

Environmental Engineering Program

Annual Report

2001–2002

STUDENTS AND GRADUATES

The Environmental Engineering Program presently has 9 M.S. and 16 Ph.D. graduate students, 11 undergraduate environmental engineering majors and 4 undergraduate minors enrolled; the majority of graduate students are full-time and financially supported. One Program Ph.D. student received a University Fellowship for the fall 2001 semester (Mr. Lucas Hellerich). The program graduated 5 M.S. and 2 Ph.D. students and the first two Environmental Engineering undergraduate majors graduated in May 2002 (one with Honors). Three Civil & Environmental Engineering students graduated with a minor in Environmental Engineering. During the past year, the program received 41 full graduate applications: of these, 16 were offered admission into the program, and 6 have accepted admission. In addition, 11 new undergraduate students were admitted as environmental engineering majors for fall 2002.

FACULTY

Detailed activities of the Environmental Engineering faculty can be found in the annual reports of their respective home departments. Some highlights follow: Professor Britt Holmén assumed responsibility as coordinator of the graduate program in 8/01 and Professor Nelly Abboud continued as coordinator of the undergraduate program with primary objectives of program outreach, student recruitment, retention, and undergraduate administration. Professor Nikolaidis (CEE) resigned to take a position at the University of Crete and is continuing as an Adjunct Professor for the program. Professors Smets (CEE) and Ogden (CEE) are currently on sabbatical leave for the academic year. Professor Baki Cetegen (ME) received the Outstanding Faculty Award 2001 for the Mechanical Engineering Department and Professor Emmanouil Anagnostou (CEE) received the School of Engineering Outstanding Junior Faculty Award. The program was engaged in three successful faculty searches. A junior faculty search was completed with the hiring of Dr. Guiling Wang (Ph.D, MIT), currently an Assistant Research Scientist at the Goddard Earth Science and Technology Center, University of Maryland at Baltimore County and NASA Goddard Space Flight Center. Dr. Wang's research area is global climate change modeling, specifically land-plant-atmosphere interactions. The second faculty search for an NU endowed chair professor resulted in the hiring of Dr. Dani Or (Ph.D., Utah State University) who is currently a professor of Soil Physics at Utah State University. Dr. Or's areas of expertise are vadose zone hydrology; characterization of soil hydraulic and mechanical properties; and porous media processes modeling. The third search for the Stamford campus resulted in the hiring of Dr. Ross Bagtzoglou (Ph.D., University of California, Irvine) at the associate level. Dr. Bagtzoglou's research area is groundwater modeling.

Across the program, external research funding continues at an all-time high. In addition, our faculty continue to hold prestigious national research awards; NSF CAREER awards continue to be held by Profs. Helble (CHEG) and Smets and two new NSF CAREER awards were awarded to Professors Holmén (CEE) and Anagnostou (CEE). In addition to holding significant offices within the University (Director of the Environmental Research Institute (Hoag, CEE), Head of the Chemical Engineering Department (Helble), Chair of the Microbiology Graduate Field of Study (Noll, MCB)), our faculty hold appointments in various national professional and learned societies: Professor Cetegen is a member of the Combustion Institute's executive board, Professor Smets is appointed to the National Research

Council's Committee on Bioavailability of Contaminants in Soils & Sediments, Professor Cutlip is on the Executive Committee of the Chemical Engineering Division of the American Society of Engineering Education and an Academic Trustee of CACHE (Computer Aids for Chemical Engineering Education) Corporation; Professor Helble has several appointments in the American Association for Aerosol Research; Professor Fenton (CHEG) serves on numerous committees of the Electrochemical Society; Professor Anagnostou serves on NASA's Tropical Rainfall Measuring Mission peer review and the International Precipitation Conference Steering Committee; Professor Abboud (CEE) is a Board member of the American Lebanese Engineering Society and serves on the National Education Committee for the American Filtration and Separation Society; Professor Bryers (Center for Biomaterials, UCHC) serves on the National Research Council Committee on Biotechnology Education and the U.S. Department of State Committee on Environmental Biotechnology and Professor Erkey (CHEG) serves on the Green Chemistry Division committee of the American Chemical Society. Professor Torgersen (MARN) is editor-in-chief of *Reviews of Geophysics*, associate editor of *The Geochemical Journal* and is on the AGU Board of Journal Editors, Professor Schulthess is associate editor of *Soil Science Society of America Journal*, Professor Bryers is associate editor of *Biotechnology & Bioengineering* and Professor Anagnostou is associate editor of the *Journal of Applied Meteorology* while Profs. Abboud, Hoag, and Smets serve on editorial boards of *Fluid/Particle Separation Journal*, *Journal of Soil Contamination*, and *Biodegradation*, respectively.

Internationally, Prof. Anagnostou serves as an advisor to the *National Observatory of Athens*, Athens, Greece; while Professor Abboud was keynote speaker at "Environmental Regulations and Management" in Beirut, Lebanon and received the National Order of the Cedar Medal from Lebanon's President. Professor Ogden was on the International Scientific Committee of the 5th International Symposium of Hydrologic applications of weather radar in Kyoto Japan, and Professor Helble was conference chair of the Engineering Foundation Conference on Nanoparticles and Nanostructures through Vapor Phase Synthesis in Tuscany, Italy. Professor Anagnostou was also the recipient of the European Geophysical Society Plinius Medal.

PROGRAM

Several multi-investigator activities continue that will support research and education in Environmental Engineering in years to come. The fellowship award from the U.S. Department of Education, Graduate Assistance in Areas of National Need (GAANN) Program for "A Graduate Fellowship Program in Environmental Biotechnology at the University of Connecticut" enters its second year. The award constitutes a 3-year funding for up to nine fellows with institutional payments (Total Direct USDE funds: \$688,500). Program participants are Professors Bryers, Noll (co-director), Smets (director), Vinopal and Wood. Eight doctoral students to date have been admitted to the program.

Funding was awarded for a joint Johns Hopkins-UConn-UMaryland proposal to the U.S. EPA to establish a Hazardous Substance Research Center "Center for Hazardous Substances in Urban Environments," with a total EPA budget of \$6 million for 5 years. Program participants are Professors Helble, Hoag, MacKay, Nikolaidis and Smets.

Joint collaborations of program participants are supported by the National Science Foundation Division of Undergraduate Education for Courses Curriculum and Laboratory Improvement, "System Dynamics of Detention/retention Ponds" (Torgersen and Ogden) and the Willimantic Water Commission, "Studies of Nutrient Loading to the Mansfield Hollow Reservoir, Connecticut" (Ogden (CEE), Hoag (CEE), Warner (NRME)).

The new web page for Environmental Engineering was structured and launched this past fall. In addition, the program organized and hosted visitors from the Woodstock Academy this spring and was

well represented at the fall and spring Open Houses, Connecticut Invention Convention, Connecticut Science Expo, Engineering 2000 Program, the DaVinci summer program, guidance counselor breakfast and four high school recruiting visits. In addition, the program organized Haestad Methods workshops on "Water Distribution Modeling" and "Sanitary Sewer Modeling" and Haestad Methods (Waterbury CT) awarded the program an educational grant consisting of 20 licenses each of WaterCad, Water Distribution Modeling Software, and SewerCad, Sanitary Sewer Modeling Software.