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DEPARTMENT OF
GEOGRAPHY AND PLANNING

GPHY 310 – Landscape Ecology

Contact Time	Lectures: Tue 0830 in Kingston Hall 202 Labs: Tue 1130-1330 or Fri 1130-1330 in Mac-Corry E223
Format	1 x 2hr lecture each week; 1 x 2hr lab each week
Class Assessment	40% assessment based on lecture quizzes and reading summaries; 40% based on lab assignments and reports; 20% based on take-home final exam

COURSE OVERVIEW

Landscape ecology is an interdisciplinary field that combines aspects of geography and ecology. Ecosystems are patterned on the Earth's surface by a variety of interacting physical, biological and human processes. The arrangement and dynamics of these ecosystems influence a wide variety of ecological processes, such as the dispersal and persistence of plants and animals; the spread and impact of natural disturbances; and the flow of water, energy and nutrients. The focus of landscape ecology is on understanding the interactions between these patterns and processes, particularly at large spatial scales.

LEARNING OUTCOMES

Students will explore the methods, theories, approaches and practical applications of landscape ecology as a framework for understanding the dynamics of landscapes. This will be achieved through a combination of weekly lectures, group discussions about assigned readings, and interactive learning sessions in the GIS computer lab using maps and spatial data.

COURSE TOPICS

1. Foundations of Landscape Ecology (i) History and scope of landscape ecology; (ii) The important concept of scale; (iii) Measuring landscape pattern.

2. Agents of Landscape Pattern: (i) Physical environment (climate, soils, topography); (ii) Biotic processes (competition, facilitation, herbivory, predation)***;*** (iii) Natural disturbances (fires, floods, insects); (iv) Human influences (land use and development).

3. Influences of Landscape Pattern: (i) Wildlife metapopulations and their dynamics; (ii) Communities and biodiversity; (iii) Ecosystem processes.

4. Applications of Landscape Ecology (i) Parks and protected areas; (ii) Networks and connectivity conservation.

COURSE READINGS

Textbook:

Turner M & Gardner R. 2016. Landscape Ecology in Theory and Practice. 2nd Edition. Springer, New York.

Primary Literature:

A selection of readings from the primary scientific literature (all available through the library) will accompany readings from the textbook in some weeks.