



University  
of Victoria

Faculty of Social Sciences  
Department of Geography

## Geography 358 – Landscape Ecology

*SPRING TERM 2017*

**Instructor:** Jill Harvey  
**Email:** jeharvey@uvic.ca  
**Office:** David Turpin Building B214  
**Office hours:** Monday and Thursday 1:00-3:00pm  
(or by appointment)

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

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Geography Department website: <http://geography.uvic.ca>  
Undergraduate Advisor: Phil Wakefield (pwakef@geog.uvic.ca)

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**Course text:** The course has a *required* text that is an excellent resource. The text will parallel and supplement the lecture content.

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

*This text is available as an ebook through the University of Victoria Library.* Please visit the course reserves website, locate our course and you will find a link to the course text.

**Course website:** The course is supported by a CourseSpaces course management system (<http://coursespaces.uvic.ca/my/>). I will provide outline notes for some lectures on CourseSpaces. Additional required and supplemental readings will also be posted. These selected readings cover topics not in the text, and present interesting and engaging points of view. *As a student in the course, I hope you will monitor the CourseSpaces site to remain informed and up to date.*

### Course description

Have you ever wondered what affects the distribution of grizzly bears in mountain environments? How the severity and size of fires (now and in the past) affect the regeneration and stable-state of forest ecosystems? How sea surface temperatures in the Pacific Ocean can affect outbreaks of forest insects in North America? Are you interested in emergent technologies and methodological approaches to answering some of these questions and others related to landscape ecology? If so, I am excited to have you in this class!

This course will provide an introduction to the discipline of landscape ecology. Landscape ecology focuses on the relationships between spatial pattern and ecological processes; specifically, how to characterize spatial pattern in terms of how pattern arises, why it is important and how it changes 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 and their habitat, matter and energy transfers and disturbances.

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

### **Course objectives**

The goal of this course is to provide you with an understanding of landscape ecology. More specifically, upon the successful completion of this course you will be able to:

- (1) explain the history and fundamentals of landscape ecology and its relationship to other subfields of ecology and geography;
- (2) describe methods for detecting and characterizing landscape pattern;
- (3) understand the mechanisms by which pattern and process change through time (landscape dynamics); and,
- (4) analyze specific examples to describe the causes of landscape pattern and the implications of landscape pattern to populations, communities and ecosystems.

### **Summary of assessment**

#### **1. Exams - 45%**

Midterm Exam: 15%  
Final Exam: 30%

DATE: February 10<sup>th</sup> 2017  
DATE: TBA (in final exam period)

#### **2. Research Paper - 35%**

Proposal: 5%  
Research Paper: 30%

DUE: January 27<sup>th</sup> 2017  
DUE: March 28<sup>th</sup> 2017

#### **3. Group Project - 20%**

DUE: in class on March 15<sup>th</sup> 2017

### **Assignment description**

**Midterm exam:** The exam will cover all material presented from the beginning of term, up to and including the material presented on February 8<sup>th</sup>.

**Final exam:** The final exam will be cumulative, however, and emphasis will be placed on the material presented after the midterm exam.

**Term paper:** You will write a term paper proposal and a final term paper. A selection of appropriate topics will be provided and assignment details will be posted on CourseSpaces.

**Group project:** For this assignment you will form groups of three people. As a group you will create a descriptive and exciting poster on a landscape ecology-related topic/metric/statistic provided to you. You will present your poster informally in a conference style poster session in one of two classes. More details on this assignment will be provided in class and on course spaces.

### Undergraduate grading

Grade	Grade point value	Grade scale	Description
<b>A+</b> <b>A</b> <b>A-</b>	9 8 7	90-100% 85-89% 80-84%	<b>Exceptional, outstanding and excellent</b> 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> <b>B</b> <b>B-</b>	6 5 4	77-79% 73-76% 70-72%	<b>Very good, good and solid</b> 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.
<b>C+</b> <b>C</b>	3 2	65-69% 60-64%	<b>Satisfactory, or minimally satisfactory.</b> These grades indicate a satisfactory performance and knowledge of the subject matter.
<b>D</b>	1	50-59%	<b>Marginal</b> Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
<b>F</b>	0	0-49%	<b>Unsatisfactory</b> performance. Wrote final examination and completed course requirements; no supplemental.
<b>N</b>	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

## Course schedule

**The course schedule is tentative and subject to change.** The schedule could change depending on the class pace and the addition of one or more guest presentations.

