmental Engineering)

Environmental engineering encompasses the scientific assessment and development of engineering solutions to environmental problems affecting land, water, and air (the biosphere). The field embraces broad environmental concerns, including the safety of drinking water, groundwater protection and remediation, wastewater treatment, indoor and outdoor air pollution, solid and hazardous waste disposal, cleanup of contaminated sites, the prevention of pollution through product and process design, and strategies for sustainable water and energy use and production.

Environmental engineers must balance competing technical, social, and legal issues concerning the use of environmental resources. Because of the complexity of these challenges, environmental engineers need a broad understanding not only of engineering disciplines but also of chemistry, biology, geology, and economics. Accordingly, the program allows students in the major to select an emphasis on environmental engineering technology, sustainability, global health, economics, or energy and climate change. The program prepares students for leadership positions in industry and government agencies or for further studies in engineering, science, business, law, and medicine.

Requirements of the major Two degree programs are offered: the B.S. in Environmental Engineering, and the B.A. in Engineering Sciences (Environmental). The B.S. degree program in Environmental Engineering is designed for students who desire a strong background in environmental engineering leading to a career in the field. The B.A. degree program in Engineering Sciences (Environmental) is intended for students whose careers will involve, but not be dominated by, the skills of environmental engineering. The B.A. program is appropriate for those contemplating a career in which scientific and technological problems can play an important role, as is often the case in law, business, medicine, or public service.

Prerequisites The B.S. degree program has the following prerequisites in mathematics and basic sciences: MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; a two-term lecture sequence in chemistry, with corresponding labs; PHYS 180, 181; and BIOL 101 and 102 or 103 and 104. The B.A. degree program requires MATH 112 and 115; a two-term lecture sequence in chemistry; and PHYS 170, 171.

B.S. degree program in Environmental Engineering The B.S. degree program requires at least twelve term courses beyond the prerequisites, including the senior requirement. Students take CENG 300 or MENG 211, ENVE 120, 360, 373, 377, and either 315 or 448, EVST 344, and MENG 361 or F&ES 714. At least three electives must be chosen in consultation with the director of undergraduate studies, preferably within one of the following tracks: environmental engineering technology, sustainability, global health, economics, or energy and climate change.

B.A. degree program in Engineering Sciences (Environmental) The B.A. degree program requires nine term courses beyond the prerequisites, including the senior requirement. Students take ENVE 120, 360, and either 373 or 377. Five electives must be chosen in consultation with the director of undergraduate studies.

Senior requirement Students in the B.S. program must pass ENVE 416 in their senior year. Students in the B.A. program must pass ENVE 490 in their senior year.

Credit/D/Fail No course taken Credit/D/Fail may count toward the major, including prerequisites.

Requirements of the major

ENVIRONMENTAL ENGINEERING, B.S.

Prerequisites MATH 112, 115; MATH 120 or ENAS 151; ENAS 194; two-term lecture sequence in chemistry, with labs; PHYS 180, 181; BIOL 101 and 102 or 103 and 104

Number of courses 12 term courses beyond prereqs (incl senior req)

Specific courses required CENG 300 or MENG 211; ENVE 120, 360, 373, 377; ENVE 315 or 448; EVST 344; MENG 361 or F&ES 714

Distribution of courses 3 electives as specified

Senior requirement ENVE 416
ENGINEERING SCIENCES (ENVIRONMENTAL), B.A.

Prerequisites  MATH 112, 115; two-term lecture sequence in chemistry; PHYS 170, 171
Number of courses  9 term courses beyond prereqs (incl senior req)
Specific courses required  ENVE 120, 360; ENVE 373 or 377
Distribution of courses  5 electives approved by DUS
Senior requirement  ENVE 490