

ORIGINAL COURSE IMPLEMENTATION DATE: REVISED COURSE IMPLEMENTATION DATE: COURSE TO BE REVIEWED (six years after UEC approval): Course outline form version: 09/08/2021

# **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: Quaternary Geology & C	Geomorph.						
Faculty: Faculty of Science		Department: School of Land Use and Environmental Change					
Calendar Description:							
Examines selected aspects of stratigraphy, g Glacial and fluvial sedimentary models introd southwestern British Columbia and adjacent Note: Field trips outside of class time will be r	eomorpholog luced in GEO regions. required. Plea	y, glacial geolo G 202 and GEC ase refer to the	gy, and lo DG 302 w departme	ng-term climate history of ill be reviewed. Regional nt website for scheduling	of the Quaternary Period. emphasis will be placed on a information.		
Prerequisites (or NONE):	One of the following: GEOG 302, G			EOG 304, or (GEOG 202	with a grade of B or better).		
Corequisites (if applicable, or NONE):	None						
Pre/corequisites (if applicable, or NONE): None							
Antirequisite Courses (Cannot be taken for	r additional cr	edit.)	Course Details				
Former course code/number:			Special Topics course: <b>No</b>				
Cross-listed with:			(If yes, the course will be offered under different letter				
Equivalent course(s):			Disected Study courses No.				
(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)			(See policy 207 for more information.)				
			Grading System: Letter grades				
······································	Delivery M		/ Mode: May be offered	in multiple delivery modes			
Typical Structure of Instructional Hours			Expecte	ed frequency: Every othe	er vear		
Lecture/seminar		40	Maximum enrolment (for information only): 20				
Supervised laboratory hours (science lab)		15					
Experiential (field trip)		35	Prior Learning Assessment and Recognition (PLAR)				
			PLAR IS	s available for this course	).		
		00					
	Total hours	5 90	Transfe	er Credit (See <u>bctransfe</u>	erguide.ca.)		
Scheduled Laboratory Hours			Transfer credit already exists: <b>Yes</b>				
Labs to be scheduled independent of lecture hours:			Submit (If yes	outline for (re)articulatior s, fill in <u>transfer credit for</u>	n: <b>Yes</b> <u>n</u> .)		
Department approval			Date approved:	November 2021			
Faculty Council approval			Date approved:	December 3, 2021			
Undergraduate Education Committee (UEC) approval			Date of meeting:	January 28, 2022			

#### University of the Fraser Valley Official Undergraduate Course Outline

**Learning Outcomes** (These should contribute to students' ability to meet program outcomes and thus Institutional 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, both natural and anthropogenically modified environments, and how fossil evidence can be used to reconstruct those environments. Anthropogenically modified environments include examples of those modified by Indigenous peoples.
- 4. Demonstrate how 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.

Recommended Evaluation Methods and Weighting (Evaluation should align to learning outcomes.)

Field evaluation: 75%	Assignments: 25%	%
%	%	%

#### Details:

Field trips are a significant part of this course and resulting field trip reports can constitute up to 75% of the total evaluation.

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

**Texts and Resource Materials** (Include online resources and Indigenous knowledge sources. <u>Open Educational Resources</u> (OER) should be included whenever possible. If more space is required, use the <u>Supplemental Texts and Resource Materials form</u>.)

	Туре	Author or description	Title and publication/access details	Year
1.	Textbook	Benn, D.I., and Evans, D.J.A	Glaciers & Glaciations (2 <sup>nd</sup> ed.)	2010
2.	Textbook	Evans, D.J.A, and Denn, B.I.	A practical guide to the study of glacial sediment	2010
3.	Textbook	Bennett, M.R. and Glasser, N.F.	Glacial Geology: Ice Sheets and Landforms	2009
4.	Journal	Various peer-reviewed journal papers		

## 5.

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

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

#### **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 glaciogenic sediments)
- 9. The Quaternary history of North America with emphasis on southwestern B.C.