Fall 2015

_Sustaining River Hydroecosystems for Aquatic and Riparian Biota_

FW680-A2 and BZ680-A2: 3 credits (courses are identical)

W 10-11:50 am (107 Wagar); Recitation W 12:00-12:50 pm (107B Wagar)

Prerequisites: One course each in ecology, freshwater biology, and statistics

Instructors: Kurt Fausch (FWCB), LeRoy Poff (Biology)

Course description: Applying the concepts and principles of freshwater ecosystem structure and function to develop a multidisciplinary and integrated understanding of the approaches and methods for restoring and sustainably managing these systems in the face of increasing human demands and rapid climate change

Course objectives:

- Students will gain an integrated, multidisciplinary understanding of the geomorphological, hydrological, and ecological principles that govern river hydroecosystem structure and function and the ecology of river and riparian organisms from local to watershed scales
- Students will apply new knowledge to the challenge of restoring and managing river ecosystems for sustainable freshwater and riparian habitat and biota, including fish, aquatic invertebrates, and riparian vegetation and biota, as well as aesthetic values for humans
- Students will also grapple with the legal, regulatory, and social context of river ecosystem management, particularly in the scientific-social framework of environmental flows, and address the need for adaptation to climate change
- Students will be required to read assigned papers and synthesize concepts and applications from a wide variety of disciplinary perspectives, and to participate in and lead a class discussion of particular topics
- Student groups will develop a multidisciplinary project focused on social-ecological issues about restoration and sustainable management of a particular river ecosystem (see below)

Student led discussions: Students will work in pairs to gather and review relevant literature on a topic, prepare a 20-min synopsis to present to the class, and facilitate a discussion of two readings from this literature. Specific guidelines for this assignment will be handed out and discussed early in the semester.

Group project and presentation: By the third week of the semester, interdisciplinary student groups will define a project of interest to be researched and presented to the entire class at semester’s end. The project will focus on the social-ecological-geomorphological issues that will be required for restoration and sustainable management of freshwater ecosystems and their biota at the whole basin scale, or within a major sub-watershed (e.g., Yampa River watershed) as compared to current management policies and practices. Each group will develop an interdisciplinary
analysis, prepare a written report, and give an oral presentation during the last two weeks of class. Specific guidelines will be handed out and discussed early in the semester.

**Final grades:** Students will be evaluated on the basis of class attendance and participation, preparing and presenting a synthetic synopsis of a body of research, facilitating a discussion, active participation in a small interdisciplinary group to develop a synthetic written analysis of a topic approved by the instructors, and making a class-wide presentation on this project at the end of the semester.

• Attendance and participation in discussions: 15%
• Synopsis of literature: 15%
• Selecting papers and leading discussion: 15%
• Mid-term DRAFT project outline: 15% (*due Wed 14 October*)
• Group project and presentation: 40% (25% for written project report, *due Wed 9 December*; 15% for presentation)

**Expectations:**

1. This course is for graduate students only. Hence we have high expectations for you in terms of ranging widely and delving deeply to build and enrich your knowledge on relevant topics related to sustaining river hydroecosystems.

2. We expect students to attend class, unless they have other professional obligations (i.e., professional meetings they must attend – please notify us in advance). Attendance is part of your grade (see above). You are responsible not only for your own learning, but that of other students (i.e., we are all in this together), and others can’t learn from you if you’re absent.

3. Late assignments will be docked 10% per day, equivalent to one letter grade. None will be accepted after four days. Don’t be late!

4. Plagiarism is not allowed. Writing assignments with plagiarized statements will receive low grades (i.e., D or below), and substantial plagiarism will be grounds for failing the assignment. If you are unsure, see “Plagiarism: What it is and how to recognize and avoid it”, by Indiana University at [http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml](http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml). We reserve the right to use various software packages (e.g. Google Scholar, SafeAssign in RamCT) to assess plagiarism.

5. Cheating on assignments is grounds for failing the assignment, or in egregious cases, failing the course.

6. CSU has a Honor Pledge, and we expect you to follow it (see [http://tilt.colostate.edu/integrity/pledge/](http://tilt.colostate.edu/integrity/pledge/)). It reads “*I have not given, received, or used any unauthorized assistance.*” We do hope that students will discuss course information and collaborate, because this leads to learning. However, we then expect you to do your own work on papers and presentations.