



University  
of Victoria

**Faculty of Social Sciences  
Department of Geography**

GEOG 491: Forest Biogeography  
Fall 2014

Instructor: Jill Harvey  
Office: B214 (David Turpin Building)  
Office Hours: Monday 11:30-1:00 pm; Wednesday 4:00-5:00 pm; or by appointment  
Email: [jeharvey@uvic.ca](mailto:jeharvey@uvic.ca)

Class information: Monday and Wednesday 2:30-3:50 pm – BEC 363

Geography Department website: <a href="http://geography.uvic.ca">http://geography.uvic.ca</a>
Undergraduate Advisor: Phil Wakefield ( <a href="mailto:philw@geog.uvic.ca">philw@geog.uvic.ca</a> )

### **Course description**

I have designed this course to explore the geographic patterns that characterize the forests of British Columbia and the ecological processes that give rise to, or result from, forest patterns. We will examine forest biogeography from the perspective of the individual tree, species populations, and complete forest community. Forest disturbances, with an emphasis on fire and insects, will guide our discussions on forest spatial pattern. The course will conclude by investigating the approaches to terrestrial ecosystem classification and forest management. Considering the projected climate change in British Columbia over the next 50 years, topics of forest pattern and disturbances will be important to both forest scientists and managers.

This course draws on the introductory concepts presented in Geography 101A and the foundations provided in Geography 274 (Introduction to Biogeography). The focus on British Columbia's forests from a biogeographical perspective sets this course apart from, and also compliments, Geography 358 (Landscape Ecology). Applied learning in the course provides an excellent foundation for anyone interested in field courses or graduate studies in forest biogeography and ecology.

As your course instructor, I present the theoretical course content with linkages to management and industry applications whenever possible. I rely on my experience in the field to provide interesting examples and case studies that highlight the variability of forest biogeography. My PhD research is directly related to the content of this course and as we examine concepts and principles of forest biogeography, I will share some of the many exciting adventures and lessons I have learned along the way.

## Course objectives

My intent for this course is to influence how you view the distribution of forests and vegetation throughout British Columbia. As an active participant in this course, you will have the opportunity to engage in small group discussions, research projects and presentations and be exposed to relevant and interesting guest presentations.

Upon the successful completion of this course you will be able to:

- (1) *relate forest biogeography to landscape ecology and physical geography,*
- (2) *identify and describe the geography of forest types in British Columbia,*
- (3) *explain how different biotic and abiotic factors influence the distribution of forest types in British Columbia,*
- (4) *synthesize how natural forest disturbances interact to produce landscape spatial pattern, and*
- (5) *critically review the role of terrestrial ecosystem classification in research and management applications.*

## Course Spaces

The course is supported by a CourseSpaces course management system (<http://coursespaces.uvic.ca>). I will provide outline notes for each lecture several days in advance on CourseSpaces. I will also provide some practice test questions. 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 this course on CourseSpaces to remain informed and up to date.

## Required course text

The course has a *required* text that is an excellent resource. The text will parallel and supplement the lecture content. Previous versions are suitable, but some sections may differ. Please come prepared for each lecture and allocate approximately three to four hours per week for basic reading. The course text will be available on 2-hour reserve in the library.

Kimmins, J.P. 2004. *Forest Ecology – A Foundation for Sustainable Forest Management and Environmental Ethics in Forestry*. 3<sup>rd</sup> Edition. Macmillan Publishing, New York.

Additional readings will also be assigned and will be posted on the CourseSpaces site. Please refer to the course tentative schedule posted to the CourseSpaces site.

## Recommended texts

For your interest here are two additional resources that you may wish to refer to:

Perry, D.A., R. Oren and S.C. Hart. 2008. *Forest Ecosystems*. 2<sup>nd</sup> Edition. The Johns Hopkins University Press, Baltimore.

Turner, M., J. Gardner, and R. V. O'Neill. 2001. *Landscape ecology in theory and practice*. Springer-Verlag, New York.

