

	<p><i>School of Arts & Science</i> SOCIAL SCIENCES DEPARTMENT</p> <p>ENVR 207 Applied Geomorphology Fall, 2016</p>
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COURSE OUTLINE

1. Course Description

Geomorphology is the study of landforms and the processes that shape them. This course will introduce students to land formation, weathering, and the processes, landforms and sediment properties associated with geomorphic agents such as gravity, water and ice. There will be a local and regional emphasis. Through lab and field-based activities, students will learn a range of applied geomorphological skills.

I encourage participation and discussion in class. My goal is to have you think and understand, so please speak up if you are confused! Group work is encouraged, and you should help each other learn. This does not mean you can copy! Each student must do their own individual assignment reports. Also beware of plagiarism in written reports and presentations; for details on plagiarism and Camosun's academic dishonesty policies, see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>. In cases of copying or plagiarism, all students involved should at minimum expect to get a mark of zero on that assignment.

Note: The official Approved Course Description is available on the web at <http://camosun.ca/learn/calendar/current/web/envr.html#ENVR207>

- *Please note: this outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*

2. Instructor Information

Instructor:	Chris Ayles
Office hours:	Tue 10:30 – 11:20; Wed, Thu 12:30 – 1:20. Other times available by chance or appointment.
Location:	Fisher 342C
Phone:	370-3393
Email:	cayles@camosun.bc.ca
Web site:	D2L (online.camosun.ca)

3. Intended Learning Outcomes

At the end of this course, students will be able to:

1. Describe the major mechanisms of initial land formation.
2. Identify the physical processes and landforms associated with geomorphic agents such as gravity, water and ice.
3. Describe the Quaternary landscape history of southwestern BC.
4. Use a variety of tools and assessment methods common to geomorphological investigations.
5. Carry out a field-based geomorphological project, data collection, analysis and reporting.
6. Interpret sedimentary deposits.

4. Course Materials

There is no single textbook for this course. Required readings will come from several sources, all of which are available in the bookstore or on reserve in the library...

(a)	Texts	<p><u>Optional:</u> Christopherson, R.W. and M. Byrne, 2016. <i>Geosystems, 4th Canadian Edition</i>. Toronto: Pearson Education Canada, 669 pp. plus appendices.</p> <ul style="list-style-type: none"> • Older versions are around, but ultimately you are responsible for the material from the new edition. <p><u>Optional:</u> Trenhaile, A.S., 2013. <i>Geomorphology: A Canadian Perspective, 5th Edition</i>. Don Mills, ON: Oxford University Press Canada, 575 pp.</p> <ul style="list-style-type: none"> • Same comment as above.. <p><u>Optional:</u> Yorath, C.J., 2005. <i>The Geology of Southern Vancouver Island, Revised Edition</i>. Madeira Park, BC: Harbour Publishing, 205 pp.</p> <ul style="list-style-type: none"> • This can be found at Camosun and most other local bookstores.
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5. Course Format

- **Lectures:** Tuesday lectures will provide the background you need to understand the labs and pass the exams, so attendance is essential. I mostly use PowerPoint, and I will post the lecture slides on D2L. Be warned, however: the slides are heavy on images and light on words, so you must come to class and take your own detailed notes!
- **Readings** are an essential part of this course – they provide depth and context that are indispensable to a full understanding of the course material. Specific reading assignments are detailed below; these may be modified as the term goes on.
- **Labs:** Labs are on Thursday. Please come to your registered lab time. Download the labs from D2L and read them ahead of time. Please hand in a hard copy of your answers.

On regular lab days, bring pencils, paper, graph paper, calculator and ruler. Students will be expected to complete and hand in individual assignments, though cooperation is encouraged.

Two of our labs are field-based. The bus will leave at 9:30 and 1:30 sharp, so don't be late unless you have made alternate arrangements with me. Students are responsible for bringing waterproof field notebook, snacks, water, rain and cold gear, camera, sturdy footwear, ruler and pencils. The ET program will supply the rest. Please don't break our field gear – it costs a lot! One of the field labs is to be done in pairs. Excellent: this means you get each other's help and hand in a single report. On the downside, you will have to divide the job, arrange meetings, review each other's work, and compromise. This can be a pain, but is an important skill. If you are having problems with your partners, try to work it out. If you can't, come see me and I will help find a solution.

Lab performance will be evaluated based on thoroughness, neatness, accuracy, participation and, occasionally, writing quality. Attendance during the lab time is mandatory, as these labs are gear-intensive and hard to reschedule. Labs will generally be due the following week, and will not be accepted at all after I have returned them marked. Late reports may be penalized 10% per day.

