

University of Guelph  
Department of Geography, Environment and Geomatics  
**GEOG\*3000 Fluvial Processes, 0.5 credits**

FALL 2023 – MWF 10:30-11:20am, see WebAdvisor for Location

**Instructor:** Dr. Jaclyn Cockburn (pronouns: she/her/hers)  
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Office Hours: Wednesdays ~Noon-1pm in Rm 353 or via Zoom (see CourseLink)

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### **Why should I take this course?**

Fluvial geomorphology is a busy/growing/popular aspect of Geosciences (physical geography and geology) that requires advanced understanding of fluid mechanics and hydrology. Students taking this course can expect to advance their understanding in fluvial processes and its related fields, and refine skills developed in 2<sup>nd</sup> year physical geography courses.

### **Purpose**

This course examines the dynamic processes and landforms related to rivers and how they change spatially and temporally. This course will use lectures, discussions, lab and field activities to address topics in fluvial geomorphology including the physical properties of water flow, sediment transport, channel pattern, environmental change, human impact on river systems, and applied geomorphology.

### **Calendar Description**

This course examines processes and landforms associated with rivers. Particular emphasis is placed on the interaction between water and sediment movement and channel morphology. Case studies of human impact on river systems are presented.

Prerequisite(s): GEOG\*2000, (1 of GEOG\*2460, STAT\*2040, STAT\*2120, STAT\*2230)

### **Territorial Acknowledgement**

Acknowledging the territory on which we learn, and work honours the relationship between lands/waters and the Indigenous ancestors and stewards of them. This acknowledgement is adapted from the University of Guelph Indigenous Resource Centre and Student Life.

The University of Guelph rests on the traditional territory of the Attawanderon people. We therefore acknowledge the Attawanderon people and offer our respect to Anishinaabe, Haudenosaunee and Métis neighbours as the university and community strive to strengthen our relationships with them. We also recognize the significance of the Dish with One Spoon Covenant to this land. The Dish with One Spoon Covenant is a peace agreement made between Indigenous nations before the Europeans arrived. It characterizes our collective responsibility to each other and Mother Earth -we should take only what we need, leave enough for others and keep the dish clean.

### **Statement on Expectations for Inclusivity**

Different perspectives and lived experiences shape who we are and make our communities stronger. I want everyone in our class to feel that they belong and that their ideas, perspectives, and lived experiences are important. It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

## F23 OUTLINE

### Organization

In general, there will be three lectures, with some class time being used for introduction or review of assignments or lab concepts. **There will be labs throughout the semester beginning the *second* full week of class in September (week beginning Monday Sept 18, 2023).** There will be at least one field trip this semester – on Saturday Oct 14.

### Learning Outcomes

Learning Outcomes are defined the university, program, major and course level. In our course, the Learning Outcomes are achieved through course design, activities and assessment. Learning Outcomes are our broad goals for this course or ‘the things you should *know* once you’ve completed the course’ are listed here. If you have any questions or concerns about this, please don’t hesitate to discuss this with me.

Upon successful completion of GEOG\*3000, students will be able to:

1. Analyze the Earth as an integrated human-environment system.
  - Examine and describe flow characteristics, interactions and exchanges within fluvial networks
2. Integrate knowledge from previous courses and material used in this course to develop critical ideas and understanding of the major processes influencing fluvial systems.
  - Synthesize assigned readings
  - Integrate key elements from previous courses with this course – e.g., principles of geomorphology, elements of equilibrium
3. Collect and analyze data and generate interpretations that demonstrate key Fluvial Geomorphology concept interrelatedness.
  - Execute data collection
  - Complete data analysis following standard procedures in the Geosciences
  - Draw interpretations from the data analysis and contextualize these within the appropriate literature
  - Utilize appropriate visualizations and terminology
4. Investigate complex real-world challenges related to Fluvial Systems.
  - Define variables contributing to real-life river/stream issues/problems
  - Actively reflect and participate in class discussions
  - Utilize appropriate terminology
5. Develop and improve written communication and data presentation skills related to key Fluvial Processes concepts.
  - Recognize the variety of written communication opportunities
  - Utilize appropriate terminology
6. Construct and curate skills and attributes expected for individuals working and interacting within the Geosciences.
  - Identify and self-reflect on the skills and attributes of Geoscientists
  - Confidently and effectively communicate using appropriate and concise language and terminology
  - Mobilizing and transcribing knowledge and skills

