

## GEOG 3334A Geomorphology of River Channels

### Course Outline: Fall 2021

#### 1. Course Information



Delivery Mode	Day	Time	Location	
In person lecture	Monday	10:30-12:20	SSC 1302	
In person lab sessions	Tuesday	2:30-4:20 pm	SSC1302	
Classes Start	Reading Week	Classes End	Study day	Exam Period
First class meeting is Sept 13 <sup>th</sup>	November 1 - 7	December 8	December 9	December 10 - 21



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

Teaching Assistant(s)	Contact Information	Office Hours
Lara Middleton	lmiddle7@uo.ca	TBA



Office hours can be held remotely by arrangement

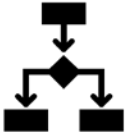
#### 2. Calendar Description

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

Prerequisite checking is the student's responsibility



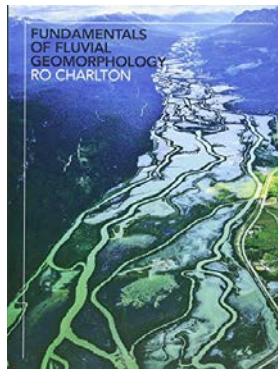
Senate Regulations state, “unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in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

### 3. 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 ( 4<sup>th</sup> or 5<sup>th</sup> 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

## 4. 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



## 5. Communication

- Students should check the OWL site at least twice per week. New material will be added every week for both the lecture and lab components of the course
- 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



## 6. Course Content and Schedule

The course will be delivered as a blend of lectures (including a few pre-recorded), field work, hands-on lab work and class discussion. Some weeks we may be in the field on both Monday and Tuesday. Later in the term lab sessions will be indoors. Field will be used to develop understanding of course concepts in context of Medway Creek valley, and also collection of field data for the major lab project.

<b>Topic</b>	<b>Reading in Charlton book</b>
<b>Sept 13/14</b> Intro to rivers and fluvial geomorphology The fluvial system.	Ch 1
<b>Sept 20/21</b> The Fluvial System	Ch 2
<b>Sept 27/28</b> River flow and sediment supply	Ch 3-5
<b>Oct 4/5</b> Fluvial hydraulics	Ch 6
<b>Oct 12</b> Erosion, sediment transport and bedforms	Ch 7
<b>Oct 18/19</b> River morphology: channel dimensions	Ch 8 117-129
<b>October 25/26</b> Take home midterm assignment	
<b>Nov 1</b> Fall break	
<b>Nov 8/9</b> Geomorphic units and channel pattern	Ch 8 129-135
<b>Nov 15/16</b> Meandering and braiding	Ch 8 137-150
<b>Nov 22/23</b> River slope, channel change and extreme events	Ch 9
<b>Nov 29/30</b> River management, restoration and applications of fluvial geomorphology	Ch 10
<b>Dec 6</b> Summary and review	

## 7. 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 – 48 hrs	20%	Week of Oct 25,
“My river” case study	Powerpoint slides	10%	preliminary version Oct 18 for class discussion  Final version Nov 8
Lab project report	Written report summarising San Juan River geomorphology	30%	November 29
Applied geomorphology case study	Powerpoint slides	10%	Preliminary version for class discussion Nov 22  Final version Dec 9
Final assignment	Take home assignment, time-limited 48 hrs	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 field data and other analyses for Medway Creek activities. 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
- An assessment cannot be submitted after it has been returned to the class

## 8. 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.**

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

[Student Medical Certificate \(SMC\)](#)

## 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](#).

## 9. Continuity of Education Plan (in-person class pivoting to online learning)

In the event of a COVID-19 resurgence during the course that necessitates the university to direct courses move away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

## 10. Information on COVID-19

For information on COVID-19 visit: <https://www.uwo.ca/coronavirus/> . Please be familiar with this and be sure that you conform to the vaccination policy. All students must be fully vaccinated no later than October 12<sup>th</sup>.

The full University policy is here:

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section3/mapp311\\_covid19.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section3/mapp311_covid19.pdf)

Before coming to campus please complete the [Daily Return to Campus Questionnaire](#). You are required to do so by the University.

## Masking Guidelines

Students will be expected to wear triple layer, non-medical, paper masks at all times in the classroom as per University policy and public health directives. Students who are unable to wear a mask must seek formal accommodation through Western Accessible Education, and present medical documentation.

Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks.

Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the student Code of Conduct.

## Course Absences due to Daily COVID Screening Questionnaire

Missed assessments (e.g., presentations, essays, quizzes, tests, midterms, etc.) require formal academic considerations (typically self-reported absences and/or academic counselling).

Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.

## 11. 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.

## 12. 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.

## 13. 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.

## 14. Support Services

Western's Support Services  
Student Development Centre

## 15. Important Dates

September 8: Classes resume

September 16: Last day to add a first term half course

October 11: Thanksgiving Holiday – Department Office Closed

November 1 to November 7: 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 8: Classes end

December 9: Study day

December 10-21: Examination Period