BIOL 390

Spring 2014

Lecture: MWF 11:00-11:50 in Sage 243.

Lab: Th 08:30-11:30 in Sage 163. Or in the field, in which case dress accordingly!

Instructor: Dr. Jonathan Freedman

Office: Sage 149

Phone: 386-822-8191

Email: jfreedma@stetson.edu

Office Hours: W12:00-2:00 and Th 11:30-1:30.

I will reply to emails within 24 hours (often sooner) during the week and generally also on weekends. I have an open-office policy, so please also feel free to call or stop by outside of office hours, and if I have time I'll be happy to chat.

Course Description: The study of the relationship between fishes and their environment, with a focus on the factors that influence the abundance and distribution of organisms. In the lab sessions students will conduct independent investigations of ecological principles in local habitats and in the lab. Prerequisites: BIOL 141P, (142P, 243Q, and 244).

Textbooks and Other Materials:

Ross, S.T. 2013. Ecology of North American Freshwater Fishes. University of California Press.

Page L.M. & B.M. Burr. 2011. Peterson Field Guide to Freshwater Fish of North America. Second Ed.

On-line Resources: Course information, syllabus, schedule, lecture notes, and quizzes will be through the course's BlackBoard site.

BIOL 390

Course Goals & Objectives

By the end of the course, students will:

- Gain an advanced understanding of the principles of scientific design, analysis, and interpretation as it relates to fish and fisheries ecology.
- Understand environmental factors that influence fish ecology from the individual to ecosystem levels.
- Understand and critically analyze ecological issues on local, regional, and global scales.
- Understand the role and responsibilities of humans in the environment.
- Learn about ecosystem services.
- Gain hands-on experience with ecological study design and implementation.
- On all tests, exams, and assignments, students will be able to recognize and apply the principles of correct scientific design and interpretation.
- Students will develop and implement a class project to test ecological theories and applications.
- On all assignments and discussions, students will effectively communicate original scientific research.

Grading and Assessment: Grading will be based on your total points from tests, exams, assignments, quizzes, and participation as follows:

90-100%:	Α
80-89%:	В
70-79%:	С
60-69%:	D
<60%:	F

Point values for this course:	
Lab Reports, Field Journal & Participation	15%
Final Project Report	15-20%*
Class Assignments, Homework, & Participation	15%
Final Term Paper	15-20%*
Presentation	5%
Lecture & lab quizzes	5%
Midterm	10%
Final Exam	15%
Total	100%

*whichever is higher

BIOL 390

Quizzes and assignments will be assigned and completed in class or online using BlackBoard. Smaller assignments and drafts may be graded using non-letter grades (checks). Check plus: exceptional; check: satisfactory; check minus: unsatisfactory. Examples for an assignment worth 10 points: check+ 10/10; check 9/10, check- 6/10.

For class discussions and modules, students will work independently or in small groups (3-4 students) to answer questions about ecological issues and the lecture material. Online participation will include reading journal articles and completing on-line activities and discussing them in online forums on the course's BlackBoard site.

The midterm test and final exam will likely comprise short-answer, definitions, and brief essays, and will be cumulative based on the material learned to that date. Questions will include questions to test not only your knowledge of the material from lectures and readings, but also problem solving and synthesis of the material. Both the midterm and final exam will include incluse closed book, and take-home open-book portions. The instructor will provide more details on the exact format of the test and exam closer to the dates.

The final project will be a group project conducted by the whole class during lab. Final assessment of the group project will consist of individual papers and presentations. ***The project will provisionally examine fish communities in relation to abiotic and biotic conditions in local springs. Students will sample water quality and chemistry and fish.

Late assignments and papers will be penalized at the rate of 20% per day after the due date.

While most lecture slots will be traditional lectures, there will be several (~9) lectures that are set up as discussions, case-studies, or simulations/analyses. Each of these will have a short report or paper due (generally <1 page) to ensure that you understand the material.

Term Paper and Final Project and Presentations

These comprise a significant portion of your grade. The Term Paper will be on a subject of your choosing (with instructor approval) in the very general field of fish ecology. The Final Project will be based on data collected in the lab, in particular about local springs. You have some flexibility about the format of each of these papers/projects. One of these has to be written in the format of a scientific paper. That is, with an Introduction, Methods, Results, and Discussion or as a review paper. In either case, it will be very writing intensive. The other one may be written, OR you can be more original (design a website, make a lesson plan, make a video, etc). In all cases, I will expect scientific vigour, and for the final project statistics and graphs will be expected. You will also choose either your final project or your term paper in which to give a 15 minute presentation to the class near the end of the semester.

Extra Credit Opportunities

Extra credit will be available on an opportunistic basis (e.g., cleanup at Blue Springs). If you find an opportunity that you think would be appropriate for extra credit, please let me know.

BIOL 390

Student Responsibilities

Students will be responsible for all material covered in class, laboratories, and on-line. Laboratory attendance is mandatory. If you have a legitimate reason for missing a test or lab, you must provide documentation (e.g., doctor's note). If you know that you will have to miss a test or lab, let me know as soon as possible to see whether accommodations can be made. The final exam schedule cannot be changed without permission of the Dean, and must be taken during the assigned time slot. The final exam for this course is scheduled for Saturday May 3 from 5-7pm.

Instructor Responsibilities

I will respond to student questions and concerns to the best of my ability. I will provide rubrics, and my grading policies will be transparent. I will grade and return all material in a timely manner.

