

Environ 639.039: LAND USE: THE OTHER GLOBAL CHANGE
Offered Winter 2010

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Course Description

This seminar will explore the interactions between land use, land cover, and environmental processes at multiple scales. The emphasis will be on understanding the interactions between land use changes and climate change. These interactions are bi-directional: global land-use changes have been a significant source of carbon to the atmosphere, while climate change and variability requires adaptation and modification of land-use practices. Land-use modification provides one means of mitigating increases in atmospheric carbon due to fossil fuel burning. Land-use change takes place in the context of a wide range of social, economic, and environmental processes. Understanding how land uses are, or should be, allocated to achieve multiple goals, including food and fiber production, space for human settlement, provision of ecosystem services, and access to renewable energy sources, requires consideration of these multiple objectives and of the various factors driving land-use decisions at multiple scales.

The seminar will involve reading current scientific literature on land-use change, meeting weekly to discuss the implications of the literature, and evaluating contemporary approaches to monitoring, modeling and managing land use. The outline below will guide the selection of readings, an initial list of which will be provided the first day of class and the final list of which will depend on student interests.

Outline

I. Land Change Science

- a. Definitions – land use, land cover, land management, land tenure, land value, climate variability and change
- b. History – How have land uses changed over the last ~300 years (globally and nationally)?
- c. Drivers – What processes and factors drive land use changes?

II. Land Use Effects on the Carbon Cycle

- a. Land Use and Carbon – global changes in and land use and contributions to global carbon cycle
- b. Managing Carbon – How can land use contribute to and confound climate change mitigation?

III. Climate, Land Use, and Human Well-Being

- a. Land Use, Livelihoods, and Vulnerability – relationships between land-use activities, human well-being and vulnerability to climate change
- b. Adaptation – What role does land use play in climate change adaptation?