

Aquatic Invertebrate Ecological Physiology – FAS 4932/6154– Fall 2011

Instructor: Dr. Shirley Baker
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Office hours: Open-door at the Millhopper location
By appointment before or after class, on campus
Happy to answer questions by phone or email

Lectures: Tuesdays and Thursdays, Periods 8-9 (3:00 – 4:55)

Meeting location: Lectures and exams will take place in Matherly Hall, Room 15.
Discussion periods may take place at other locations, as mutually arranged.

Objective: This is a 3 credit undergraduate and graduate course with lecture and discussion, and a modest reading load. The course focuses on the biochemical, physiological, behavioral, and ecological adaptations of invertebrate animals. A comparative approach is used to examine basic principles of adaptation, problems of size and scale, key mechanisms in physiology (excretion, thermal biology, respiration, etc.), and details of how organisms cope with environments (marine, estuarine, and freshwater). The objective of the course is to introduce students to the physiology of invertebrates and the underlying importance of physiology in the structure and function of communities and ecosystems. Students will gain and apply disciplinary knowledge in the subject area of invertebrate ecological physiology, become familiar with the classical and contemporary literature of the discipline, apply critical thinking in evaluating the literature, engage in collegial discussion, and gain experience in verbal communication.

Expectations and evaluation:

Writing assignments: Each student will be required to write reviews of the research papers chosen by fellow students for discussion (see below). Paper reviews will be due on the date of the discussion period. Grading will be based on thoughtfulness and coherence of critique and evidence of careful editing with few grammatical or mechanical errors. Poorly written papers will be returned for editing and will receive a lower grade. Further instructions will be provided in an additional handout.

Discussion periods: Each student will be responsible for leading discussions during the semester. Students will choose a peer-reviewed journal article and have it approved by the instructor. Students will be responsible for distributing the article to the class at least one week prior to the discussion period. Students are required to lead a *critical* discussion of the paper; students *will be responsible for engaging their fellow students in discussion*. Grading will be based on thoughtfulness of critique, discussion leadership, *and participation in discussions led by others*.

Readings: In addition to the readings assigned by peers for the discussion periods, above, the instructor may assign readings related to lecture material. Papers will be informally discussed at the next lecture period. All students are expected to participate in these discussions. Additional, optional, resources will be described during lectures and posted online.

Graduate Student Lectures: Each graduate student is required to give a lecture to the class. The student should choose a topic and have it approved by the instructor prior to October 18. Students are expected to give a 20-minute presentation on their chosen topic. Grading will be based on communication of information and ideas, stimulation of interest in the subject, and ability to answer questions related to the topic. This assignment is not expected of undergraduate students.

Exams: Exams will primarily cover the material since the last exam. However, anything ever covered in class is fair game, as is material from the readings and paper presentations. Exams will consist of short-answer questions and short essays. Students will not be asked questions that simply require regurgitation of memorized material. Instead, exam questions will require critical thinking, integration, and application of interdisciplinary concepts. Examples of previous exams will be provided.

Grading System:	Graduate	Undergraduate
Three exams	50%	60%
Discussion participation	20%	20%
Writing assignments	10%	20%
Oral presentation	20%	0%
Total	100%	100%

Final grades will be assigned as: A (90-100 %), B + (85-89 %), B (80-84 %), C+ (75-79 %), C (70-74 %), D+ (65-69 %), D (60-64 %), E (< 60 %).

Extra credit: Students may attend “aquatic” seminars in SFRC/FAS or other departments for extra credit. To receive credit, students must turn in the following during the *next* class period: 1) A *summary* of the most important points of the seminar, and 2) One physiology-related question related to the subject. Students may turn in *up to five* seminar summaries. For each summary turned in *on time*, students will receive up to one point, depending on the thoughtfulness of the question and how well-written the summary. If, for example, the student attends five seminars and receives one extra credit for each, the student could increase their total grade from, for example, an 80 to an 85.

UNIVERSITY OF FLORIDA POLICIES YOU NEED TO KNOW:

ACADEMIC HONESTY: As a result of completing the registration form at the University of Florida, every student has signed the following statement: I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.

UNIVERSITY SUPPORT SERVICES: Resources are available on-campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling
2. Student Mental Health, Student Health Care Center, 392-1171, personal counseling
3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual counseling
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling

SOFTWARE USE: All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against the University policies and rules, disciplinary action will be taken as appropriate.

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES: Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

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Schedule

WEEK	DAY	DATE	ACTIVITY	SUBJECT
1	Tuesday	August 23	Lecture/Discussion	Introduction to course
	Thursday	August 25	Lecture	Invertebrate phyla/aquatic environments
2	Tuesday	August 30	Lecture	Fundamentals of physiology
	Thursday	September 1	Lecture	Energy metabolism
3	Tuesday	September 6	Lecture	Life in fluid
	Thursday	September 8	Discussion	
4	Tuesday	September 13	Lecture	Sensory processes, nervous systems, movement
	Thursday	September 15	Lecture	Nutrition, feeding, digestion
5	Tuesday	September 20	EXAM	
	Thursday	September 22	Lecture	Symbiosis
6	Tuesday	September 27	Lecture	Reproduction
	Thursday	September 29	Discussion	
7	Tuesday	October 4	Lecture	Respiration
	Thursday	October 6	Lecture	Oxygen transport
8	Tuesday	October 11	Lecture	Respiratory pigments
	Thursday	October 13	Lecture	Oxygen limitation
9	Tuesday	October 18	Lecture	Disease
	Thursday	October 20	Discussion	
10	Tuesday	October 25	EXAM	
	Thursday	October 27	Lecture	Thermal biology
11	Tuesday	November 1	Lecture	Thermal adaptations
	Thursday	November 3	Lecture	Salt and water balance
12	Tuesday	November 8	Lecture	Osmoregulation and excretion
	Thursday	November 10	Discussion	
13	Tuesday	November 15	Lecture	Adaptations to extreme habitats
	Thursday	November 17	Student Lectures	<i>Graduate student topics</i>
14	Tuesday	November 22	Lecture	Human impacts
	Thursday	November 24	Thanksgiving	No class
15	Tuesday	November 29	Lecture	Global environmental change
	Thursday	December 1	Lecture/Discussion	Lecture catch-up/Review
16	Tuesday	December 6	EXAM	