

GEOG 3334A Geomorphology of River Channels

Course Outline: Fall 2020



Although this academic year might be different, Western University is committed to a **thriving campus**. We encourage you to check out the [Digital Student Experience](#) website to manage your academics and well-being. Additionally, the following link provides available resources to support students on and off campus: <https://www.uwo.ca/health/>.

1. Technical Requirements



Stable internet connection



Laptop or computer



Working microphone



Working webcam

For weekly lecture, reading and other material you will need a computer and internet connection.

Lab sessions on Tuesday afternoon are synchronous and you will also need a microphone and web cam to participate in those sessions.

Recommended technical specifications are available at:

<https://registrar.uwo.ca/academics/timetables.html>

2. Course Information

Delivery Mode	Dates	Time
Online asynchronous lecture material		
Synchronous online lab sessions	Tuesday Sept 15 – Dec 1	1:30-3:30 pm

*Details about design and delivery of the course are listed below in Section 4



Classes Start	Reading Week	Classes End	Study day(s)	Exam Period
First class meeting is Sept 15 th and material will be posted at the beginning of that week	November 2 - 8	December 9	December 10	December 11 - 22

* September 17, 2020: Last day to add a first-term half course

** November 12, 2020: Last day to drop a first-term half course without penalty



Course Instructor	Contact Information	Office Hours
Dr Peter Ashmore	Email address: pashmore@uwo.ca	By appointment

Teaching Assistant(s)	Contact Information	Office Hours
Corey Dawson	cdawso46@uwo.ca	TBA

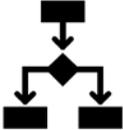


Office hours will be held remotely

3. Calendar Description

The geomorphology of rivers, including fluvial hydraulics, fluvial erosion and sediment transport, river channel morphology and dynamics, channel and floodplain sedimentation, the response of rivers to human activities and environmental change, and applications to river channel management.

0.5 course



Prerequisites: One of [Geography 2310A/B](#), [Geography 2320A/B](#) or [Geography 2330A/B](#), or at least 3rd year standing in an Environmental Science or Earth Sciences program.

Prerequisite checking is the student's responsibility

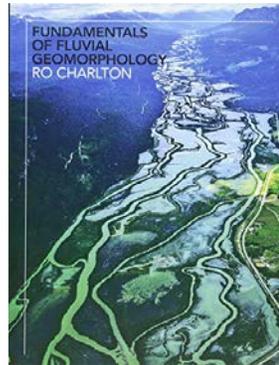
Senate Regulations state, "unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites."

4. Readings

Resources will be posted in OWL. I will post relevant resources each week as the course proceeds

The primary textbook is:

Ro Charlton. *Fundamentals of Fluvial Geomorphology*, Routledge, 2008, ISBN 9780415334549.



A more advanced book that you may find useful on specific topics is:

E. Wohl. *Rivers in the Landscape: Science and Management*. Wiley-Blackwell, 2014.
ISBN: 978-1-118-41489-7

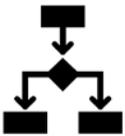
References to more general texts on geomorphology may also help. I recommend:

Process Geomorphology by D.F. Ritter (4th or 5th edition) which has two or three chapters on rivers and fluvial processes.

Key Concepts in Geomorphology (2014) P.R. Bierman and D.R. Montgomery. Chapters 4, 6, 7. A new text book with some excellent diagrams and up-to-date concepts

5. Course Objectives and Format

Mode	Dates	Time	Frequency
Virtual synchronous lab	Tuesday	1:30-3:20 pm	weekly
Virtual asynchronous lecture, reading and other activities	N/A	Lecture, reading and other material on which you can expect to spend 3-4 hours per week	weekly



Attendance at synchronous lab sessions is required or you will miss a core component of the course. Please alert the TA if you miss, or anticipate missing, a session for any reason. You will be asked to make up any and all missed work from the session.

All course material will be posted to OWL: <http://owl.uwo.ca>. Any changes will be indicated on the OWL site and discussed with the class.

Google Chrome or Mozilla Firefox are the preferred browsers to optimally use OWL; update your browsers frequently. Students interested in evaluating their internet speed, please click [here](#). [Using the right browser is important, especially when using different features integrated with OWL]

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

6. Learning Outcomes

At the conclusion of the course you should be able to:

1. recognize, describe and explain the origins of common fluvial landforms and river morphology
2. understand the physical analysis of the processes of flow and sediment transport in rivers
3. explain the relationship between fluvial processes and fluvial landforms
4. explain, using examples, the physical effects of environmental change and human intervention on fluvial processes and landforms
5. describe applications of fluvial geomorphology to river management and other fields of fluvial science
6. apply techniques of data analysis and map and air photo reading to the solution of problems in fluvial geomorphology
7. give some case examples of river morphology, dynamics and consequences of human intervention from rivers around the world



7. Course Content and Schedule

Topic	Reading in Charlton book
Sept 14 Intro to rivers and fluvial geomorphology The fluvial system.	Ch 1
Sept 21 The Fluvial System	Ch 2
Sept 28 River flow and sediment supply	Ch 3-5
Oct 5 Fluvial hydraulics	Ch 6
Oct 12 Erosion, sediment transport and bedforms	Ch 7
Oct 19 River morphology: channel dimensions	Ch 8 117-129
October 26 Take home midterm assignment	
Nov 2 Fall break	

Nov 9 Geomorphic units and channel pattern	Ch 8 129-135
Nov 16 Meandering and braiding	Ch 8 137-150
Nov 23 River slope, channel change and extreme events	Ch 9
Nov 30 River management, restoration and applications of fluvial geomorphology	Ch 10
Dec 7 Summary and review	

7b Laboratory Sessions (synchronous online)

First lab session is September 15th

We have synchronous online remote sessions used primarily for practical work each Thursday afternoon. Each of you has registered one of the two sessions each week. These synchronous sessions will be used primarily to explain, discuss and review the assignments for the 'lab' components of the course and some skills development related to that work. All materials will be posted online on OWL

The sessions will also be useful for Q&A related to other course material and staying in touch with each other during the course.

