1 INSTRUCTIONAL SUPPORT

1.1 Instructor
Instructor: Andrea Bradford, Ph.D., P.Eng.
Office: THRN 1342, ext. 52485
Email: abradfor@uoguelph.ca
Office hours: Please arrange an appointment by email

2 LEARNING RESOURCES

2.1 Course Website
Course material, news and announcements will be regularly posted to the ENGG*6860 CourseLink site. You are responsible for checking the site regularly.

2.2 Required Resources
Required readings will be assigned weekly. Please see the attached reading list.

2.3 Recommended Resources
Other resources to supplement lecture material include:


http://directives.sc.egov.usda.gov/viewerFS.aspx?id=3491


3 ASSESSMENT

3.1 Dates and Distribution

Seminars: 75%
Seminar work is worth 7.5% per week (for 10 weeks of the term). Instructions for seminars will be distributed one week in advance. In addition to completing the required reading, other preparation for the seminar may be required (e.g. preparation of discussion points or questions related to assigned readings, preparation of 5-10 slides on the seminar topic). Most weeks, a submission related to the seminar topic will be due three days after the seminar (e.g. a short (1-2 p) written summary, critique or restoration plan with justification, to demonstrate comprehension and independence of thought).

Oral Exam: 25%
Oral exams will be scheduled the week of December 8.

3.2 Course Grading Policies

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 in
writing, with your name, ID#, and e-mail contact. See the graduate calendar for information on regulations and procedures for Academic Consideration:

http://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/sec_d0e1400.shtml

Accommodation of Religious Obligations: If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations:

http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml

Passing grade: In order to pass the course, students must obtain a grade of 65% or higher.

Late Assignments: Work must be provided on or before the due date in order to be graded.

4 AIMS & OBJECTIVES

4.1 Course Description

Explores the multi-disciplinary principles of stream and wetland restoration and the tools and techniques for restoration design. Restoration design is approached from a water resources engineering perspective with emphasis on hydrological and hydraulic techniques. Numerous case studies examined as a means to identify more successful design approaches.

Prerequisite(s): ENGG*3650 Hydrology (or equivalent)

4.2 Course Aims

The main goals of this course are (1) to develop a breadth of understanding in the multi-disciplinary principles of stream and wetland restoration; (2) to develop a depth of understanding regarding stream and wetland processes (e.g. hydrologic, geomorphic, water quality); and (3) to develop a capacity to apply this understanding to develop goals and plans for stream and wetland restoration projects

4.3 Learning Objectives

At the successful completion of this course, the student will be able to:

1. Describe the evolution of river engineering and stream restoration as well as the urgency and challenges of aquatic ecosystem restoration
2. Describe stream and wetland processes and the effects of human activities on these processes.
3. Propose approaches to investigate root causes of stream and wetland degradation.
4. Propose appropriate goals for stream and wetland restoration projects
5. Illustrate how various grade and streambank stabilization methods function.
6. Describe a procedure for alluvial channel design.
7. Identify appropriate stream and wetland restoration techniques to achieve various goals
8. Critique alternative approaches to stream restoration
9. Describe approaches to minimize risk in stream and wetland restoration projects
4.4 Instructor’s Role and Responsibility to Students

The instructor’s role is to develop and deliver course material in ways that facilitate learning for a variety of students. Selected lecture notes will be made available to students on CourseLink but these are not intended to be stand-alone course notes. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes will be the principal venue to provide information and feedback for assignments and project.

4.5 Students’ Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during scheduled class times. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who do (or may) fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

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.

Recording of Materials: Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

5 Teaching and Learning Activities

5.1 Timetable

Seminar:
Tuesday 1:00-2:30 RICH Room: 3527

Lecture:
Tuesday 2:30-4:00 RICH Room: 3527

5.2 Course Topics and Schedule

Note: Timing of course content subject to adjustment at discretion of the instructor.