## Course topics

- The relationship between pattern and process in forest ecosystems
- The climate and physiography of British Columbia
- Controls of forest distribution
  - Biogeochemistry and soil
  - Solar radiation and temperature
  - Wind
  - Water
- Forest disturbances
- Disturbance interaction
- Environmental gradients and range shifts
- Terrestrial ecosystem classification
- Population and community forest ecology
- Ecological succession, stand dynamics
- Complex systems, panarchy
- Forest management and biogeography

## Assignment description

### Individual research paper

You will complete a research paper in one of the following forest biogeography topic areas listed below, or another topic you are particularly interested in. This assignment provides an opportunity to develop your writing and research abilities. I will provide formative feedback in the proposal/outline stage and help guide you through the research writing process. If you choose a different topic that is not listed below, please discuss your idea with me. Your paper should be about 3000 words, typed, double-spaced, times 12pt font, with 1-inch margins, page numbers and your name/student number clearly on the first page. Figures are encouraged if they are actively referenced in the text. A marking rubric will be provided for the research paper.

### Sample topic areas for research papers:

- The 2003 firestorm in interior British Columbia – how this fire year affected and continues to affect forests
- Insect and fire disturbance interaction in British Columbia forests
- Fire history in British Columbia (this topic could focus on the historic record- last 100 years, or the last 400 years – tree ring record, or through the Holocene)
- Climate change and biogeoclimatic zones
- Climate change and species ranges (you could choose one or more species to examine)
- How do forests respond to mountain pine beetle outbreaks?
- Management approaches for mountain beetle outbreaks
- Synthesis of fire regimes throughout the province
- Fire-climate relationships
- Ecosystem resilience theory and natural forest disturbances

## Group project:

### *Project Transect*

For this assignment you will form groups of 2-3 students. I will provide each group with the start and end coordinates of a 'transect' of approximately 40-80 km length. Each group will research the geography and climate of their transect site, the biogeoclimatic zones it includes and the abiotic and biotic factors governing the distribution of vegetation species. As a group, you will submit a 750-word report describing your synthesis and give a 6-8 minute class presentation. For the written portion of this assignment, please use the formatting guidelines given above for the individual term papers. This assignment is designed to emulate what an environmental consultant would have to research and produce if asked to summarize the biogeographical and climatic controls of forest distribution in a particular area. I encourage all students to contribute and participate in a professional and positive way towards their group members.

### **Summary of assessment**

#### 1. Research Paper

Research paper proposal and outline: 10%

Due: October 6<sup>th</sup>

Research paper: 30%

Due: November 24<sup>th</sup>

#### 2. Group project

*Project Transect*: 20%

Due: November 3<sup>rd</sup> \*

#### 3. Tests

Test I: 15%

In class: October 22<sup>nd</sup>

The first test will explore content presented up to and including October 20<sup>th</sup>.

Test II: 15%

In class: December 3<sup>rd</sup>.

Test II will be weighted (~70%) towards the second half of the course and will include guest lecturer presentations.

#### 4. Participation and attendance: 10%

\* The due date for the group project may change to allow for a guest presentation. We will confirm the due date for this assignment by September 10<sup>th</sup>.

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

## Undergraduate grading (2013-2014 Calendar)

Grade	Description
A+ A A-	<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>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.
C+ C	<b>Satisfactory, or minimally satisfactory.</b> These grades indicate a satisfactory performance and knowledge of the subject matter.
D	<b>Marginal</b> Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	<b>Unsatisfactory</b> performance. Wrote final examination and completed course requirements; no supplemental.

A+	A	A-	B+	B	B-	C+	C	D	F
90-100%	85-89%	80-84%	77-79%	73-76%	70-72%	65-69%	60-64%	50-59%	0-49%

### 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 a test 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, I will accept assignments up to two days after the due date (with a 20% per day late penalty assessed).

**Academic integrity:** Please review <http://web.uvic.ca/calendar2011/FACS/UnIn/UARe/PoAcI.html> for the university policy on academic integrity and useful information on avoiding plagiarism. Plagiarism detection software will be used in this class.

**Accessibility:** Students with diverse learning styles and needs are welcome in this course. In particular, 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.

**Attendance, participation and success:** I encourage you to be an active participant and take part in classroom 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.