UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: September 2012
REVISED COURSE IMPLEMENTATION DATE: September 2017
COURSE TO BE REVIEWED: (six years after UEC approval) November 2021
Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: GEOG 419	**Number of Credits:** 4 Course credit policy (105)
Course Full Title: Paleoecology **Course Short Title (if title exceeds 30 characters):**	
Faculty: Faculty of Social Sciences	**Department (or program if no department):** Geography and the Environment

Calendar Description:

Paleoecology is the study of past environments through the use of fossils, geochemistry, and radiometric dating. During this course students will learn how to reconstruct past environmental change driven by climate, sea-level change, earthquakes, floods, and fire.

Note: Field trips outside of class time will be required. Please refer to the department website for field trip scheduling information.
Note: This course is offered as GEOG 419 and BIO 419. Students may take only one of these for credit.

Prerequisites (or NONE):	One of the following: GEOG 302, GEOG 303, GEOG 304, GEOG 307, GEOG 308, GEOG 315, GEOG 319/BIO 319, GEOG 335, BIO 301, BIO 305, BIO 306, BIO 307, BIO 308, BIO 310, BIO 330, BIO 335, BIO 340, BIO 360, or BIO 370.
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Equivalent Courses (cannot be taken for additional credit)
Former course code/number:
Cross-listed with: **BIO 419**
Equivalent course(s): **BIO 419**
Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit
Transfer credit already exists: ☐ Yes ☒ No
Transfer credit requested (OReg to submit to BCCAT):
☐ Yes ☒ No (if yes, fill in transfer credit form)
Resubmit revised outline for articulation: ☐ Yes ☒ No
To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 90
Typical structure of instructional hours:

Lecture/class-discussion hours	26
Seminars/tutorials/workshops	12
Laboratory hours	20
Field experience hours	20
Experiential (practicum, internship, etc.)	
Online learning activities	12
Other contact hours:	
Total	**90**

Special Topics
Will the course be offered with different topics?
☐ Yes ☒ No
If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit
Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 25

Expected frequency of course offerings (every semester, annually, every other year, etc.): every other year

Department / Program Head or Director: Steven Marsh	**Date approved:**	December 2016
Faculty Council approval	**Date approved:**	January 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	March 17, 2017
Dean/Associate VP: Jacqueline Nolte	**Date approved:**	January 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 24, 2017

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Collect and describe organic sediments in the field for laboratory analysis;
2. Process sediment samples in the laboratory to isolate fossils for identification;
3. Apply standard biological and biogeographical techniques for common pollen and plant macrofossils identification;
4. Interpret quantitative diagrams and statistics created using paleoecological data;
5. Use wetland and lake sediments to interpret past environmental change; and
6. Articulate how paleoecology informs society about past indigenous landscape management and traditional ecological knowledge.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

Course format will include lectures, presentations, discussions, laboratory sessions, field trips, and the use of Blackboard Learn.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☐ No ☒

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Brown, C.A.	Palynological Techniques, 2nd edition. American Association of Stratigraphic Palynologists Foundation, Dallas, TX, 137pp	☒		2008
2.	Kapp, R.O., O.K. Davis, and J.E. King,	Pollen and spores (2nd edition). American Association of Stratigraphic Palynologists Foundation. vi + 279 pp. Illustrated by R.C. Hall.	☒		2000
3.			☒		
4.			☐		
5.			☐		

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)

Waterproof field notebook.

Typical Evaluation Methods and Weighting

Final exam:	%	Assignments:	%	Midterm exam:	25%	Practicum:	%
Quizzes/tests:	%	Lab exam:	20%	Field experience:	10%	Research notebook:	10%
Presentation:	10%	Research paper:	15%	Participation:	10%	Total:	100%

Details (if necessary):

Typical Course Content and Topics

Week	Topic
1	Introduction to environmental archives and proxies
2	Types of environmental archives
3	Field and laboratory methods
4	Pollen and spores
5	Plant macrofossils
6	Diatoms, dinoflagellate cysts, foraminifera, and testate amoebae
7	Quantifying paleoecological data: Calculations
8	Quantifying paleoecological data: Illustration
9	Case study: Use of paleoecology to understand the influence of past climate change on vegetation
10	Case study: Use of paleoecology to determine the magnitude of pre-historic earthquakes
11	Case study: Use of paleoecology to understand how environments may change in the future
12	Case study: Use of paleoecology to explain indigenous practices and perspectives.
13	Student presentations

Each course offering includes a minimum of eight laboratory/field activities. Examples include a field assessment of wetland sediments as archives of past environmental change, and opportunities to process field-collected samples to identify microfossils (e.g., pollen, diatoms, and testate amoebae). Computer-assisted exercises provide practice with quantitative methods. Blackboard Learn is used to organize course material, discuss course topics, complete fossil-identification exercises, and write exams.