

Western University

GEOG 3343A River Ecosystems

Course Outline

Fall 2019

Instructor Information

Name and title: Dr. Adam G. Yates
Contact information: Office – 2403
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Office Hours: By Appointment

Course Information

Room: Social Science Centre 1302
Days: Tuesday
Hours: 10:30 to 13:30
TA: TBD

Course Syllabus

Course description

This course introduces students to riverine ecosystems. General principles of the physical, chemical and biological patterns and processes of river systems are presented in a landscape context. The course emphasizes human driven landscape changes in the health and sustainability of river systems and teaches techniques for river monitoring and assessment.

Pre-requisite – One of GEOG 2300 courses (i.e., 2310A, 2320A, 2330A) or one of the following equivalent courses from Earth Sciences (i.e., 2230A/B) or Biology (i.e., 2483A, 2485B)

Prerequisite checking is the student's responsibility.

0.5 credit course
3 hours of combined lecture and lab per week

Senate Regulations

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.”

Course Objectives

By the end of the semester, you will be good at:

- Explaining the fundamental physical, chemical and biological characteristics and processes of river ecosystems
- Explaining the connections and critical interfaces between a river and its catchment landscape
- Implementing river assessment and monitoring techniques that are currently used in the field of aquatic monitoring by government agencies and environmental consulting firms.
- Analyzing monitoring and assessment data and writing scientific reports in the style used by environmental consulting firms.
- Working effectively in teams to conduct integrated tasks

Course Materials

Reading assignments

Recommended readings will be assigned throughout the course and will be available through Western Libraries

Methods of Evaluation

Course Evaluation

Laboratory Exercises

Students will be required to participate in a series of laboratory exercises. These exercises will train students in several commonly used techniques for monitoring the physical, chemical and ecological status of river ecosystems. Laboratory exercises will include a mixture of field work and lab work. Laboratories will not be delayed by inclement weather unless this weather impacts student and instructor safety. Students are therefore expected to be prepared to be outside for field exercises during wet and cold conditions. Laboratory exercises will instruct students in the techniques and background necessary to complete their final reports. Attendance at labs is mandatory and participation marks will be assigned.

River Assessment Project

Using real physico-chemical and/or biological data for a Canadian river system students will work in small Teams (4-5 students) to conduct a consultant-style assessment project. This Team project will consist of four components. Each component will include a prelude assignment to be completed individually by each Team member. First, a targeted mini-review of literature related to the

effects of the assigned human activity on river ecosystems. Second, a written proposal outlining the scope, goals, work plan and deliverables of the river assessment project. Third, a presentation summarizing the project, including problem definition, methods, results and conclusions and recommendations. Fourth and finally, a written "consulting-style" report fully describing the project and its deliverables.

Literature reviews are to be less than 5 pages double spaced and will summarize the known impacts of the human activity to be assessed in the assigned project. Grades will be assigned based on the accuracy, comprehension and scope of the content of the review as well as the quality of writing and adherence to style guidelines. Team members will individually complete an annotated bibliography citing 5 primary articles which will be graded as complete or incomplete

Proposals are to be less than 10 pages double spaced and will outline the problem and project goals to be addressed, describe the study area, outlining the approaches to be taken and describe the project deliverables. Grades will be assigned on the basis of content, quality of writing, and adherence to style guidelines. Team members will individually complete a minimum 1 page outline of the proposal which will be graded as complete or incomplete.

Presentations will be less than 30 min including 10 min for questions. Presentations will be graded on content and presentation style. Team members will individually complete a minimum 1 page outline of the presentation which will be graded as complete or incomplete.

Reports are to be less than 20 pages double spaced (including figures) and will be marked on the basis of accuracy, content, and adherence to style guidelines. Team members will individually complete a minimum 1 page outline of the report which will be graded as complete or incomplete.

Course Evaluation Summary

| Evaluation | Weight |
|------------------------|--|
| Lab Participation | 10% - attendance and participation in labs |
| Individual Assignments | 10% - Annotated bibliography (3.3%) and 2 outlines (3.3% per outline) grades assigned based on completion and on time submission |
| Mini-Literature Review | 15% - a written review of the impacts of the assigned activity on rivers |
| Proposal | 25% - consists of two parts: 1) a team oral presentation summarizing the proposal (10%), and; 2) a written proposal summarizing the project plan (15%) |
| Final Report | 40% - consists of two parts: 1) a Team oral presentation summarizing the report (15%), and; 2) a written report detailing the project findings and recommendations (25%) |

Your evaluation will base on your knowledge of course materials as substantiated in the completion of the components of the river assessment project. It may not be easy to get a good mark in this course. Here are some ways that may help you obtain a mark of 70 or above in this course. Attend and participate lecture and lab sessions. Before class, make sure you read the entire lecture and reading materials and bring to class concepts, theories and terms that are not clear for you. During class, take reasonable notes, ask questions for clarification of any terms, concepts or theories you have not understood. After class, combine your notes on assigned reading materials and the one you took in the class and learn an integrated concepts, theories and definitions. Ask for help in case you need additional clarification using office hours and lab sessions.

