Students Harness Cutting-edge Technology and Gain Perspective on the Geography of Public Health Issues

A new course offered by the **Department of Environmental Health Sciences** and the **Urbanism and the Built Environment Track** (in the **Department of Sociomedical Sciences**) is gaining the interest among MPH and doctoral students throughout the School. **Public Health GIS**, or geographic information systems, is a collaborative course that was proposed by Paul Brandt-Rauf, ScD, MD, DrPH, and Bob Fullilove, EdD, and taught by Mark Becker and Meredith Golden, senior research associates at the **Earth Institute**. The interdisciplinary approach provides students with basic knowledge on GIS systems, with a special focus on applications in the fields of public health research and policy development. The course, which received a 2005-2006 Dean's Award for Innovation in the Curriculum and is one of the few GIS courses taught at a school of public health, allows students to develop GIS skills and spatial analysis techniques through hands-on experience.

According to Dr. Brandt-Rauf, professor and chair of Environmental Health Sciences, professor of Earth and Environmental Engineering, and professor of Medicine, “GIS is a very important tool in environment health for visually mapping and seeing relationships between risk factors. Plotting data can help with prevention and mitigation efforts.”

The **Columbia Superfund Basic Research Program** is a collaboration between the Mailman School and the Lamont-Doherty Earth Observatory at Columbia’s Earth Institute that has been working in Araihazar, Bangladesh to develop preventive strategies and treatments for arsenic poisoning among children and adults exposed to the toxin through contaminated well water. Dr. Brandt-Rauf explained that with the help of GIS mapping, researchers in the Superfund project can identify communities with arsenic contaminated wells and divert residents to water in nearby, clean wells. “In areas where all the wells are contaminated, the program digs deeper wells to provide communities with potable water.”

Dr. Fullilove, co-director, Urbanism and the Built Environment Track, is a strong advocate for the use of GIS in the sociomedical sciences. As a guest speaker for the course, he explained the benefits of GIS citing his paper, “Impact of Prison Sentencing and Policies on Community Health.” Said Fullilove, “GIS is a necessary tool for mapping patterns of health, morbidity, and mortality. Pictures are worth a thousand words and can
tell a story more effectively to policy makers than the usual public health graphs. GIS is where our work is headed.”

Urbanism students are encouraged to take the GIS course as one of their electives. Fullilove elaborated by stating that they will be better armed to effectively address issues by understanding how things are concentrated in time and space.

MPH student Patricia Peretz stated that she and her peers are gaining insight into how GIS can be used for facilitating multidisciplinary research that addresses public health issues from several perspectives. In the course, guest speakers share their knowledge on current projects that use GIS to compile and analyze data on the local, national, and international levels. “I have really enjoyed this course,” said Peretz, “and I hope to utilize GIS in my professional work once I graduate this spring.”