UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: January 1997
REVISED COURSE IMPLEMENTATION DATE: September 2017
COURSE TO BE REVIEWED: (six years after UEC approval) September 2018
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 402	**Number of Credits:** 4 Course credit policy (105)
Course Full Title: Quaternary Geology and Geomorphology **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:

This course will examine selected aspects of stratigraphy, geomorphology, glacial geology, and long-term climate history of the Quaternary Period. Glacial and fluvial sedimentary models introduced in GEOG 202 and GEOG 302 will be reviewed. Regional emphasis will be placed on southwestern British Columbia and adjacent regions.

Note: Field trips outside of class time will be required. Please refer to the department website for field trip scheduling information.

Prerequisites (or NONE):	One of the following: GEOG 302, GEOG 304, or (GEOG 202 with a grade of B or better).
Corequisites (if applicable, or NONE):	None
Pre/corequisites (if applicable, or NONE):	None

Equivalent Courses (cannot be taken for additional credit)

Former course code/number:

Cross-listed with:

Equivalent course(s):

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 hours	40
Seminars/tutorials/workshops	
Laboratory hours	15
Field experience hours	35
Experiential (practicum, internship, etc.)	
Online learning activities	
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): 20

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. Apply field and laboratory data collection and analysis skills and techniques to solve various field problems.
2. Demonstrate in field reports and in independent research an advanced understanding of regional Quaternary geology and geomorphology, and the mechanisms and evidence of long-term environmental (e.g., climate) change.
3. Demonstrate a working knowledge of how Earth scientists date past environments and how fossil evidence can be used to reconstruct those environments.
4. Demonstrate how real research (in the field and the laboratory) is undertaken to solve problems in environmental science.
5. Interpret current scientific concepts and gaps in knowledge in light of the historical development of the discipline
6. Apply Quaternary geology and geomorphology research skills to economic geology problems
7. Disseminate observations in a written scientific report.
8. Disseminate scientific information orally

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)

This course will be organized around a series of lectures, laboratory exercises, and field trips. The course will consist of a two-hour lecture, followed by a three-hour laboratory session. On many of the days, field trips will replace both the lecture and the lab components; at least one weekend or three-day field trip will be scheduled. In total, a minimum of four days will be spent in the field. The field trips will be to key sites in the Fraser Lowland and surrounding regions where research has been done to reconstruct environment history. Field trips will also introduce the student to active research laboratories (e.g., Royal BC Museum, Pacific Geoscience Centre, Geological Survey of Canada, BC Geological Survey).

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.	Benn, D.I., and Evans, D.J.A	Glaciers & Glaciations (2nd ed.)	☐	Hodder. London	2010
2.	Evans, D.J.A, and Denn, B.I.	A practical guide to the study of glacial sediment	☐	Arnold. London	2004
3.	Bennett, M.R. and Glasser, N.F.	Glacial Geology: Ice Sheets and Landforms	☐	Wiley. London	1996
4.			☐		
5.			☐		

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

All-weather clothing for field work; water-proof notebook; camera

Typical Evaluation Methods and Weighting

Final exam:	%	Assignments:	%	Midterm exam:	%	Practicum:	%
Quizzes/tests:	%	Lab work:	%	Field experience:	%	Shop work:	%
Field trip/lab reports:	75%	Oral Presentation:	10%	Research paper:	15%	Total:	1000%

Details (if necessary):

Typical Course Content and Topics

1. The Quaternary Period: an overview
2. Mechanisms and records of long-term climate change
3. Quaternary sedimentological processes
4. Quaternary stratigraphy, facies analysis and association
5. Quaternary soils and fossil organic matter; microfossil and macrofossil records
6. Paraglacial sedimentation
7. Quaternary geochronological techniques and their uses limitations
8. Glacial geology (structural geology of glacigenic sediments)
9. The Quaternary history of North America with emphasis on southwestern BC