



COURSE IMPLEMENTATION DATE: January 1997
 COURSE REVISED IMPLEMENTATION DATE: January 2013
 COURSE TO BE REVIEWED: September 2018
(six years after UEC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

<u>GEOG 402</u>	<u>Geography</u>	<u>4</u>
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS
Quaternary Geology and Geomorphology		
COURSE DESCRIPTIVE TITLE		

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 302 will be reviewed. Regional emphasis will be placed on southwestern British Columbia and adjacent regions. Fieldwork is an essential component of this course.

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

PREREQUISITES: GEOG 302 or GEOG 304; or GEOG 202 with a grade of B or better.
 COREQUISITES:
 PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

- (a) Replaces: _____
- (b) Cross-listed with: _____
- (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 75
STRUCTURE OF HOURS:
 Lectures: 40 Hrs
 Seminar: _____ Hrs
 Laboratory: _____ Hrs
 Field experience: 35 Hrs
 Student directed learning: _____ Hrs
 Other (specify): _____ Hrs

TRAINING DAY-BASED INSTRUCTION:
 Length of course: _____
 Hours per day: _____

OTHER:
 Maximum enrolment: 20
 Expected frequency of course offerings: Every other year
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

Course designer(s): <u>Dr. Olav Lian</u>	Date approved: <u>February 16, 2012</u>
Department Head: <u>Dr. Michelle Rhodes</u>	Date of meeting: <u>April 13, 2012</u>
Supporting area consultation	Date approved: <u>June 22, 2012</u>
Curriculum Committee chair: <u>Dave Fenske</u>	Date approved: <u>September 7, 2012</u>
Dean/Associate VP: <u>Lucy Lee</u>	Date of meeting: <u>September 28, 2012</u>
Undergraduate Education Committee (UEC) approval	

LEARNING OUTCOMES:

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

- Apply, and build on, many of the field and laboratory data collection and analysis skills and techniques developed in this course and earlier physical geography courses to solve various field problems. Demonstrate in field reports and independent research an advanced understanding of regional Quaternary geology and geomorphology, and the mechanisms and evidence of long-term environmental (e.g., climate) change.
- Discuss and present a working knowledge of how Earth scientists date past environments and how fossil evidence can be used to reconstruct those environments.
- Provide an explanation and demonstrate an appreciation of how real research (in the field and the laboratory) is undertaken to solve problems in environmental science.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

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 field trip will be scheduled. In total, a minimum of five 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 environmental history. Field trips will also introduce the student to active research laboratories (e.g., Royal BC Museum, Pacific Geoscience Centre, Geological Survey of Canada).

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Examination(s) Portfolio assessment Interview(s)

Other (specify):

PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. Examples for this course might be:]*

Benn, D.I. and Evans, D.J.A. 2010. *Glaciers & Glaciation* (2nd ed.). Hodder. London
Evans, D.J.A., and Benn, D.I. 2004. *A practical guide to the study of glacial sediments*. Arnold. London
Bennett, M.R. and Glasser, N.F., 1996. *Glacial Geology: Ice Sheets and Landforms*. Wiley. London.

SUPPLIES / MATERIALS:

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

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

Field trip reports	80%*
Review (essay) of a selected research topic	15%
Oral presentation of the selected research topic	5%

* 4 reports in total; typically, reports are based on data collected, and observations made, on one three-day trip and three one-day trips.

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

Lecture 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
5. Quaternary soils and fossil organic matter; microfossil and macrofossil records
6. Paraglacial sedimentation
7. Quaternary geochronological techniques and their uses and limitations
8. Glacial geology (structural geology of glacial sediments)
9. The Quaternary of North America with emphasis on southwestern BC.
10. Soils in the Quaternary record.