

**Freshwater Ecology (BIOL 581)**  
**Fall 2008**  
**SCX5, MWF 10:30 AM - 11:20 AM**

**Instructor:** Dr. John Hutchens

**Office:** SCI 126B

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**Office hours:** MWF 9:30 – 10:30 AM; MF 11:30 AM – 2:00 PM

**Course web page:** <http://ww2.coastal.edu/jjhutche/bio481.htm>

**Prerequisite:** Principles of Ecology (BIOL 370) or its equivalent

**Required text:** Dodds, W.K. 2002. Freshwater Ecology: Concepts and Environmental Applications. Academic Press.

**Objectives:** My objective is to provide you with an understanding of the applied and theoretical aspects of freshwater systems. Freshwater ecology is a diverse field that studies how organisms in streams, lakes, wetlands, and groundwater interact with their wet environment. Consequently, we will cover a wide range of topics that will allow you to understand and appreciate how freshwater ecologists see the world, what kinds of questions they ask, and the diversity of freshwater organisms and environments.

**Student Learning Outcomes:** Students who successfully complete this course will be able to:

1. Describe the hydrologic factors operating in lakes, streams, and wetlands.
2. Describe the biodiversity within lakes, streams, and wetlands.
3. Describe how nutrients cycle in lakes, streams, and wetlands.
4. Describe dynamics of temperature and oxygen in lakes, streams, and wetlands.
5. Describe how community structure in lakes, streams, and wetlands is affected by predation, competition, and mutualism.
6. Describe patterns in ecosystem structure and function in lakes, streams, and wetlands.
7. Describe how landscapes influence the ecology of lakes, streams, and wetlands.

**Grading:** Your grade for the lecture portion of this class is based on three lecture exams, a comprehensive final exam, four homework assignments, a term paper, a class presentation of the term paper topic, and class participation. Exams will consist mostly of short answer questions. Exams will cover material from both lecture notes and the book, and include both factual and analytical types of questions. Analytical questions will require you to apply your knowledge as well as interpret data and graphs. Homework assignments will require answering a few questions based on short readings or data analysis. Late homework assignments will be penalized by 10% for each week day they are late. The writing assignment will consist of an 8-10 page research paper focused on some aspect of freshwater ecology. You will base your paper on at least 15 peer-reviewed scientific papers. The due date for one paragraph describing your research paper is September 12, and the complete paper is due November 21. I will be happy to comment on a first draft of the paper if it is submitted *at least 2 wk* before the final due date. Late papers will be penalized by 10% for each day they are late. Term paper presentations to the class will be on Nov 21 or later at a mutually convenient time.

Cheating and plagiarism will not be tolerated, and a grade of F will be given for the assignment.

**Attendance:** Attending lecture is not mandatory, but it is expected and the key to doing well in this class. Attendance is mandatory for exams—make-up exams are only given for university-excused absences (see the CCU 2008/2009 Catalog, pp. 47 for details).

Point Distribution:

Assignment	Points	% of total
Exam 1	100	15%
Exam 2	100	15%
Exam 3	100	15%
Final Exam	100	15%
Homework	100	15%
Participation	30	5%
Term paper	100	15%
Presentation	30	5%
Total	660	

Grading scale:

Grade	%	Points
A	90-100	591 - 660
B+	87-89	571 - 590
B	80-86	525 - 570
C+	77-79	505 - 524
C	70-76	459 - 504
D+	67-69	439 - 458
D	60-66	393 - 438
F	0-59	< 393

**Learning disabilities:** Students with documented learning disabilities should see me at the beginning of the semester so special arrangements can be made, if necessary, for your success in this course.

**Reminder:** Turn OFF your cell phones before class!

**Schedule:** This schedule is tentative and subject to change.

Week	Dates	Topic	Readings
1	Aug 20 & 22	Introduction; Properties of Water	1, 2
2	Aug 25 – 29	Movement of light, heat, and chemicals in water	2, 3
3	Sep 3& 5; <b>Sep 5: Homework 1 due</b>	<i>Sep 1—Labor Day Holiday</i> Hydrology & Physiography of Groundwater & Wetlands	4, 5
4	Sep 8 – 12; <b>Paper topics due-Sep 12</b>	Physiography of Streams	5
5	Sep 15 - 19 <b>Exam 1-Sep 15</b>	Physiography of Lakes	6
6	Sep 22 – 26	Microbes and Plants, Animals	8, 9
7	Sep 29 - Oct 3; <b>Oct 3: Homework 2 due</b>	Biodiversity, General Chemistry and Redox	10, 11
8	Oct 6 & 8	Oxygen and Photosynthesis <i>Oct 10—Student Holiday</i>	11
9	Oct 13 - 17 <b>Exam 2-Oct 13</b>	Carbon	12
10	Oct 20 – 24 <b>Last drop day-Oct 24</b>	Nitrogen, Phosphorus, and Iron	13
11	Oct 27 – 31; <b>Oct 31: Homework 3 due</b>	Nutrient Use and Limitation; Eutrophication	16, 17
12	Nov 3 - 7	Eutrophication; Microbial Ecology	17, 18
13	Nov 10 – 14 <b>Exam 3-Nov 10</b>	Microbial Ecology; Predation and Food Webs	18, 19
14	Nov 17 – 21; <b>Papers due-Nov 21</b>	Interactions/Communities	20
	Nov 24 - 28	<i>Thanksgiving Break</i>	
15	Dec 1 -5; <b>Dec 3: Homework 4 due</b>	Ecosystems and Landscapes	22, 23
	<b>Wed, Dec 10, 11 AM</b>	<b>Final Exam</b>	