GEOGRAPHY 358 – Landscape Ecology

SPRING TERM 2018

Instructor: Mathieu Bourbonnais

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Office: David Turpin Building B214

Office hours: Wednesday 12:00 – 13:00 (or by appointment)

Lectures: Tuesday, Wednesday, Friday 10:30 – 11:20; Cornett Building A125

Course text: The course has a <u>*required*</u> text that will supplement the lecture content.

Turner, M. G., and Gardner, R.H. (2015). *Landscape Ecology in Theory and Practice*. Second Edition. New York: Springer.

The text is available as an ebook through the University of Victoria Library.

Course website: the course website can be accessed through CourseSpaces (http://coursespaces.uvic.ca/my/). Outline notes for some lectures, supplemental required readings, and details on course assignments will be provided here. The supplemental readings cover topics not in the text.

Course description:

This course will provide an introduction to the discipline of landscape ecology which focuses on the relationship between spatial pattern and ecological processes. In this course you will explore (1) how to quantify spatial pattern, (2) drivers and factors influencing spatial pattern, and (3) how spatial pattern influences ecological processes and may change through time. There are many processes that affect spatial pattern including anthropogenic, biological, geomorphic, climatic and hydrological forces. The dynamic pattern-process relationship plays a critical role in the distribution and abundance of organisms, their habitat, and their behaviour, and influences ecosystem function and disturbance regimes. For example, habitat fragmentation and landscape heterogeneity, resulting from anthropogenic and natural disturbance, are important determinants of grizzly bear habitat selection, movement patterns, and population dynamics.

For students interested in applied science, the fundamental concepts of landscape ecology are an important prerequisite for decision making and problem solving in fields such as conservation sciences, resource management, remote sensing, spatial modelling and GIScience.

Course objectives:

The goal of the course is to provide you with an understanding of landscape ecology. Upon successful completion of the course you will be able to:

1. explain the history and fundamentals of landscape ecology and its relationship with other subfields of ecology and geography;

2. describe methods for detecting and quantifying landscape patterns;

3. understand the mechanisms by which pattern and process change through time; and

4. analyze examples to describe the causes of landscape pattern and how these patterns influence populations, communities, and ecosystems.

Course Content

1. **Introductory concepts**
   - A primer on landscape ecology
   - Introductory concepts
   - Scale and heterogeneity
2. **Drivers of landscape pattern**
   - What is landscape pattern
   - Abiotic and biotic factors
   - Landscape legacies and change
   - Disturbance regimes
3. **Quantifying landscape pattern**
   - Technological applications
   - Landscape metrics
   - Spatial statistics
   - Landscape dynamics
4. **Influence of landscape structure**
   - Organisms and landscape pattern
   - Wildlife behaviour, habitat use, and movement ecology
   - Ecosystem processes and landscape heterogeneity
   - Conservation planning and resource management
   - Future directions in landscape ecology

Assessment

1. **Exams – 45%**

Midterm Exam: 15%	DATE: February 9, 2018
Final Exam: 30%	DATE: TBA (in final exam period)

2. **Research Paper – 35%**

Proposal: 5%	DUE: January 26, 2018
Research Paper: 30%	DUE: April 6, 2018

3. **Group Presentation – 20%**   DUE: March 13, 2018

Assignments

   Midterm exam: the exam will cover all material presented from the beginning of the term, up to and including the material presented on February 7, 2018.

   Final exam: the exam will be cumulative but will focus primarily on the material presented after the midterm exam.

Term paper: you will form groups of two and write a term paper proposal and final term paper. A selection of topics will be provided, and assignment details will be posted on CourseSpaces.

Group Presentation: you will form groups of three and create a poster on a landscape ecology-related topic/metric/statistic that will be provided. You will present your poster in a conference style poster session.

Grading

Grade	Grade point value	Grade scale	Description
A+ A A-	9 8 7	90-100% 85-89% 80-84%	**Exceptional**, **outstanding** and **excellent** performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	6 5 4	77-79% 73-76% 70-72%	**Very good**, **good** and **solid** performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	3 2	65-69% 60-64%	**Satisfactory**, or **minimally satisfactory**. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	1	50-59%	**Marginal** Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	**Unsatisfactory** performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	**Did not write examination or complete course requirements by the end of term or session; no supplemental.**

Course policies

Late assignments

Please inform me in advance if you will miss an exam or cannot submit an assignment for legitimate reasons (verifiable serous illness, injury or family circumstances) and we can arrange an alternate time. Assignments will be accepted up to five days after the due date (10% per day late penalty assessed).

Accessibility

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability or health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning (CAL as soon as possible https://www.uvic.ca/services/cal/). The RCSD staff is available by appointment to assess specific needs, provide referrals, and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

Positivity and safety

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members.

Course experience survey (CES)

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.