

Western University

GEOG3343A River Ecosystems

Course Outline

Fall 2017

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 GEOG2300 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)

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

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 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 7 pages double spaced and will describe 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

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
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	No Lecture – Reading Week
6	Life in the fast lane: River Ecology (Cont'd) [Literature Review Due – via Owl]
7	Life in the fast lane: River Ecology (Cont'd)
8	Team Presentations
9	Making waves: Human Impacts on River Ecosystems [Proposal Due – via Owl]
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
5	No Lab – Reading Week
6	Field techniques for monitoring ecological attributes of rivers: Benthic invertebrates, Fish, Algae and Ecosystem processes
7	Lab techniques for monitoring ecological attributes of rivers: Benthic Invertebrates
8	Proposal Presentations
9	Data analysis techniques for assessment of river ecosystems
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. 3, 2017	Annotated Bibliography
10:25 am, Tuesday, Oct. 17, 2017	Literature Review
10:25 am, Tuesday, Oct. 24, 2017	Proposal Outline
10:30 am, Tuesday, Oct. 31, 2017	Proposal Presentation
10:25 am, Tuesday, Nov. 7, 2016	Written Proposal
10:25 am, Tuesday, Nov. 14, 2016	Project Report Outline
10:30 am, Tuesday, Nov. 28, 2016	Project Presentation
10:25 am, Tuesday, Dec. 12, 2016	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 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.

NOTE: Also see UWO's Policy on Accommodation for Medical Illness (<https://studentservices.uwo.ca/secure/index.cfm>).

Illness

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. Also, please refer to Western's Policy on Accommodation for Medical Illness:

http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf.

You can download a Student Medical Certificate (SMC) from: <https://studentservices.uwo.ca> under the Medical Documentation heading.

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:

<http://www.uwo.ca/univsec/handbook/appeals/scholoff.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.

Support Services

Registrarial Services: <http://www3.registrar.uwo.ca/index.cfm>

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