DEPT OF GEOGRAPHY & ENVIRONMENTAL STUDIES
CARLETON UNIVERSITY

Course Outline
GEOG 3102: GEOMORPHOLOGY
January – April 2022

Instructor: Dr. Jennifer Totten
Office: Loeb A209
Office Hours: Mondays, 10:30 - 12:00 pm (on campus); Fridays 10:30 – 12:00 (on Discord).
E-mail: jennifer.totten@carleton.ca (allow 48 hrs – I do not guarantee to answer emails on weekends)
Lectures: Mondays, 14:35 – 16:25 hrs, Southam Hall 516
Labs**:** Thursdays, 11:35 – 13:25 hrs, Loeb A200
Teaching Assistant**:** T.B.D.
Prerequisites**:** GEOG 2014 (The Earth's Surface) and third-year standing, or permission of the Department.

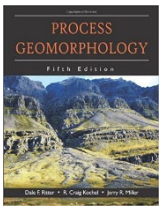
Course Description & Objectives:

Geomorphology is the study of landscapes and changes at the Earth's surface, with particular attention given to the role of wind, water & ice as both erosional and depositional agents. Examination of form, process, and the interconnection between these are fundamental to understanding the origin and development of landforms. Landforms and their evolution over time are also useful indicators of environmental change. Geomorphology is an empirical and field-oriented science, although modelling and laboratory studies are also conducted. Geomorphology has many practical applications – it provides the technical background to the prevention & prediction of many natural environmental hazards.

The primary objective of this course is to develop a sound understanding in-depth concepts in geomorphology. We will examine the fundamental connections between processes and associated landforms and sedimentary deposits in fluvial, coastal, lacustrine, glacial, karstic, periglacial and aeolian environments. There will be a particular focus on Canadian examples. Students will also learn to identify and interpret landforms and learn geomorphological techniques by completing practical, quantitative analyses in their lab reports. By the end of the course, students will be able to identify and understand the dynamic forces responsible for landscape development.

General areas of study:

1. River basin geomorphic analysis
2. Stream processes, fluvial deposits and landforms
3. Fluvial-coastal transition environments and deposits
4. Lacustrine processes and deposits
5. Aeolian processes and landforms
6. Periglacial processes and landforms
7. Karst processes and landforms
8. Glacial processes
9. Glacial deposits and landforms
10. Other topics as time permits



Textbook/Readings:

Main textbook: Dale F. Ritter, R. Craig Kochel & Jerry R. Miller 2011. *Process Geomorphology (5th Edition)* Waveland Press: 652 pp. (** on order through Carleton University Bookstore – no availability date as of yet – buy or rent**)

Additional readings: will be available either through ARES (Carleton Library e-resources) or as pdf documents on *BrightSpace* – see listing below, supplemental information will be provided throughout the term.

It is the responsibility of each student to familiarize themselves with this material. Material contained in the required readings will be included on the final exam. Additional material may be assigned during the term, but will be made available through ARES or on *BrightSpace.*

Class Notes:
The PowerPoint files will be available on the course page on *BrightSpace*. Please do not rely on them exclusively for understanding the course material. Doing so will not guarantee a good result on the midterm or final exam. Class attendance is strongly recommended. I will also use *BrightSpace* to communicate information about the course. All dates are listed on *BrightSpace*. Please consult it often for changes, updates, and other pertinent information.

Course teaching and learning activities, including outlines, lectures, PowerPoint presentations, discussions, posted notes, labs etc., by both instructors and students, are copy protected and remain the intellectual property of their respective author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s). Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s)."

Course communication:

Communication for this course will be through a number of means. The lectures & labs will be held in-person, on campus. Additionally, there will be an online forum (hosted on Discord), there is access via email or you may consult me on campus or online. There are several forums set up on the GEOG 3102 Server on Discord: a general discussion forum for students to be able to communicate with one another, one set up for asking the Instructor questions (so you don't have to email, unless it's personal), and one for asking the TA questions. There are both texting channels & voice channels, so there are many options for us to stay in touch. The instructions for accessing the Discord server are posted separately on the *Brightspace* course page, but the link is here below.

https://discord.gg/wfSUUQgc

I will be available for my **office hours** on Mondays, (10:30 am - 12:00 pm) on campus (Loeb A209); and Fridays (10:30 am – 12:00 pm) online on Discord (on Office Hours voice channel). I may also answer questions at other times on the Discord server if I drop by the server. I will be checking the "Ask-the-Prof" forum frequently.

There are also Lab Questions Channels (both voice & text) on Discord where the TA will answer questions periodically, and may hold their office hours (TBD).

