

COLLEGE OF SCIENCE AND MANAGEMENT
UNIVERSITY OF NORTHERN BRITISH COLUMBIA

BIOL 404-3 / BIOL 624-3

PLANT ECOLOGY

Fall 2006

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<p>Lectures: Wednesdays 11:30 am to 2:20 pm (8-325)</p> <p>Laboratories: Fridays 11:30 am to 1:20 pm (5-173)</p>	

COURSE PHILOSOPHY

This course will provide an opportunity for the student to critically review the foundations of plant ecology (mainly terrestrial); both autecology and synecology. A broad outlook will be maintained, but because of the vastness of ecology, we will often be drawn into specialized branches of plant ecology. Therefore, although we will attempt to look at "the big picture", we will also be examining specific methods and approaches ranging from quantitative and numerical ecology to biophysical monitoring and global scale processes.

METHOD OF COURSE PRESENTATION

Fieldwork components are scheduled in several of the assigned course times in September and October. You should therefore bring appropriate footwear and clothing (including rainwear) to noted class sections. Attendance at NRES Colloquia (Friday afternoons, 15:30-16:20) may be assigned to augment course presentations and materials.

[NOTE: We highly recommend that you review your taxonomic knowledge of local plants for this course. This will be especially important for the Demography Lab. Please buy or borrow a copy of MacKinnon, Pojar and Coupe (1992) and get comfortable in the identification of common plants/trees (See supplementary reading list)]

REQUIRED TEXT

Course reading materials are posted in the BIOL404 student drive course folder.

COURSE EVALUATION

Assignment	Completion Date	BIOL-404	BIOL-624 <i>(Graduate students)</i>
<u>Lab manuscripts</u> (*You must include abstract pages of the 3 most cited journal articles along with your manuscript).	1) Theme 1: Sept. 29 (Demography)	20	20
	2) Theme 2: Oct. 20 (Competition)	20	20
	3) Theme 3: Nov. 8 (Plant Adaptation)	20	20
	4) Theme 4: Nov. 17 (Lichens as a Model System)	20	20
<u>Oral Presentations</u>	Nov. 29 th , Dec 1 st	20	20
<i>Total</i>		<i>100</i>	<i>100</i>

***late assignments will be docked 10%/day.**

LAB MANUSCRIPTS

Lab manuscripts must conform to a ‘generalized’ scientific paper format (*see* Appendix I – lab manual). This means that you must collate, analyze, and interpret data and prepare a scientific journal article based on your/class results from any of the labs in the course that will permit sufficient time for preparation prior to the due date. Lab data must be assessed in context of published data found in the scientific literature (i.e. journals). Cite at least 10 references in your manuscripts. At least seven of your references must be either scientific review or data articles. Other references may be books excluding textbooks. NOTE: WEB SITES ARE NOT ACCEPTABLE SOURCES OF SCIENTIFIC INFORMATION AND MAY NOT BE CITED in place of a journal or book. If you find a published peer-reviewed article on the web, this is fair game. Make sure you know the difference!

The manuscript should contain a title page, be no more than 6 pages in length including figures and tables but excluding title page, use 12-pitch font, double spacing, and S.I units. *You must include the abstract pages for the 3 most cited journal articles in your manuscript. See evaluation page for further criteria.

Graduate students preparing a ‘real’ manuscript based on their own research may submit this in lieu of the LAB manuscript. In this case, the format must conform to that prescribed by the intended journal and the “guidelines for contributors” section must be submitted along with your manuscript. The same deadlines apply.

CLASS PRESENTATION - Journal Article Critique

Each student will give an oral presentation (November 24th or December 1st) based on their evaluation of a published research study from a journal article in *Plant Ecology* (available online through UNBC library). You should ensure that members of the class have a copy of the article you will present on one week in advance of your presentation (either in hard copy form or as PDF file made available on BIOL 404 folder). Presentations will be limited to 15-20 minutes, allowing 10 minutes for questions. You must prepare a 1-page presentation-summary with key points for distribution to professors and fellow students at the time of presentation.

Your evaluation of the article under review should address the following points:

What was the specific objective(s) of the study, and were the objectives adequately achieved?

What methodology did the authors use?

Was this methodology appropriate for the vegetation and/or ecosystem under study?

Were appropriate statistical analysis used?

What is the basic unit of replication in the study?

Does the study design represent pseudoreplication?

Can the results be easily understood from the Tables and/or Figures presented?

Were the research findings the basis for subsequent studies?

How would you improve the research design?

Grading and evaluation of presentations will include peer-based feedback.

Course Schedule:

Presentations: 20% (10/10)

Lab write-ups: 80%

Course sequence (key dates to be announced in class):

Week:	Content (order of plant family coverage subject to change based on availability of plant material):	Notes:
1 Lec-Sept 6 th Lab-Sept 8 th	<i>Introduction and Course Overview (DC / SG)</i> <i>Quantitative Sampling Approaches (DC)</i> <i>No lab first week of classes.</i>	
2 Lec-Sept 13 th Lab-Sept 11 th Field trip Sat 16th	<i>Riparian Community Dynamics (DC)</i> <i>No lab</i> - content provided on Sept. 16 th field trip Theme 1 Lab: Plant Demography Meet at flagpoles in front of conference centre at 9:00 am on Saturday morning	Willow River Field Trip - Riparian Lab (DC)
3 Lec-Sept. 20 th Lab-Sept 22 nd	<i>1) Quantitative Sampling Approaches (DC)</i> <i>2) Competition and Succession in Plant Communities (SG)</i> <i>Riparian lab follow-up (DC)</i>	
4 Lec-Sept.27 th Lab-Sept 29 th	<i>Competition and Succession in Plant Communities(SG)</i> Theme 2 Lab: Competition and Stand Dynamics	Theme 1 Lab Due
5 Lec-Oct 4 th Lab-Oct 6 th	<i>Plant Adaptations (SG)</i> <i>Competition Lab follow-up (SG)</i>	
6 Lec-Oct 11 th Lab-Oct 13 th	<i>Plant Adaptations (SG)</i> No Lab	

7 Lec-Oct 18 th Lab-Oct 20 th	<i>Environmental Physiology (DC)</i> Theme 3 lab: Adaptive Strategies of Ecologically Distinct Species (SG)	Theme 2 Lab Due
8 Lec-Oct 25 th Lab-Oct 27 th	<i>Environmental Physiology (DC)</i> <i>Adaptive Strategies Lab-follow up (SG)</i>	
9 Lec-Nov 1 st Lab-Nov 3 rd	<i>Symbiosis/Community Structure (DC)</i> Theme 4 lab - Lichens as a model system: A comparison of green versus blue-green (cyanobacterial) algal bionts. (DC)	
10 Lec-Nov 8 th Lab-Nov 10 th	<i>Landscape Ecology (DC)</i> No Lab – Remembrance Day	Theme 3 Lab Due
11 Lec-Nov 15 th Lab-Nov 17 th	<i>Plant Community Responses to Climate Change (SG)</i> Critique Feedback and Research	Theme 4 Lab Due
12 Lec-Nov 22 nd Lab-Nov 24 th	TBA <i>Critique Presentations</i>	
13 Lec-Nov 29 th Lab-Dec 1 st	<i>Summary (DC and SG)</i> <i>Critique Presentations</i>	