GEOG2096 Human Impacts on Ecosystems (6 credits)

Course Teacher: To be confirmed

Objectives

The course attempts to understand the structure and functions of natural ecosystems, evaluates their modifications by various kinds of human activities, and discusses the alternatives to destructive and non-sustainable use of ecosystems.

Course Synopsis

The course introduces students to the basic concepts of biogeography by studying the structure and functioning of natural ecosystems and their extensive modifications by human activities. It provides a comprehensive foundation on basic ecological concepts, including structure and organization of ecosystems, energy flow and nutrient cycling, evolution of the biosphere and ecosystem succession and changes. Some special issues of ecosystem management of relevance to nature conservation and protection are then expounded, including species interactions, biotic dispersal and migration, fire as a natural-cum-anthropic factor, continental drift and Pleistocene Glaciation, domestication and agricultural origin, the pervasive ecological impacts of modern agriculture and urbanization, and the application of island biogeography theory to habitat and species conservation. This is a course of general appeal to students with different backgrounds and dispositions.

Lecture Topics

- Organization, energy flow and nutrient cycling in ecosystems
- Evolution of the biosphere, ecosystem changes through time
- Continental drift and Pleistocene Glaciation
- Species interactions, organism dispersal and migration
- Fire as a factor of biotic distribution
- Domestication and the origin of agriculture

Fieldwork

Two field trips.

Assessment

Examination (two hours) 60%; coursework 40% (consists of two reports on field trips).

Learning Outcomes

Knowledge:

- Synoptic understanding of the world's life-supporting ecosystems
- Spatial and temporal variations in ecosystem composition, factors and processes
- Nature of ecosystem modifications due to pervasive human impacts

Skills:

- Integrated assessment of the multiple ecosystem components and linkages
- Countryside interpretation in a local terrestrial ecosystem
- Writing an independent and critical report on information collected in the field

Recommended Reading List

1. Huggett, R.J. (2004) *Fundamentals of Biogeography*, 2nd edition. London: Routledge.
2. McDonald, G.M. (2003) *Biogeography: Space, Time, and Life*. New York: John Wiley.