Freshwater Ecology (BIOL 481)
Fall 2016
SCI2 206, TTh 1:40 - 2:55 PM

Instructor: Dr. John Hutchens
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Office Hours: MW 10:00 AM – 1:30 PM, by appt, or just stop by
Course web page: http://ww2.coastal.edu/jjhutche/bio481.htm
Co-requisite: Freshwater Ecology Laboratory (BIOL 481L)
Prerequisite: Principles of Ecology (BIOL 370) or its equivalent
Required text: Dodds, W.K and M.R. Whiles. 2010. Freshwater Ecology: Concepts and Environmental Applications. 2nd Edition. Academic Press.

Course Description from CCU Catalog: Interactions of physical, chemical, and biological properties of freshwater ecosystems (i.e., groundwater, wetlands, lakes, and streams).

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 Freshwater Ecology is determined by your performance in both lecture and lab. The lecture portion comprises 73% of your grade while the lab portion comprises 27%. You must pass both the lecture and lab portions of this class to receive a passing grade. You receive the same grade for lecture and lab.

Your grade for the lecture portion of this class is based on three lecture exams, a final exam, three homework assignments, 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 questions based on either a reading of the primary literature or data analysis. Late assignments will be penalized by 10%. Classroom participation includes attendance and involvement in classroom activities.

Cheating on exams and plagiarism on homework assignments will not be tolerated, and a grade of F will be given for the assignment. Cell phones must be put away during exams.

CCU Student Honor Pledge: "Coastal Carolina University is an academic community that expects the highest standards of honesty, integrity and personal responsibility. As members of this community, we are accountable for our actions and are committed to creating an atmosphere of mutual respect and trust. On my honor, I pledge:
- That I will take responsibility for my personal behavior; and
- That I will actively oppose every instance of academic dishonesty as defined in the Code of Student Conduct.

From this day forward, my signature on any University document, including tests, papers, and other work submitted for a grade is a confirmation of this honor pledge."

Point Distribution:

Assignment	Points	% of total
Exam 1	100	14%
Exam 2	100	14%
Exam 3	100	14%
Final Exam	100	14%
Homework	100	14%
Participation	30	4%
Lab	200	27%
Total	730	

Grading scale:

Grade	%	Points
A	90-100	653 - 730
B+	87-89	631 - 652
B	80-86	580 - 630
C+	77-79	558 - 579
C	70-76	507 - 557
D+	67-69	485 - 506
D	60-66	434 - 484
F	0-59	< 434

Attendance: Attending lecture is not mandatory, but it is the key to doing well in this class. Attendance is mandatory for exams—make-up exams are only given for university-excused absences (see http://www.coastal.edu/policies/pdf/acad-125classattendance.pdf for details). If you miss an exam you must contact me as soon as possible (within 24 hours) about the *possibility* of making up an exam. If you know you are going to be absent for an exam, you must contact me *as soon as possible before the exam* in order to schedule a make-up.

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!

Tips for success:

- This is an upper-level course. You are expected to learn a lot. For many of you, this means you need to work hard and study effectively. I recommend studying the material in this class EVERY day—work with the material, do not just skim it.
- I provide the lecture PowerPoint slides, but you still need to take good notes including paying particular attention to figures from the book and terms and examples not in the book. Studies show that writing notes helps you learn so do not rely solely on the slides. In fact, you will find the slides are really a guide to what we're discussing in class versus a detailed set of notes.
- Exams are based primarily on lecture material. However, I frequently use examples from the book and outside readings. Focus on lecture notes and read the sections in the book that we talk about in class. Reading the book is very helpful and reinforces the lecture. Reading the book ahead of lecture is probably best, but you will not be responsible for everything that is in each assigned chapter, just the topics we discuss in lecture, so re-reading the sections we cover in lecture will help on exams.
- Just because something seems clear in lecture, it does not mean that you know the topic or term well enough to do well on an exam where you may need to apply this topic to a novel situation. Also, exam points will come from short-answer questions where you have to provide the answer instead of choosing from a list of options. While this type of question requires more from you, it also allows you to earn partial credit.
- Details matter. I expect you to learn the details of definitions, concepts, and experiments. For example, wouldn't you like to be confident that your doctor actually knows the details well enough to diagnose your illness and prescribe the correct medication?
- Ask questions when something does not make sense or if you have a relevant point to make. I like questions. Come by my office or e-mail to ask more questions.

Schedule: This schedule is tentative and subject to change.

Week	Dates	Topic	Readings
1	Aug 23 & 25	Introduction; Properties of Water	1, 2
2	Aug 30 & Sep 1	Movement of light, heat, and chemicals in water	2, 3
3	Sep 6 & 8 *Sep 5: Labor Day*	Hydrology & Physiography of Groundwater & Wetlands	4, 5
4	Sep 13 & 15 **Exam 1: Sep 15**	Physiography of Streams	5, 6
5	Sep 20 & 22	Physiography of Lakes	7
6	Sep 27 & 29 **Homework 1: Sep 27**	Microbes and Plants	8, 9
7	Oct 4 & 6 *Oct 7: Student holiday*	Multicellular Animals, Biodiversity	10, 11
8	Oct 11 & 13 **Exam 2: Oct 13**	Redox and Oxygen	12
9	Oct 18 & 20	Carbon	13
10	Oct 25 & 27 *Oct 27: Last day to W* **Homework 2: Oct 25**	Nitrogen, Phosphorus, and other nutrients	14
11	Nov 1 & 3	Nutrient Use and Limitation	17
12	Nov 10 *Nov 8: Election day holiday* **Exam 3: Nov 10**	Eutrophication	18
13	Nov 15 & 17	Predation and Food Webs	20
	Nov 21 – 25	*Thanksgiving Break*	
14	Nov 29 & Dec 1 **Homework 3: Nov 29**	Interactions/Communities	21, 22
15	Dec 6 *Dec 8: Study day*	Ecosystems and Landscapes	24
	Tue, Dec 13, 1:30 PM	**Final Exam**	