For more information see the following links:

[University of Guelph, learning outcomes](#) and [Geography, learning outcomes](#)

### CourseLink Page, UofG Email/ID and Lecture Materials (notes & recordings)

There is a course webpage on CourseLink (the Learning Management System (LMS) used at University of Guelph). To access this resource, use your central account ID and password. This is the same login ID and password that is used to access your University of Guelph email and WebAdvisor. CourseLink can be accessed from the University’s homepage. You need to check into CourseLink regularly (4-5 times a week) to be successful in this course.

Lecture slides will be available on CourseLink as pdf files, as soon as they are ready. These are *OUTLINE* slides; attendance during lectures is beneficial to your overall comprehension of the material – plus fun stuff happens at lectures! Provided the appropriate technology and support are available, I will do my best to record lectures and

## F23 OUTLINE

make them available via CourseLink within 24hrs of the lecture. Recordings will be available for approximately 1 week once posted. Seminars/discussions are not recorded, lab sessions are not recorded. Live-streaming is not available in this course.

## Textbook and Readings

Robert, Andre (2003) River Processes: An introduction to fluvial dynamics, Hodder, 214 pp.

This book has also been published by Routledge.

This textbook is required, we will use it every week. I will do my best to ensure there is a copy in Reserves at the library. If you see yourself pursuing river science as a professional, I highly recommend you invest in this text to include in your personal library.

Print copies are available via Amazon (~\$70). Used copies of the text are available for less (~\$15-20).

In addition to the text, there are several chapters from other texts that will be scanned and available via CourseLink in the Lecture Materials section.

Finally, from time to time there are additional articles (short) that will be part of the materials used in our course, these will also be posted in the appropriate Lecture Materials folder.

## Evaluation

The final grade will be assessed on lab & field assignments, quizzes and cumulative final exam, in summary:

Midterm (Nov 3, in class)	19%
Assignments (4 Labs & Field Trip Report)	51%
Final Exam (cumulative, scheduled in final exam period)	30%

\*Failure to complete all of the assignments and pass the final may result in failure in the course

## Lab Assignments

There are five lab assignments in this course (see lab schedule below) that are worth 5-10% of your final grade. Labs are typically due one week after they are presented, by 11:59pm to the CourseLink dropbox. You are expected to make use of Excel for computational and analytical purposes, your work needs to be your own original work for this course – you are not permitted to re-use material from other courses / projects. Attendance in labs is mandatory; the TA will be recording attendance at each lab meeting. The TA will not respond to emails from students who fail to regularly attend labs.

## Field Trip Project

In mid-October (Oct 14) a field trip is planned to Irvine Creek to examine a number of key fluvial features. The report (project) is worth 22% of your final grade and is due to the CourseLink dropbox by November 13, 2023 11:59 pm. More info about the field trip and report will be shared in class and on CourseLink.

## Lab Fee

There is a lab fee will discuss these details in week 1.

\*The Department of Geography, Environment & Geomatics highly values lab and field experiences and as such sets aside funds each year to supplement these important learning opportunities, even with this as a permanent budget item, we still need to collect a lab fee.

**\*\*\*UNLESS CLEARLY STATED OTHERWISE, ALL SUBMITTED MATERIALS ARE COMPLETED INDEPENDENTLY AND MUST BE YOUR ORIGINAL WORK\*\*\***

Students with a documented conflict for any assignment, quiz, or final exam need to **see me at least two weeks prior** to arrange an alternative time, there is no guarantee that this will be accommodated, but ensuring that you address the issue several weeks in advance will certainly assist the process. Please review the policy on extension requests and grading for additional information.