Date	Lecture	Readings*
<b>Part 1: Introductory concepts</b>		
Jan. 4	Course introduction	
Jan. 6	What is landscape ecology?	Ch. 1; Forman 1983
Jan. 10	Introductory concepts	Ch. 1
Jan. 11	Scale and heterogeneity	Ch. 1
Jan. 13	Scale and heterogeneity	Ch. 1
<b>Part 2: Drivers of landscape pattern</b>		
Jan. 17	Landscape pattern: introduction	Ch. 2
Jan. 18	Landscape pattern: the physical template	Ch. 2; Swanson et al. 1988
Jan. 20	Landscape pattern: the biotic template	Ch. 2; Watt 1947
Jan. 24	Landscape legacies and change	Ch. 2
Jan. 25	Landscape legacies and change	Ch. 2; Delcourt & Delcourt 1988
Jan. 27	Disturbance regimes: introduction	Ch. 6
Jan. 31	Disturbance and landscape pattern	Ch. 6; Reice 1994
Feb. 1	Disturbance regimes – fire	
Feb. 3	Disturbance regimes – fire	Harvey et al. Submitted
Feb. 7	Disturbance regimes – mountain pine beetle	Raffa et al. 2008
Feb. 8	Disturbance regimes – disturbance interactions	Flower et al. 2014a; Hart et al. 2015
Feb. 10	<b>MIDTERM EXAM</b>	
Feb. 14	NO CLASS – READING WEEK	
Feb. 15	NO CLASS – READING WEEK	
Feb. 17	NO CLASS – READING WEEK	
<b>Part 3: Measuring landscape pattern and dynamics</b>		
Feb. 21	Landscape metrics: introduction	Ch. 4
Feb. 22	Landscape metrics	Ch. 4
Feb. 24	Landscape metrics	Ch. 4
Feb. 28	Spatial statistics: introduction	Ch. 5
Mar. 1	Spatial statistics: insect outbreak synchrony	Ch. 5; Flower et al. 2014b
Mar. 3	Spatial statistics: tree encroachment	Ch. 5; Halpern et al. 2010
Mar. 7	Landscape modeling	Ch. 3
Mar. 8	Natural range of variability concepts	Landres et al. 1999
Mar. 10	Landscape dynamics concepts	TBA
Mar. 14	Landscape dynamics concepts	Turner et al. 1993
<b>Part 4: Landscape structure implications</b>		
Mar. 15	<b>Group project poster presentations</b>	
Mar. 17	<b>Group project poster presentations</b>	
Mar. 21	Organisms and landscape pattern	Ch. 7
Mar. 22	Organisms and landscape pattern	Ch. 7; Jelinski 2015
Mar. 24	Ecosystem processes in heterogeneous landscapes	Ch. 8
Mar. 28	Ecosystem processes in heterogeneous landscapes	Ch. 8
Mar. 29	Conservation planning and resource management	TBA
Mar. 31	Conservation planning and resource management	TBA
Apr. 4	Directions in landscape ecology	Ch. 10

\*Readings refer to chapters in the course text. Links to journal articles can be found on CourseSpaces.

**Note: The last day for adding courses is January 20<sup>th</sup> 2017. The last day for dropping courses without penalty of failure is February 28<sup>th</sup> 2017.**

## Course policies

**Collegial respect:** Together we will create a classroom environment that is conducive to learning. Please make sure to arrive on time and ensure your cell phones are switched off for class. In class and group discussions, ensure your comments are respectful.

**Late assignments:** Please inform me ahead of time if you feel you will miss an exam for legitimate reasons (verifiable serious illness, injury or family circumstances) and we can arrange an alternate time. Similarly, if for a legitimate reason you are not able to submit an assignment on time, please notify me in advance to make alternative arrangements. Outside of this, we will accept assignments up to three days after the due date (with a 20% per day late penalty assessed).

**Accessibility:** If you have a disability or health consideration that may require accommodations, please feel free to approach me and/or the *Resource Centre for Students with a Disability* as soon as possible. The Centre staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs, the faster we can assist you in achieving your learning goals in this course.

**Academic integrity:** Please review the following websites for the university policy on academic integrity and useful information on avoiding plagiarism.

<http://www.uvic.ca/learningandteaching/students/resources/expectations/>

<http://web.uvic.ca/calendar2015-01/FACS/UnIn/UARe/PoAcI.html>

**Attendance, participation and success:** I encourage you to be an active participant and take part in classroom and lab discussions, activities and contribute meaningfully in group-work assignments. Participation is an important academic component of this course, and combined with dedicated effort and a positive attitude, will hold you in good stead for the successful completion of this course!

**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.

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