

BIOL 457: PALEOECOLOGY AND ENVIRONMENTAL CHANGE

Dept. of Biology, University of Victoria - Fall 2016

Instructor: Dr. Terri Lacourse
Cunningham 155a
tlacours@uvic.ca
Office hours: By appointment

Lectures: Mondays & Thursdays 11:30 AM – 12:50 PM in Cunningham 146

Course Description:

The last two million years provide the best opportunity for studying the responses of species and ecosystems to environmental change on long timescales. Climate changed frequently and sometimes abruptly during this period. In response, the abundances and distributions of species also changed dramatically and ecological communities dissolved and reformed. This course will focus on environmental change in the recent geological past, primarily since the last glacial maximum, and ecological responses to that change. We will synthesize theory, approaches, and techniques from various disciplines to understand long-term ecological change. Course topics include the use of fossil remains to infer past ecological dynamics and environmental conditions, Late Pleistocene megafaunal extinctions, and the application of paleoecological data in ecosystem management.

Learning Objectives:

At the end of this course, you will have developed an appreciation for:

- 1) Environmental change in the recent geological past and its influence on the patterns & processes of life on Earth;
- 2) Theoretical principles, methodological approaches and empirical evidence in the study of paleoecological change;
- 3) Application of paleoecology to ecosystem management; and,
- 4) Value of peer-reviewed literature through the reading and critique of primary literature.

Course Materials:

Required readings will be posted on the course website on coursespaces.uvic.ca and there are a number of recommended/supplemental books on Reserve in the Library. Summary lecture material will be posted on the course website, but because this course is lecture-based, this material is not a substitute for coming to class and taking notes.

Assessment of Grades:

Midterm Exam	20%	(October 17)
Paper Presentation	15%	(November 14 to 24)
Paper Critique	25%	(due in class, December 1)
Final Exam	40%	(during Exam Period, December 5-19; Date set by UVic)

Paper Critique & Presentation:

Students will critique a peer-reviewed paper from the primary literature and give an oral presentation on their chosen paper. A list of potential papers will be provided. Assignment details will be provided during lecture.

Important Notes:

- 1) If you have any special concerns or needs, please talk to me or staff at the UVic Resource Centre for Students as soon as possible, so that appropriate accommodations can be made to ensure that you succeed in the course.
- 2) If you miss the midterm exam (due to an emergency, or for a medical reason), the final exam grade will be used in place of the midterm in the final grade assessment. No supplemental midterms exams will be offered.
- 3) Assignments submitted late will receive a grade of 0.
- 4) Students who do not complete all tests and assignments will be given a final grade of 'N' and will not be permitted to write the final exam.
- 5) The last date for course withdrawal without academic penalty is 31 October 2016.

BIOL 457 Lecture Schedule* – Fall 2016

Week of...	Lecture Topics
Sep 5	Introduction to BIOL 457
Sep 12	Quaternary environmental change: paleoclimate, glaciations.
Sep 19	Where are paleoecological records preserved? Dating methods. Holocene environmental change.
Sep 26	Principles of paleoecology. Fossil pollen and spores.
Oct 3	Paleovegetation dynamics. Species-specific responses.
Oct 10	<i>No class Oct 10 (Thanksgiving)</i> Plant macrofossils. Packrat middens.
Oct 17	<i>Midterm exam on Oct 17.</i> Charcoal analysis & fire history.
Oct 24	Paleolimnology: diatoms & chironomids. Multi-proxy records.
Oct 31	Late Pleistocene megafaunal extinctions: humans vs climate.
Nov 7	Paleoinformatics. <i>No class Nov 10 (Reading Break).</i>
Nov 14	<i>Student Presentations.</i>
Nov 21	<i>Student Presentations.</i>
Nov 28	Course review & Exam preparation.

* Lecture schedule is subject to revision as the course proceeds.