What you can expect in terms of work:

The lectures slides are the skeleton for the course. They represent the fastest way for you to be exposed to the material. The key to doing well in the course is to attend all the lectures and to take good notes. You cannot hope to remember all the material without notes to remind you of what was said. You are expected to grasp both the ideas and principles of the topics covered, and to know sufficient details to be able to illustrate those ideas with concrete examples. It is vital that you ask for clarification if you don't understand something said in a lecture. If it is unclear to you, it is probably unclear to many others in the class who will be grateful to you for raising the issue.

In addition to the lectures, you are expected to read the additional reference material associated with the lectures. The readings complement the material discussed in class. If you read this material, understand it, and learn the material presented during the lectures, you should be able to get a high mark in the course.

Course assessment:

The assessment for the course will be based on several components:

1. There will be 5 Labs on various geomorphic topics: (5 @ 10 % = 50%),
2. There will be a midterm exam (15%), scheduled for Monday February 28th. It will take 45 minutes to complete and will include multiple choice, fill-in-the-blanks, and short answer-type questions. The test will be based on the lectures and the readings.
3. A final examination worth 35% of the total grade will be given, which will be made up of both long and short answer questions. **You MUST pass the exam to pass the course**.

All elements of the course will be marked both for content (e.g. ideas, structure of arguments, research, etc.) and presentation (e.g. quality of writing, grammar, spelling, and graphical presentation). All assignments are to be submitted through *BrightSpace*.

Attendance and submission policy for course

All 5 Labs contribute to your grade. Completion of all labs, the midterm exam and the final exam are required for successful completion of the course. Submission dates are important. Lab reports are due via *Brightspace* by 11:59 pm on the date specified (see attached schedule). Assignments will only be accepted for 2 days beyond the due date with a penalty of 5% (of the lab itself) per day, unless prior arrangements have been made. The only exception is for reasons of illness or equivalent circumstances (e.g. bereavement). These types of situations must be fully documented in writing **within 3 business days** of the assignment due date. If in doubt, please send me an email or discuss this with me during my Office Hours or on the Discord platform.

Carleton University has suspended the need for a doctor's note or medical certificate until further notice due to the Covid-19 Pandemic when requesting academic accommodations related to COVID-19. Students should complete the self-declaration form available on the Registrar's Office website to request academic accommodation for missed course work including exams and assignments. Here is the link to the form: https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf Students should also connect directly with me to discuss required accommodations arising from medical or other situations. If in doubt, please send me an email or discuss this with me during my Office Hours.

Unless otherwise specified, group work is not acceptable. This includes all term work and the two exams. Sharing of answers on the midterm or final exam is ***strictly forbidden***. Submitting work that has been previously used in this or other courses is not permitted **in this course.** Assignments will be returned via *Brightspace*, and general feedback will be provided in the lab period following. If you have any questions about the grading, please discuss this with your TA, or with me via email or during Virtual Office Hours.

Standing in this course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Carleton University's Covid-19 Policies

All members of the Carleton community are required to follow COVID-19 prevention measures and all mandatory public health requirements (e.g. wearing a mask, physical distancing, hand hygiene, respiratory and

cough etiquette) **and mandatory self-screening prior to coming to campus daily**.
https://carleton.ca/covid19/cuscreen/

If you feel ill or exhibit COVID-19 symptoms while on campus or in class, please leave campus immediately, self-isolate, and complete the mandatory symptom reporting tool. For purposes of contact tracing, attendance will be taken in all classes and labs. Participants can sign in using posted QR codes where provided.

All members of the Carleton community are required to follow guidelines regarding safe movement and seating on campus (e.g. directional arrows, designated entrances and exits, designated seats that maintain physical distancing). In order to avoid congestion, allow all previous occupants to fully vacate a classroom before entering. No food or drinks are permitted in any classrooms or labs.

For the most recent information about Carleton's COVID-19 response and required measures, please see the University's COVID-19 webpage and review the Frequently Asked Questions (FAQs). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca

Please note that failure to comply with University policies and mandatory public health requirements, and endangering the safety of others are considered misconduct under the Student Rights and Responsibilities Policy. Failure to comply with Carleton's COVID-19 procedures may lead to supplementary action involving Campus Safety and/or Student Affairs.

