INTRODUCTION TO STREAM RESTORATION  
BAE 532 (CE542)  
SPRING 2007  
3 CREDIT HOURS  
TUESDAY AND THURSDAY: 6:30 PM TO 7:45 PM

INSTRUCTOR  
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PREREQUISITES  
CE 341 (or equivalent) and engineering standing or consent of instructor.

COURSE DESCRIPTION  
The course will introduce the principles of fluvial geomorphology for application in restoring impaired streams. Topics will include channel formation processes (hydraulics/hydrology), stream assessment and survey procedures, the Rosgen stream classification system, channel evolution, reference reaches, regional curve development, sediment transport, BEHI, in-stream structures, restoration options for incised channels, vegetation stabilization and riparian buffer development, and restoration evaluation and monitoring. Special emphasis will be placed on strategies for team building and restoration planning.

COURSE GOALS  
Students completing this course should be able to:
1. Understand stream processes (hydrology/hydraulics) related to channel formation.
2. Identify bankfull in the field, measure and compute bankfull dimensions, and apply the Rosgen method of stream classification.
3. Assess the current hydraulic state of a stream, determine its stream evolution stage, and evaluate the level of restoration required.
4. Understand and employ strategies for developing a multi-disciplinary team for stream restoration planning.
5. Outline a restoration plan with the goal of restoring the stream's hydraulic and habitat functions.
6. Design a monitoring program to evaluate the success of a restoration project.

ATTENDANCE  
I am under no obligation to instruct students who do not attend class. If you miss class for any other reason than the following, you are not entitled to make-up sessions or any other special treatment. The following are acceptable reasons for excused absences: serious illness, illness or death of a family member, University related trips, major
religious holidays, and other circumstances that I deem reasonable. It is my preference that you inform me of the absence in advance, if possible. The burden of proof is on you to provide sufficient documentation regarding the nature of an absence.

TEXT
The readings for this course will be taken primarily from:


Additional handouts will be provided, as needed.

GRADES
Course grades will be based on possible points as follow:

Homework: 20  
Field Exercise: 10  
Small group project: 10  
Team project report: 20  
Team project oral presentation: 5  
Participation (in-class/field trips): 5  
Midterm: 15  
Final: 15

Grades for the field exercises as well as the team report and presentation will incorporate team member evaluations. Team member input into the grading process is designed to encourage active and even participation among team members.

I believe that you will also learn from your classmates. To that end, I will post the following ungraded assignments, so that the entire class can learn from the work of their classmates: team project report, team project oral presentation, and small group project

Letter grades will be assigned strictly by percentage:

A = 90-100%  
B = 80-89.9%  
C = 70-79.9%  
D = 60-69.9%  
F < 60%

Make-up exams will only be given in extreme circumstances. The instructor reserves the right to change the date of an exam with advance notice.
Explanations of the assignments are provided in the relevant sections. I will provide additional details, as needed.

**GRADUATE STUDENTS**

Graduate students are required to do extra work, above that required by undergraduate students in the course. The extra work will come from additional efforts in the team report and presentation, small group project, and during field exercises. Examples of additional work include acting as team leader (i.e. coordinating tasks, reports and presentation) and assuming a greater percentage of the tasks in the team report and presentation as well as the small group project.

**ELECTRONIC CAPABILITIES**

Today, electronic retrieval and dissemination is a necessity. A significant amount of communication occurs electronically, so it is essential that students develop the ability to use electronic resources effectively. Therefore, students in this class are required to obtain a U-connect email account to obtain and submit class materials via the Blackboard system.

**U-Connect**

All registered students are assigned a U-Connect email account. To access your U-Connect account, go to [http://u-connect.uky.edu/](http://u-connect.uky.edu/). If you do not know how to log-in to your U-Connect account, go to the “Quick Links” section on the right of the webpage and click on “Account Activation: Students.”