The laboratory sessions will be run primarily by the Teaching Assistant: Corey Dawson.

The exact format and length of the sessions may vary each week and we will try and include some small group collaboration in break-out rooms so that you can work with each other and get to know each other a little.

The lab will be built around a case study of San Juan River, BC

Lab schedule and assignments

Lab date	Exercise
Sept 15	Meet and introductions
Sept 22	Introduction to San Juan River (w. Meghan Sauro)
Sept 29	Google Earth tour, the watershed and mapping
October 6	Discharge and flow regime

Oct 13	Flow and hydraulic geometry
October 20	River morphology and particle size
Oct 29	No lab. Take-home midterm
Nov 5	No lab. Fall Break
Nov 10	Bedload transport and particle dynamics
Nov 17	DEMs, channel migration and historical changes
Nov 24	Summary and review
Dec 1	No meeting

8. Online Participation and Engagement



- Students are expected to participate and engage with content as much as possible
- Students will also have opportunities to interact online with their peers and instructors

9. Communication



- Students should check the OWL site at least twice per week and especially before each lab session. New material will be added every week for both the lecture and lab components of the course
- A weekly update will be provided on the OWL announcements. Other announcements will be posted as needed
- Students should email their instructor and teaching assistant using OWL “messages”
- For any other communication, the centrally administered **e-mail account** provided to students will be considered the individual’s official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner. You can read about the privacy and security of the UWO email accounts [here](#).
- Emails will be monitored daily; students will receive a response in 24 – 48 hours

10. Evaluation

Below is the evaluation breakdown for the course. Any deviations will be communicated.

Assessment	Format	Weighting	Due Date
Midterm	take home assignment, time-limited	20%	Week of Oct 26, Details tba
“My river” case study	Powerpoint slides	10%	Final version Nov 9 (preliminary version Oct 20 for class discussion)
Lab project report	Written report summarising San Juan River geomorphology	30%	November 27
Applied geomorphology case study	Powerpoint slides	10%	Final version Dec 11 (preliminary version for class discussion Nov 23)
Final assignment	Take home assignment, time-limited	30%	In final exam period



Students are responsible for material covered in the course

- **“My river” case study report on geomorphic characteristics of a river of your choice.** Details in a separate handout to be posted on OWL.
- **Lab Report:** A short individual report summarizing the geomorphology of San Juan River based on all of the components covered during the lab sessions. Details in a separate handout to be posted on OWL
- **Applied Geomorphology Case Study**
A short report on one case study of the impact of human activity on river channel morphology and dynamics or applications of geomorphology to river management, river ‘design’ and restoration. This will be based mainly on your review of one published article from a research journal. You will hand in a short summary to be graded and there will be a class summary of the collective results from the whole class. Details in a separate handout.

Information about late or missed evaluations:

- Late assessments without illness self-reports will be subject to a late penalty 5 %/day
- Late assessments with illness self-reports should be submitted within 24 hours of submission of the last illness self-report [Having this statement will reduce the emails you get asking when an assessment is due after reporting an illness]
- An assessment cannot be submitted after it has been returned to the class

11. Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The accommodation policy can be found here: [Academic Accommodation for Students with Disabilities](#).

Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the term, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For Western University policy on Consideration for Student Absence, see

[Policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs](#)

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the [Western Multicultural Calendar](#).

12. Use of Recordings

Online sessions will not be recorded and participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

13. Online Etiquette

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- Please “arrive” to class on time
- Please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- Ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- To minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- Please be prepared to turn your video camera off if the internet connection becomes unstable
- Unless invited by your instructor, do not share your screen in the meeting

The course instructor and TA will act as moderators for the class and will deal with any questions from participants. To participate please consider the following:

- If you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question

- Remember to unmute your microphone and turn on your video camera before speaking
- Self-identify when speaking
- Remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

14. Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence.

15. Western’s Commitment to Accessibility

The Department of Geography strives at all times to provide accessibility to all faculty, staff, students and visitors in a way that respects the dignity and independence of people with disabilities.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar’s website.

More information about “Accessibility at Western” is available.

16. Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit Western's [Health and Wellness website](#) for more information on mental health resources.

17. Support Services

[Western's Support Services](#)
[Student Development Centre](#)

18. Important Dates

September 9: Classes resume

September 17: Last day to add a first term half course

October 12: Thanksgiving Holiday – Department Office Closed

November 2 to November 8: Fall Reading Week (No classes; Department Office open)

November 12: Last day to drop a first term half course without penalty

November 30: Last day to drop a full course without penalty

December 9: Classes end

December 10: Study day

December 11-22: Examination Period