Academic Integrity & various offences

Instructional offences include among other activities cheating, contravening examination regulations, plagiarism, submitting similar work in 2 or more courses without prior permission, and disrupting classes. Conduct offenses apply in areas of discrimination and sexual harassment. Further information about University regulations which define and regulate these offences is found at: http://www2.carleton.ca/studentaffairs/academic-integrity

The University Senate defines plagiarism as "presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own." This can include:

- reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source;
- submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks;

Plagiarism is a serious offence which cannot be resolved directly with the course instructor. A rigorous investigation is conducted by the Office of the Faculty Dean, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

Academic Accommodation

You may need special arrangements to meet your academic obligations during the term because of disability, pregnancy or religious obligations. Please review the course outline promptly. For an accommodation request, the processes are as follows.

Pregnancy obligation: write to me with any requests for academic accommodation during the 1st two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the Student Guide.

Religious obligation: write to me with any requests for academic accommodation during the 1st two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the Student Guide.

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), Psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairment in mobility, hearing and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term. After requesting accommodation from PMC, email me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally scheduled exam.

Survivors of Sexual Violence
As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: https://carleton.ca/equity/sexual-assault-support-services.

Accommodation for Student Activities
Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.
https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

Important dates for this term (Lecture Schedule and Required Readings):
Note: the dates on which individual lectures are presented may not be exactly as shown. Lab dates as well as assignment due dates are fixed.

1	January 10	Introduction to the Course	• Ritter, D.F., Kochel, R.C. & Miller, J.R. 2011. *Process Geomorphology*, (5th Ed). Chapter 1: **An introduction** & Chapter 2: **Internal Forces and Climate**, pg. 1 – 45
2	January 17	Quantitative Fluvial Geomorphology	• Ritter, D.F., Kochel, R.C. & Miller, J.R. 2011. *Process Geomorphology*, (5th Ed). Chapter 5: **The Drainage Basin**, pg. 150 – 209. • Additional resources: o Hauer, F.R. & Lamberti, G.A.1996 *Methods in Stream Ecology*; Chapter 2: **Valley segments, stream reaches and channel units,** pg. 23 – 39
3	January 24	Fluvial Processes	• Ritter *et al*, Chapter 6: **Fluvial Processes**, pg. 211– 259; Chapter 7: **Fluvial Landforms**, pg. 261 - 304.

4	January 31	Fluvial Processes & deposits	• As for January 24
5	February 7	Fluvial-Coastal transition features	• Haslett, S.K. 2009. *Coastal Systems (2nd Ed.)*. Chapter 4, **River dominated coastal systems**; pg. 110 - 135
6	February 14	Lacustrine Processes	• Perry, C. & Taylor, K., 2007. *Environmental Sedimentology*. Chapter 4: **Lake Environments**; pg. 109 – 143
Feb 21 - 25: Reading Week, no classes or lab sessions			
7	February 28	**MIDTERM EXAM** Aeolian processes	• Ritter *et al*, Chapter 8: **Wind Processes & Landforms**, pg. 305 - 360.
8	March 7	Periglacial processes and features	• Ritter *et al*, Chapter 11: **Periglacial Processes and Landforms**, pg. 361 - 470.
9	March 14	Karst processes & features	• Ritter *et al*, Chapter 12: **Karst – Processes and Landforms**, pg. 471 - 501.
10	March 21	Glacial processes	• Ritter *et al,* Chapter 10: **Glacial Erosion, Deposition, and Landforms**, pg. 361 - 398.
11	March 28	Glacier deposits	• Ritter *et al*, Chapter 10: **Glacial Erosion, Deposition, and Landforms**, pg. 361 - 398.
12	April 4	Glacier Deposits	• As per March 28
12	April 11	Review of Course and Exam format	All readings to date

Lab Assignment Schedule for Winter 2022 Term. ***Assignment due dates are fixed.***
January 13: No labs this week, they will begin next week
January 20: Assignment 1 given & explained, due Feb 2nd.
January 27: Lab working periods, T.A. will help during your lab period.
Assignment 1 DUE @ 11:55 pm Feb 2nd. **February 3: Assignment 2 given & explained**, due **Feb 16th**.
February 10: Lab working periods, T.A. will help during your lab period
Assignment 2 DUE @ 11:55 pm Feb 16th. **February 17th: Assignment 3 given & explained, due Mar 9th.**
February 21 - 25: Reading Week, no classes or lab sessions
February 28: Midterm exam in class
March 3: Lab working periods, T.A. will help during your lab period

Assignment 3 DUE @ 11:55 pm Mar 9th. **March 10: Assignment 4 given & explained, due Mar 23rd.**
March 17: Lab working periods**,** T.A. will help during your lab period
Assignment 4 DUE @ 11:55 pm Mar 23rd. **March 24: Assignment 5 given & explained, due April 7th.**
March 31: Lab working periods**,** T.A. will help during your lab period
Assignment 5 DUE @ 11:55 pm Apr 7th. **April 7: No more lab session.**