Academic Honesty

Unless otherwise explicitly specified, **all** work (assignments, papers, quizzes, tests, exams, etc) is to be done independently. Penalties for academic dishonesty may include loss of points, course failure, suspension, & expulsion. Use of any unauthorized material or devices on tests and exams will be subject to a minimum 20% penalty.

Stetson Honor Pledge: As a member of Stetson University, I agree to uphold the highest standards of integrity in my academic work. I promise that I will neither give nor receive unauthorized aid of any kind on my tests, papers, and assignments. When using the ideas, thoughts, or words of another in my work, I will always provide clear acknowledgement of the individuals and sources on which I am relying. I will avoid using fraudulent, falsified, or fabricated evidence and/or material. I will refrain from resubmitting without authorization work for one class that was obtained from work previously submitted for academic credit in another class. I will not destroy, steal, or make inaccessible any academic resource material. By my actions and my example, I will strive to promote the ideals of honesty, responsibility, trust, fairness, and respect that are at the heart of Stetson's Honor System. http://www.stetson.edu/other/honor-system/honorpledge.php

Accommodations for Special Needs

If a student anticipates barriers related to the format or requirements of a course, she or he should meet with the course instructor to discuss ways to ensure full participation. If disability-related accommodations are necessary, please register with the Academic Success Center (822-7127;www.stetson.edu/asc) and notify the course instructor of your eligibility for reasonable accommodations. The student, course instructor, and the Academic Success Center will plan how best to coordinate accommodation

BIOL 390

Lecture Schedule

Date	Торіс	Text	Other Readings	Due
13-Jan	Intro to Fish Ecology			
15-Jan	Fishes of Florida	1		
17-Jan	Fish Diversity and Evolution	2&3		Watersheds
20-Jan	MLK Day – No Class			
22-Jan	Sampling Fishes and Study Design		Handout - AFS	
24-Jan	Underwater Observations		Handout - AFS	Favourite fish
			Peterson & Fry,	
27-Jan	Stable Isotope Analysis		VZ, Post	
	Discussion - Sampling & Study			
29-Jan	Design		Hurlbert, AFS	Topic for term paper
31-Jan	Form and Function	7		
3-Feb	Functional - Feeding	8		
	Functional - Reproduction and			
5-Feb	Life History	9		
	Discussion - Form & Functional			
/-Feb	Ecology		Handout	Design a Fish
10-Feb	Populations - Introduction	4		
10 Fab	Populations - Physical and			
12-Feb	Biological Factors	4		
14-Feb	Discussion - Population Ecology 1		Handout	Anneteted hiblic graphy
17-Eeb	Populations - Formation of	5		for term paper
10 Ech		5		
19-Feb	Ropulations - Persistence of			
21-Feb	Populations	6		Famous Ichthyologist
21 Feb	Discussion - Population Ecology 2	0	Handout	
26-Feb	MIDTERM			
28-Feb	Fish Ecology in the Florida Keys		???	
3-Mar	Spring Break & FL Keys			
5-Mar	Spring Break & FL Keys			
7-Mar	Spring Break & FL Keys			
10-Mar	Communities - Introduction	10	Handout	
12-Mar	Communities - Communication	10		
14-Mar	Communities - Competition	11		Fish in Movies
17-Mar	Communities - Competition	11		
	Communities - Competition &			
19-Mar	Predation	11&12		
21-Mar	Discussion - Competition		Demo?	
24-Mar	Communities - Predation	12		outline/draft for term paper

BIOL 390

26-Mar	Communities - Predation	12		
28-Mar	Communities - Cooperation	13		
31-Mar	Discussion - Predator-Prey		Handout	
	Metapopulations and			
2-Apr	Metacommunities		Handout	
4-Apr	Ecosystems and Landscapes		Handout	Fish in the News
7-Apr	Ecosystems and Landscapes		Handout	
9-Apr	Discussion Metas and Ecosystems		Handout	
11-Apr	Conservation and Management	14&15	Helfman	Asian Carp Invasion
14-Apr	Conservation and Management	14&15		
16-Apr	Conservation and Management	14&15		term paper due
18-Apr	Good Friday - No Class			
	Discussion - Conservation and			
21-Apr	Management		Handout	
23-Apr	Presentations			
25-Apr	Presentations			
	Discussion - Fish Ecology			
28-Apr	Synthesis			final report due
30-Apr	Catch-up and Review			

Lab Schedule (Provisional)

Date	Торіс	Due
16-Jan	Fishes of Florida - ID workshop	Quiz
23-Jan	Fish drawing/Photography/Gyotaku	Drawing
30-Jan	Field practice & Behavioural Observations	Field Journal
6-Feb	Sampling 1	Field Journal
13-Feb	Sampling 2	Field Journal
20-Feb	FL AFS - Sampling 3 (Ocala)	Field Journal
27-Feb	Sampling 4	Field Journal
6-Mar	Spring Break	
13-Mar	Sampling 5	Field Journal
20-Mar	Sampling 6	Field Journal
27-Mar	Mosquitofish mate choice	Lab Report
3-Apr	Mosquitofish & DO	Lab Report
10-Apr	Bettas and aggression	Lab Report
17-Apr	Feeding ecology and territoriality	Lab Report
24-Apr	Presentations	Assessments
* Note schedule subject to change based on weather and other factors		