Team Member Evaluation

Peer evaluation is a critical component of this class. Students will be asked to evaluate and provide feedback to team members throughout the term following completion of every major project component (i.e., literature review, proposal and final report). Team members are to be evaluated on the basis of team citizenship (e.g., cooperating with the team, fulfilling responsibilities, helping others when possible, etc.) rather than the relative contributions of the team members to the final product. Evaluations will consist of a grade out of 35 and must be completed individually by each team member for all other members of their team. These evaluations will be incorporated into each student's grade for the major course components (i.e., literature review, proposal and final report) by weighting the assigned team grade by the average rating a team member receives in relation to the average team member weighting to determine each individual team member's final grade. See document in Course OWL page for an example of weighting calculation.

IMPORTANT: It is the responsibility of the members of each team to inform the instructor if serious and irreparable issues arise within a team prior to any of the team assignment deadlines.

Course Schedule

Lectures, Labs, and Readings

This course will be using OWL to deliver lectures, assignments and post grades. Lecture notes will be posted 2 to 7 days prior to a lecture session. It is your responsibility to print out these lectures and bring them to class. The lecture notes contain illustrations, photographs, maps, tables etc... that will make following a lecture easy in class. All assignments will be handed in through OWL – it is the student's responsibility to ensure that the assignment uploaded properly.

Predicted Lecture Schedule

| Week | Topics |
|------|--|
| 1 | A river runs through everywhere: Riverscapes & River Systems |
| 2 | All aboard!!!: Physical and Chemical processes in river systems |
| 3 | All aboard!!!: Physical and Chemical processes in river systems (Cont'd) |
| 4 | Life in the fast lane: River Ecology (Cont'd) |
| 5 | Life in the fast lane: River Ecology (Cont'd) [Mini-Literature Review Due – via Owl] |
| 6 | Life in the fast lane: River Ecology (Cont'd) |
| 7 | Team Presentations |
| 8 | Making waves: Human Impacts on River Ecosystems [Proposal Due – via Owl] |
| 9 | No Lecture – Reading Week |
| 10 | Watching the water go by: River Monitoring Strategies and techniques |
| 11 | No Lecture – Project Completion Activities |
| 12 | Team Presentations |
| 13 | No Lecture – Project Completion Activities |

Note: the lecture schedule is subject to modifications based on weather which may necessitate changes to the lab schedule

Laboratory schedule (Subject to change until Sept 1)

| Week | Topics |
|------|---|
| 1 | How to Write a Literature Review & Proposal |
| 2 | Field and lab techniques for measuring physical and chemical attributes of rivers |
| 3 | Field and lab techniques for measuring physical and chemical attributes of rivers |
| 4 | How to Write a Proposal |

| Week | Topics |
|-------------|---|
| 5 | Field techniques for monitoring ecological attributes of rivers: Benthic invertebrates, Fish, Algae and Ecosystem processes |
| 6 | Lab techniques for monitoring ecological attributes of rivers: Benthic Invertebrates |
| 7 | Proposal Presentations |
| 8 | Data analysis techniques for assessment of river ecosystems |
| 9 | No Lab – Reading Week |
| 10 | Data analysis techniques for assessment of river ecosystems |
| 11 | No Lab – Project Completion Activities |
| 12 | Report Presentations |
| 13 | No Lab – Project Completion Activities |

Assignment Due Dates

| Due Date | Assignment |
|----------------------------------|------------------------|
| 10:25 am, Tuesday, Oct. 1, 2019 | Annotated Bibliography |
| 10:25 am, Tuesday, Oct. 8, 2019 | Mini-Literature Review |
| 10:25 am, Tuesday, Oct. 15, 2019 | Proposal Outline |
| 10:25 am, Tuesday, Oct. 22, 2019 | Proposal Presentation |
| 10:25 am, Tuesday, Oct. 29, 2019 | Written Proposal |
| 10:25 am, Tuesday, Nov. 12, 2019 | Project Report Outline |
| 10:25 am, Tuesday, Nov. 26, 2019 | Project Presentation |
| 10:25 am, Tuesday, Dec. 10, 2019 | Project Final Report |

