CP ####: URBAN ENVIRONMENTAL PLANNING & DESIGN

Georgia Institute of Technology
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OVERVIEW

This course is designed to equip students with the conceptual and analytical tools required to assess and mitigate the impacts of urbanization on the environment. The class is structured as both a discussion course and as a practicum. In the discussion component, readings, lectures, and group discussions explore the potential for ecology to provide a general theoretical framework for urban planning. Discussions and student presentations focus on a range of "green" design principles that seek to minimize the environmental impacts of urbanization through a reliance on renewable energy sources, closed-loop waste management systems, and a reduction of the urban ecological footprint. For each substantive area of the course, readings and lectures focus on the science, policy, and design aspects of a major resource issue within an urban context.

The practicum component of the course consists of computer lab sessions and a series of site visits. The lab element 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 land use and development process. Three site visits have been scheduled to expose students to a set of conventional technological and emerging design strategies for waste remediation, power generation, and urban greenspace preservation.

EVALUATION

Topic Presentation and Discussion Participation: Each student will be responsible for presenting on one assigned discussion topic to provide further depth to readings and class discussion. Student presenters will be allotted 10 - 12 minutes for the presentation and 5 minutes for discussion and will be evaluated by the instructor and their peers on four criteria including content, organization, visual presentation, and delivery. Each student is responsible for scheduling a meeting with the instructor at least one week in advance of his or her presentation. Students further will be evaluated in terms of their familiarity with the assigned readings during class discussions. **(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, and the final lab assignment will integrate skills obtained in the first four labs. 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. **(40%)**

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 site visits. 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. **(40%)**

TEXTS

Balmori, Diana & Benoit, Gaboury. 2007. *Land and Natural Development Code*. Hoboken, NJ: Wiley & Sons.

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

COURSE OUTLINE

I. Introduction to Environmental Planning
- A. State of Environmental Planning
- B. Principles of Sustainability
- C. Market Orientation to Environmental Planning
- D. Policy Orientation to Environmental Planning
- E. Design Orientation to Environmental Planning

II. Urban Greenspace and Wildlife Management
- A. Conservation Biology and Classification Systems
- B. Land Conservation and Wildlife Management
- C. Corridor Design and Greenspace Strategies

III. Wetlands, Runoff, and Water Quality Management
- A. Wetlands Ecology & Stream Hydrology
- B. Water Pollution Control
- C. Water Responsive Design

IV. Air Quality Planning
- A. Atmospheric Structure and Air Pollution Formation
- B. Air Pollution Control
- C. Urban Form and Air Quality

V. Energy and Climate Change
- A. Oil, Energy, and Thermodynamics
- B. Greenhouse Effect and Climate Policy
- C. Climate Responsive Design

VI: The Emerging Urban Ecology
- A. Urban Symbiosis in Agriculture and Industry
- B. Moving From Green Buildings to Green Neighborhoods