- **Field trips:** You will be expected to attend two field trips. Take notes and hand them in – 2% for the river trip, and 1% for the glacial landforms trip. The river trip will take place on a Saturday. It will be awesome, so please arrange your life around it. For those who can't, a shorter, self-guided trip to Goldstream may be completed instead.
- **Project:** In pairs, students will be expected to research either a local landform or an applied geomorphology case study from anywhere in the world. Findings must be presented in poster format during the final lab session. Details will be provided in a separate handout.
- **Exams:** There will be a midterm and a cumulative final exam. The format will be a combination of multiple choice, short answer and lab-style questions. They mainly will emphasize the lecture material, though lab material will also be drawn upon.
- **Illness, etc.:** If you miss a lab or exam due to illness or some other serious reason, I must ask you to provide a doctor's note or other documentation to support your story. Otherwise, a mark of zero for the missed assignment will be given. Exams and field trips are hard to reschedule, so try not to miss them unless you are too sick to perform at a reasonable level.

Students who miss a lab or exam for a valid reason must contact me within 24 hours with an explanation. In such cases, one makeup exam time will be scheduled, and all students needing it will be expected to attend.

6. Basis of Student Assessment

Evaluation will be based on accuracy, thoroughness, and neatness. As a general rule, always show your work and keep track of units of measure! When I grade your work, I am looking for proof of your understanding, so do everything clearly and carefully – that way you may get partial credit, even for wrong answers. I endeavour to mark things fairly and consistently, but if you have a question about my assessment, feel free to ask about it.

(a)	Labs	Labs 1, 2, 4, 5, 6, 7, 8 4% <u>Lab 3</u> 10% TOTAL 38%
(b)	Field Trip Notes	2% + 1% = 3%
(c)	Project	14%
(d)	Midterm Exam	15%
(e)	Final Exam	30%

7. COURSE SCHEDULE (Subject to change at instructor's discretion):

NOTE: Field-based lab locations are shown in **bold**; come prepared! Contact me ahead of time if you don't plan to travel with the class.

Week	Tuesday (lecture)	Thursday (lab)
5-Sep	Course introduction	Initial Landforms (Lecture)
12-Sep	Slopes 1	Lab 1: Air photos
19-Sep	Slopes 2	Lab 2: Slope stability
26-Sep	Coasts	Lab 3: Coastal Erosion Management West of Clover Point
3-Oct	Rivers 1	No class; work on Lab 3 report
10-Oct	Rivers 2	Lab 4: Surface hydrology CRD watershed tour on Saturday!
17-Oct	River regulation and dam removal	Lab 5: Fluvial landforms
24-Oct	Midterm	No lab - compensation for watershed field trip
31-Oct	Glaciers 1	Lab 6: Glacial processes and landforms
7-Nov	Glaciers 2	Glacial landforms field trip Mount Tolmie and Island View Beach
14-Nov	Terrain classification	Lab 7: Terrain classification
21-Nov	Periglacial landscapes	Lab 8: Terrain map validation Interurban Campus
28-Nov	No class; work on project	No class; work on project
5-Dec	Guest lecture	Poster session; merged labs if possible.

Exam Week: Review session (date and time TBD)

Final Exam.

8. READING LIST

<i>Week of:</i>	<i>Required Reading</i>	<i>Comments</i>
Sep. 5	Trenhaile pp. 31-45, 63-70.	Overview of earth structure and initial land formation processes. <u>Optional</u> but interesting: Trenhaile Ch. 3 (geological formation of Canada).
Sep. 12	Trenhaile pp. 98-116, 131-136.	Weathering and slope erosion by runoff. No need to memorize the chemical reactions.
Sep. 19	Trenhaile pp. 136-163.	Mass wasting.
Sep. 26	Christopherson et al. Ch. 16.	Coastal processes and landforms. <u>Note</u> : You may want to peruse the Thurber Consultants report (on reserve) before lab next week.
Oct. 3	Christopherson et al. Ch. 15.	Rivers and fluvial landforms. <u>Optional</u> : Trenhaile Ch. 10-11 (more advanced).
Oct. 10	Hogan and Luzi, 2010: Channel Geomorphology: Fluvial Forms, Processes, and Forest Management Effects.	A more sophisticated overview of channel morphology, written for environmental professionals – don't get bogged down, just read and absorb what you can. This is Chapter 10 of the <i>Compendium of Forest Hydrology and Geomorphology in British Columbia</i> , an incredibly comprehensive guide to watershed processes and management in this province.
Oct. 17	Dam removal article.	I need to pick one. Stay tuned.
Oct. 24	None.	Good luck on the midterm.
Oct. 31	Christopherson et al. Ch. 17.	Glacial processes and landforms (with a preview of periglaciation.) <u>Optional</u> : Trenhaile Ch. 6-7 are more thorough. Trenhaile Ch. 8 is a fascinating but detailed glacial history of Canada.
Nov. 7	Clague, 1994: Quaternary stratigraphy and history of south-coastal British Columbia.	A very nice summary of our recent glacial history, and the evidence used to reconstruct it.
Nov. 14	Terrain Classification System for British Columbia Version 2, 1997.	Try to look It over before class.
Nov. 21	Trenhaile Ch. 9.	Periglacial processes and landforms - could be useful if you ever work up north.
Nov. 28	None.	<u>Have you started working on your project yet?</u>
Dec. 5	None.	Catch up on readings and start reviewing for final exam.

9. Grading System

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at camosun.ca or information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

10. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.