Course Policies

Late Policy

All components of the river assessment project must be handed in before the allocated deadline. Late submissions of the literature review, written proposal and written report will be penalized at a rate of 10% per day for the first seven days. A mark of 0%-mark will be recorded if work is submitted more than a week late. Individual assignments (i.e., annotated bibliography and outlines) must be submitted prior deadline or will receive a grade of 0. Presentations

not presented on the due date will receive a grade of 0. ***It is the student's responsibility to ensure that uploads to OWL are successful.***

Extensions

If you have genuine extenuating circumstances and will not be able submit an assignment on time, you may submit a written request for extension, clearly outlining why you should be granted an extension. This request must be submitted to the course instructor at least seven days before the assignment is due.

Accommodation

If you have genuine extenuating circumstances and failed to submit an assignment (including assignments worth less than 10% of the total course grade) on time, you must submit a signed doctor's letter or other legitimate documentation explaining why you failed to meet the deadline. This documentation should be submitted directly to the Dean's Office, not the course instructor. It is the Dean's Office that will determine if accommodation is warranted.

Requesting Academic Consideration

Students who experience an extenuating circumstance (illness, injury, or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence form provided that the conditions for submission are met;
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner in order to be eligible for Academic Consideration; or
- (iii) For non-medical absences, submitting appropriate documentation (e.g., obituary, police report, accident report, court order, etc.) to Academic Counselling in their Faculty of registration in order to be eligible for academic consideration. Students are encouraged to contact their Academic Counselling unit to clarify what documentation is appropriate.

Students seeking academic consideration:

- are advised to consider carefully the implications of postponing tests or midterm exams or delaying handing in work;
- are encouraged to make appropriate decisions based on their specific circumstances, recognizing that minor ailments (upset stomach) or upsets (argument with a friend) are not normally an appropriate basis for a self-reported absence;
- must communicate with their instructors no later than 24 hours after the end of the period covered by either the self-reported absence or

SMC, or immediately upon their return following a documented absence.

Academic consideration is not normally intended for the following circumstances:

- Students who require academic accommodation based on an ongoing physical or mental illness (recurring or chronic) or an existing disability. Students with an ongoing physical illness or mental disorder (recurring or chronic) or an existing disability are responsible, in consultation with their doctors or other health professionals, to determine if they are capable of pursuing their studies and, if so, with what accommodations. Students are expected to seek and arrange reasonable accommodations with Student Accessibility Services (SAS) as soon as possible in accordance with the Policy on Academic Accommodation for Students with Disability. Students with pre-existing accessibility plans arranged through SAS may not need to provide additional documentation when seeking academic consideration where such request for consideration relates to their disability and where their accessibility plans allow for coursework deferral or deadline extensions.
- Students who experience high levels of stress related to academic performance (including completing assignments, taking part in presentations, or writing tests or examinations). Students with academic or exam stress should access supports through Student Health and Wellness and Learning Skills Services in order to deal with this stress in a proactive and constructive manner.

NOTE: Also see UWO's Policy on Accommodation for Medical Illness (https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf)

If you have an illness during the term that affects your work or ability to write exams or to complete work on schedule, please contact me as soon as you can, so I that can help with any accommodation.

Additional Statements

Attendance

Attendance at lectures and labs is mandatory and students will be asked to sign in to all schedule lab sessions. However, it is understood that students may miss a class or two due to illness or other issues. Documentation for missed lectures/labs is not required. Nor is perfect attendance required to obtain a high participation mark. Systematic absences will, however, be considered when participation marks are assigned. Regular attendance is thus

strongly recommended. It is the student's responsibility to keep up with course material of missed lectures and seminars.

Statement on Use of Electronic Devices

Students are encouraged to bring their cell phones to class for participation in class polls. Outside of use for polls, students will have their cell phones turned off.

No electronic devices will be allowed during tests and examinations.

Statement on 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, at the following Web site:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit the site below for more information on mental health resources:

<http://www.uwo.ca/uwocom/mentalhealth/>.

Western's commitment to accessibility

The University of Western Ontario is committed to achieving barrier free accessibility for persons studying, visiting and working at Western.

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 661-2111 x 82147 for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar's website.

Support Services

Western's Support Services:

https://accessibility.uwo.ca/students/support_services.html

Student Development Services: <http://www.sdc.uwo.ca/>

Important Dates

September 5: Classes resume
September 13: Last day to add a first term half course
October 14: Thanksgiving Holiday – Department Office Closed
November 4 to November 10: 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 5: Classes end December 6 and 7: Study days
December 8-19: Examination Period