<table>
<thead>
<tr>
<th>Week</th>
<th>Seminar</th>
<th>Lecture</th>
<th>Resources</th>
<th>Required Reading</th>
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<tr>
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<td>Scheduling, Expectations</td>
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<td>Intro to Streams and Wetlands</td>
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<tr>
<td>Week</td>
<td>Seminar</td>
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<tr>
<td>2</td>
<td>Sept 16</td>
<td>Restoration Challenges Process-based Restoration</td>
<td>Overview of Stream Corridors and Wetlands</td>
<td>ON Chapter 2, 4 (4.1, 4.2, 4.3 and 4.6) NRCS Chapter 1</td>
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<td>4</td>
<td>Sept 30</td>
<td>GW-SW Interactions Thermal Regime</td>
<td>Wetland Water Balance</td>
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<td>Oct 14</td>
<td>Thanksgiving and Fall Study Day</td>
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<td>8</td>
<td>Nov 4</td>
<td>Environmental Flow Assessment</td>
<td>Looking to the Watershed to Save the Stream</td>
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<td>9</td>
<td>Nov 11</td>
<td>Urban Streams</td>
<td>Introduction to Streambank and In-stream Restoration Techniques</td>
<td>NRCS TS 14G, 14I</td>
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<td>11</td>
<td>Nov 25</td>
<td>2 Stage Design Riffle Reconstruction Step-pool</td>
<td>Channel Design II (Alignment and Variation)</td>
<td>NRCS CH 12</td>
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<td>12</td>
<td>Dec 2</td>
<td>Channel Design Case Study (student-led)</td>
<td>Implementation, Monitoring, Research</td>
<td>ON Chapter 11.</td>
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5.3 Other Important Dates

Drop Date: The last date to drop one-semester courses, without academic penalty, is Friday, October 31, 2014. Refer to the Graduate Calendar for the schedule of dates:
http://www.uoguelph.ca/registrar/calendars/graduate/current/sched/sched-dates-f10.shtml
6 LAB SAFETY

Safety is critically important to the School and is the responsibility of all members of the School: faculty, staff and students. As a student in a lab course you are responsible for taking all reasonable safety precautions and following the lab safety rules specific to the lab you are working in. In addition, you are responsible for reporting all safety issues to the laboratory supervisor, GTA or faculty responsible.

7 ACADEMIC MISCONDUCT

Academic misconduct is behaviour that erodes the basis of mutual trust on which scholarly exchanges commonly rest, undermines the University's exercise of its responsibility to evaluate students' academic achievements, or restricts the University's ability to accomplish its learning objectives.

The University takes a serious view of academic misconduct and will severely penalize students, faculty and staff who are found guilty of offences associated with misappropriation of others' work, misrepresentation of personal performance and fraud, improper access to scholarly resources, and obstructing others in pursuit of their academic endeavours. In addition to this policy, the University has adopted a number of policies that govern such offences, including the policies on Misconduct in Research and Scholarship [http://www.uoguelph.ca/research/forms_policies_procedures/index.shtml](http://www.uoguelph.ca/research/forms_policies_procedures/index.shtml) and the Student Rights and Responsibilities regulations. These policies will be strictly enforced.

It is the responsibility of the University, its faculty, students and staff to be aware of what constitutes academic misconduct and to do as much as possible through establishment and use of policies and preventive procedures to limit the likelihood of offences occurring. Furthermore, individual members of the University community have the specific responsibility of initiating appropriate action in all instances where academic misconduct is believed to have taken place. This responsibility includes reporting such offences when they occur and making one's disapproval of such behaviour obvious.

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 should also be aware that if they find their academic performance affected by medical, psychological or compassionate circumstances, they should inform the appropriate individuals, (instructors, program counsellors, graduate advisors) and follow the available procedures for academic consideration outlined in the University's calendars.

7.1 Resources

The Academic Misconduct policy is detailed in the Graduate Calendar:

[https://www.uoguelph.ca/registrar/calendars/graduate/2014-2015/genreg/sec_d0e1780.shtml](https://www.uoguelph.ca/registrar/calendars/graduate/2014-2015/genreg/sec_d0e1780.shtml)

A tutorial on Academic Misconduct produced by the Learning Commons can be found at:

[http://www.academicintegrity.uoguelph.ca/](http://www.academicintegrity.uoguelph.ca/)

The School of Engineering has adopted a Code of Ethics that can be found at:

[http://www.uoguelph.ca/engineering/undergrad-counselling-ethics](http://www.uoguelph.ca/engineering/undergrad-counselling-ethics)
8 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 for a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.uoguelph.ca/csd/

9 RECORDING OF MATERIALS

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

10 RESOURCES

The Academic Calendar is the source of information about the University of Guelph’s procedures, policies and regulations which apply to graduate and diploma programs: http://www.uoguelph.ca/registrar/calendars/graduate/current/