

BIOE 155 Freshwater Ecology Syllabus Summer 2017

Course Description:

Provides an overview of the physical, chemical, and biological processes that characterize inland waters such as lakes, streams, rivers, and estuaries. Also addresses relationships between humans and freshwater, and discusses these challenges in conservation.

Instructor:

David Fryxell

Office: Long Marine Lab, COH trailer

Email: dfryxell@ucsc.edu

Office Hours: TuTh 12:30-1:30 or by appointment

Time: TuTh 9:00-12:30

Location: COH 118

Required Texts:

Brönmark, C. and Hansson, L. (2005) *The Biology of Lakes and Ponds*. Oxford University Press, Oxford. (B&H)

Giller, P. S. and Malmqvist, B. (1998) *The Biology and Streams and Rivers*. Oxford University Press, Oxford. (G&M)

Readings:

Readings for each lecture (2 lectures per class) will typically include one chapter from the text plus one scientific paper from the primary literature. Primary literature readings will be uploaded on Canvas. Each lecture will end with a short quiz on the assigned primary literature reading followed by a discussion; therefore, it is critically important that you keep up with the readings. This class is built on a model of sustained effort and participation, as reflected in the grading breakdown (see below). Cramming interspersed with periods of inactivity will not be a successful strategy. After each lecture, a PDF of the lecture slides will be uploaded to Canvas.

Academic integrity:

Cheating will not be tolerated. By enrolling in the university, students are automatically agreeing to abide by policies, including those on academic misconduct. Academic integrity and scholarship are core values that should guide our conduct and decisions as members of the UCSC community. Plagiarism and cheating contradict these values, and so are very serious academic offenses. Penalties can include a failing grade in an assignment or in the course, or suspension or expulsion from the university. Students are expected to familiarize themselves with and follow citation practices (<http://nettrail.ucsc.edu/ethics/index.html>) and the university's Rules of Conduct regarding student conduct and discipline: <http://www2.ucsc.edu/judicial/handbook.shtml>.

Classroom Accommodations:

If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me as soon as possible. Contact DRC by phone at [831-459-2089](tel:831-459-2089) or by email at drc@ucsc.edu for more information.

Grading:

Lentic Exam: 30 points

Lotic Exam: 30 points

Reading Quizzes (10): 20 points

Presentations (2): 10 points

Participation: 10 points

Presentations:

(1) After each lecture, 1-2 students assigned that lecture will present for ~5-10 minutes on an interesting freshwater organism of their choosing. Each student will do this once. Grades will be based on effort and creativity. Content is fair game for exams.

(2) On the final lecture slot, students will present on a current event related to freshwater conservation. Presentations will be 10 minutes and slideshow-based, with this structure: (A) Introduction/Background, (B) Current Event, (C) Implications for the ecology of freshwater organisms, and (D) Implications for humans.

Lecture structure:

Lecture (45-60 min)

Reading quiz (5 min) (no makeups)

Primary literature discussion (20 min)

Organism presentation (10 min)

Break (10 min), transition to second lecture

Date	Topic	Readings
Part 1: Lentic		
Tu Jun 27	Class 1	
Lec 1	Why study freshwater ecology?	
Lec 2	Overview of lake ecosystems (no quiz)	B&H Ch 1 Forbes 1887
Th Jun 29	Class 2	
Lec 3	Physical and chemical processes in lakes	B&H Ch 2 Schindler 1974
Lec 4	Lake organisms and adaptations (Email me your cool organism by tomorrow)	B&H Ch 3 Hairston and Dillon 1990

Tu Jul 4	NO CLASS – Independence Day	
Th Jul 6	Class 3	
Lec 5	Population and community ecology of lakes	B&H Ch 4 and 5 Carpenter 1985
Lec 6	Ecosystem ecology of lakes	B&H Ch 6 Lindeman 1942
Tu Jul 11	Class 4	
Lec 7	Human impacts on lakes (no quiz)	
Exam	LENTIC EXAM	
Part 2: Lotic		
Th Jul 13	Class 5	
Lec 8	Overview of stream and river ecosystems (Email me your current event for approval)	G&M Ch 1 & 2
Lec 9	Physical and chemical processes in streams	G&M Ch 3 Likens et al. 1970
Tu Jul 18	Class 6	
Lec 10	Stream organisms and adaptations	G&M Ch 4 & 5 Vannote et al. 1980
Lec 11	Population ecology in streams	G&M Ch 7 Schindler et al. 2010
Th Jul 20	Class 7	
Lec 12	Community ecology in streams	G&M Ch 8 Power 1990
Lec 13	Ecosystem ecology	G&M Ch 6 Taylor et al. 2006
Tu Jul 25	Class 8	
Lec 14	Human impacts on streams (no quiz)	G&M Ch 9 Sabo et al. 2010
	LOTIC EXAM	
Th Jul 27	Class 9	
	Current events presentations	
	Current events presentations	