**Blackboard**

Students are required to enroll in the on-line version of **BAE 599 Introduction to Stream Restoration** that has been created in the University of Kentucky’s Blackboard system. To enroll in the Blackboard system, students must obtain an Active Directory account (or a Medical Center account). To obtain an Active Directory account, follow the instructions posted on [http://www.uky.edu/IT/CustomerService/Accounts/activedirectory.html](http://www.uky.edu/IT/CustomerService/Accounts/activedirectory.html).

After obtaining your Active Directory account, proceed to the Blackboard website located at [http://www.uky.edu/Blackboard](http://www.uky.edu/Blackboard). Click on the “Do you need to Self-Enroll?” link and follow the provided instructions. Once enrolled, you may now log-in to the Blackboard version of the class.

I will post items such as announcements, class materials, instructions, and links to relevant web sites. Additionally, I expect team members to use the Discussion Board for coordination of your team project.

Prior to the second class, each student should know their U-Connect email address and be enrolled in the Blackboard version of this class. Go to the Discussion Board and click on the forum titled “Introduction.” In this forum, post the following information about yourself:
1. Name,
2. U-Connect email address for correspondence,
3. Undergraduate majors or degrees (and any other relevant degrees or certification),
4. Past experience, if any, in stream restoration,
5. Reason for taking the class,
6. Thesis/Dissertation topic (if applicable), and
7. Your future career goals.

ASSIGNMENT REQUIREMENTS

Homework
Homework assignments will be given for select lecture topics to allow students to further develop their skill sets. Unless otherwise indicated by the instructor, homework responses must be typed. Homework assignments are due one week from the date of assignment, unless otherwise noted by the instructor. Homework assignments are due at the beginning of class. **Late homework assignments will not be accepted.**

Field Exercise
A sound understanding of the fundamentals of stream restoration cannot be accomplished in the classroom alone. As such, students will participate in a detailed field exercise to develop basic field techniques for collecting stream assessment data. The skill sets learned during the field exercise will assist students in the team project portion of the class.

The field exercise will be completed as a team project, and as such, input from team members will be incorporated into the student’s grade. I will provide detailed data collection sheets and instructions to assist the teams in completing the field exercise.

Small Group Project
The purpose of the small group project is to allow students to investigate a specific component related to stream restoration. The instructor will provide the students with a theme and a list of subtopics from which the small groups can choose.

Note that several employers request interviewees to submit writing samples highlighting the individual's abilities. Such an assignment can serve this purpose.

Team Project Report and Presentation
The purposes of the team report and presentation are:

1. To enable you to build a strong multi-disciplinary team and develop project management skills.
2. To gain experience in stream assessment, use of the Rosgen stream classification system, identification and utilization of reference reaches, natural channel design concepts, and evaluation and monitoring techniques.
3. To develop skills necessary for the development of professional quality reports and presentations.
Teams will be required to submit an electronic copy of the written report by April 30, 2007. Teams will be required to submit an electronic copy of their presentation before delivering their presentation.

Grading of the team reports will be a combination of instructor evaluation, team member evaluation, and evaluation by other teams. A detailed evaluation sheet will be provided as a guideline. The instructor reserves the right to adjust external team evaluations.

**Participation**
Interaction with the instructor as well as other students is expected. Participation will be graded based on class and field trip participation as well as discussion board participation. Grading for participation will be based not only on the degree to which one participates but also on the quality of that participation. Students are expected to post serious comments to topics. Comments such as “I agree” will not result in a high participation score. Comments posted in a rush at the end of the semester will not result in a high participation score.

**Without exception, ALL communications, whether in-class or via the discussion board, must be professional, courteous and respectful.**

**Midterm**
The midterm exam is scheduled for March 8, 2007. The final is scheduled for May 1, 2007. The purpose of the exams is to provide students with an incentive to study the course materials. Thus, the exams will ask fairly direct questions related to the course material. As such, it should be fairly easy for those who have studied the materials and difficult for those who have not.

**CHEATING AND PLAGIARISM**
DO NOT CHEAT OR PLAGIARIZE. There is absolutely no excuse for these actions, and the results will be very unpleasant. At a minimum, you will receive a failing grade for the course. If you are having difficulties with the course or do not understand proper citation methods, please schedule a time to discuss the issue with the instructor.