## **Turnitin**

In this course we use Turnitin integrated with the CourseLink Dropbox tool to detect potential plagiarism, unauthorized collaboration, and/or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph. All materials submitted to the Dropbox will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting inappropriate use. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site. A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced outside source and materials in your assignment. Please contact me if you have questions or concerns about this software.

## **Online Behaviour**

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor, TA and/or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else's work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz
- Completing a quiz for/with another student when collaboration is not permitted
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student, TA and/or instructor online
- Discriminating against fellow students, instructor and/or TA
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your username and password
- Recording lectures without the permission of the instructor

## F23 OUTLINE

### Schedule and Important Dates

Lectures – MWF 10:30am-11:20am, in MCLN 101 (JD MacLachlan Bldg rm 101)

Midterm – Friday Nov 3, in class

**Final Exam: Tuesday, December 5, 8:30-10:30am, location tba**

#### Anticipated Fall 2023 Lecture Schedule

Week	Lecture Topic	Reading
0 Fri Sep 8	<i>No class meeting – review the materials posted to CourseLink</i>	CourseLink Info, Outline, Robert Ch 1
1	Basic Principles, Pathways & Connectivity	Robert Ch1
2	Drainage Networks & Catchment Processes	Sections from Knighton Ch 2&3 (pdf on CourseLink)
3	Water Flow Principles and Characterization (incl stats)	Robert Ch 2
4	Water Flow Principles and Characterization	Robert Ch 2
5	Sediment Dynamics (& other things – wood and carbon) <i>Oct 9 Thanksgiving – no class (rescheduled to Dec 1)</i>	Robert Ch 3
6	Sediment Transfer Dynamics	Robert Ch 3
7	Bedforms	Robert Ch 4
8	Bedforms	Robert Ch 4
9	Channel Form, Behaviour & Adjustment, Geomorphic Units	Robert Ch 5
10	Extra-channel Environments & Adjustment	Robert Ch 5
11	Rivers in the Landscape	Robert Ch 6
12	Rivers in the Landscape & Aquatic Habitats	Robert Ch 6

#### F23 Lab Schedule

Lab/Assignment	Week	Topic	Due Date
1 Hutt 020	Week 2	Topographic Maps and Surface Water (7%)	Due one week from lab day
2 Hutt 020	Week 4	Flow Statistics (7%)	Due one week from lab day
	Oct 9-10	No labs or office hours on these days – <i>Thanksgiving</i>	
Field Trip	Oct 14	Field Trip Report (15%)	Report Due Nov 13, 11:59pm
3 Hutt 020	Week 6	Turbulence (7%)	Due one week from lab day
4 Hutt 020	Week 8 & 9	Flume Experiments (Group Project) 15% Wk 9 is a check-in <b>presentation</b>	Presentation due wk 9 Final poster due 3 weeks from lab day

### How to succeed in this course

I believe success is possible in anything you set your mind to, therefore starting this class and each task associated with it with an engaged, positive and excited attitude puts you well on your way to an excellent experience. There are some other things that will also help you to succeed. Come to class prepared to participate; ask questions; complete your assignments, read them over, read the questions, did you answer and address all the issues? When you are proud of your assignment, hand it in. Talk to me about your assignments; before you hand them and after you get feedback on them. Discussing issues in class, in the hall, in the lab or wherever, often makes the point and the issue clearer than just considering it once. Learning and comprehending concepts is not done through memorization, I rarely test memory, I want to know that you understand and can relate the concept back to me or to someone else. However, in order to do these things, you need to have a set of tools that often include vocabulary, so these tools will be important to your success. Have fun, I always remember fun things, and events that were mediocre or uninteresting I easily forget. If you come with the right attitude, I will do my best to make this a fun, interesting and exciting class.

