

## **CP 8823: URBAN ENVIRONMENTAL PLANNING & MANAGEMENT**

Georgia Institute of Technology, Fall 2005  
M/W 2:00 – 3:30  
Rm. 309, Old Architecture  
Instructor: Brian Stone  
Office Hours: Thursday 10:00-12:00 or by appt.  
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**OVERVIEW** Urbanized regions are presently experiencing an unprecedented rate of population growth and development. Projected to double in number over a thirty-year period, the expanding global urban population is placing significant pressures on regional infrastructures and the Earth's natural resource base. Evidence of rapidly changing climates, diminishing surface and groundwater resources, and a catastrophic loss of global biodiversity illustrates the critical need for planners to articulate an ecologically sound blueprint for urban development. In light of this challenge, this course seeks to develop a framework for incorporating ecological criteria into the established urban planning process.

The class is structured as both a seminar and a practicum. In the seminar component of the course, assigned readings and group discussions explore the potential for ecology to provide a general theoretical basis for urban planning. Discussions and student presentations focus on a range of "green" design principles that seek to maximize urban metabolism through a reliance upon renewable energy sources, closed-loop waste management systems, and a minimization of the urban ecological footprint. A particular emphasis is placed upon the basic scientific principles governing natural ecosystem structure and function and the principal technological and design-based tools currently employed in environmental management.

The practicum component of the course consists of computer lab sessions and a series of site visits. The lab component of the course is designed to introduce students to a range of spatial analysis and remote sensing techniques that may be used to develop and incorporate ecological criteria into the physical plan making process. Three site visits have been scheduled to expose students to systems of power generation, waste remediation, and sustainable community design that are of critical importance to human and environmental health in cities.

Students may expect the course to provide working knowledge of the following analytical skills:

- Utilization of geographic information systems as a tool for environmental impact analysis and project evaluation within an urban planning context
- Ecological footprint and suitability analysis
- Basic image rectification and land cover classification techniques
- Integration of vector and raster datasets

**EVALUATION** Students will be evaluated on four tasks including class participation and presentations, a series of lab assignments, two in-class exams, and a final project. A description of each requirement and its relative weighting in grading follows:

*Discussion Participation and Case Study Presentation:* In addition to regular discussion participation, each student will be responsible for presenting on an assigned “case study” topic to provide further depth to readings and class discussions. Student presenters will be allotted 15 minutes for the presentation and will be evaluated on four criteria including content, organization, visual presentation, and delivery. **(20%)**

*Lab Assignments:* This course consists of five lab assignments emphasizing the basic spatial analysis and remote sensing techniques employed in a range of natural resource and land use planning applications. Each lab assignment consists of a data analysis component and a written report. While class time will be devoted to each assignment, students should expect to spend time outside of class completing the lab exercises and composing lab reports. Unless otherwise noted, all lab assignments will be due by the start of the following class period. Late submissions will be penalized a letter grade a day. **(30%)**

*Exams:* Two exams will be administered to provide students with an opportunity to demonstrate mastery of the concepts and tools presented in readings, lectures, labs, and field trips. Each exam will be a short answer, in-class exercise and has been scheduled to cover roughly the first and second halves of the course. **(30%)**

*Final Project:* Each student will develop a final project on a topic of his or her choosing within the broad ecological categories covered throughout the semester (e.g., land, water, air). Each project will apply the geo-spatial tools covered in our lab sessions to analyze a regional environmental issue and to develop a set of policy recommendations for regional decision makers. Final project papers will be due one week after the last class meeting, on Wednesday, December 14<sup>th</sup>. **(20%)**

## TEXTS

Goodstein, David. 2004. *Out of Gas*. New York: WW Norton.

Hough, Michael. 1995. *Cities and Natural Processes*. New York: Routledge.

Randolph, John. 2004. *Environmental Land Use Planning and Management*. Washington, DC: Island Press.

Texts may be purchased at the Engineer’s Bookstore (748 Marietta Street). All other readings, as well as other course materials, are available as Adobe (pdf) files through the course website: [webct.gatech.edu](http://webct.gatech.edu)