## F23 OUTLINE

### Extension Requests and Policies

Good reasons for coursework extensions are unexpected short-term circumstances which are exceptional for the individual student, beyond that student's control, and which could reasonably be expected to have had an adverse impact on the student's ability to complete the assessment on time.

*Suitable reasons may include:*

- Recent short-term physical illness or injury
- Recent short-term mental wellness concerns
- A long-term or chronic physical health condition, which has recently worsened temporarily or permanently
- A long-term or chronic mental health condition, which has recently worsened temporarily or permanently
- The recent bereavement or serious illness of a person with whom the student has a close relationship
- The recent breakdown in a long-term relationship
- Emergencies involving dependents
- Job or internship interview at short notice that requires significant time, e.g. due to travel
- Victim of a crime which is likely to have significant emotional impact
- Military conflict, natural disaster, or extreme weather conditions

In addition to these unexpected circumstances, we will also consider requests for coursework extensions in relation to:

- A student's needs where the student is registered with Student Accessibility Services and accommodations are noted and on file. Please note registration with SAS will be treated sympathetically as part of the case for an extension, registration with SAS does not guarantee an extension

*Unsuitable reasons*

The following are examples of circumstances which would not be considered suitable reasons for coursework extensions:

- A long-term or chronic health condition (including mental ill-health or similar ill-health) which has not worsened recently or for which the University has already made a reasonable adjustment
- A minor short-term illness or injury (e.g. a common cold), which would not reasonably have had a significant adverse impact on the student's ability to complete the assessment on time
- Occasional low mood, stress or anxiety
- Circumstances which were foreseeable or preventable
- Holidays
- Pressure of academic work (unless this contributes to ill-health)
- Poor time-management
- Proximity to other assessments
- Lack of awareness of dates or times of assessment submission
- Failure, loss or theft of data, a computer or other equipment
- Commitments to paid or voluntary employment

### Grading Policies / Requests for Re-Grades

Assessment (grades) are viewed by learners in different ways depending on their individual goals and circumstances. Students have the ability to request grade reviews, but must submit these requests via email to the TA and Instructor within 5 days of the grades being published. In the email, there needs to be a clear statement of concern (e.g., adding error, missed interpretation). The individual (TA or Instructor) that graded the assignment first is responsible for initial reviews (e.g., Lab assignment questions go to the TA first, then the Instructor). If appropriate the assignment grade will be re-adjusted. Submitting the wrong assignment/file, misunderstanding the question, and thus incorrectly responding, are not grounds for a re-grade, but requests can still be submitted and will be considered.

### Lab discussion/email

A separate discussion board for labs will be set up on CourseLink so that if you have questions related to the lab you can post a message there and either someone in the class or TA or myself can answer it. It will also serve as a

## **F23 OUTLINE**

repository for FAQs, so if you have a question, check here first to see if an answer has been posted. Please do this rather than e-mail your TA directly.

### **E-mail Communication**

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

### **When You Cannot Meet a Course Requirement**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on [regulations and procedures for Academic Consideration](#).

### **Drop Date**

The last date to drop one-semester courses, without academic penalty, is the last day of classes in the semester (December 1, 2023). For [regulations and procedures for Dropping Courses, see the Undergraduate Calendar](#).

### **Copies of out-of-class assignments**

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### **Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services as soon as possible.

For more information, contact SAS at [519-824-4120](tel:519-824-4120) ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or see the [Student Accessibility Services website](#).

### **Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor. The [Academic Misconduct Policy is detailed in the Undergraduate Calendar](#)

### **Recording of Materials**

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied

## **F23 OUTLINE**

without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course (and that semester) unless further permission is granted.

### **Resources**

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

### **Disclaimer**

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

For information on current safety protocols, please refer to the [UofG COVID Return Campus](#) website. Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives