Course Syllabus
Fish Physiology (FISH 4500/6500)
Fall 2018

Instructor

Dr. Adam Fox Warnell Rm. 1-102
Office hours: any time I am in, or by appointment
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Class Time and Location

Lecture meets on Tuesday/Thursday, 2:00pm-3:15pm, Building 5, Room 517
Students enrolled in this course are expected to attend all scheduled lectures.

Course Description

This course will cover the basic physiology of fishes, with an emphasis on the effects of environmental stresses on physiological functions of fish.

Course Objectives and Learning Outcomes

Upon completion of this course, the student will be able to:

1) Understand the basic principles and practical applications of fish physiology
2) Understand the influence of environmental conditions on physiology
3) Become familiar with current literature in fish physiology
4) Be introduced to the effects of contaminants on fish physiology
5) Be able to evaluate quality of various sources of information
6) Develop skills in critical thinking, writing, and oral expression

Textbooks and Reference Materials

- Primary literature will be used extensively. Electronic access to many journals is available via UGA Libraries: http://www.libs.uga.edu/ejournals/
- Fish Physiology on CD. R. Strange (U of TN). Student cost $25 (download). Link on eLC.

Highly relevant reference material on reserve: (UGA Science Library, 4th Floor)

- Jobling, M. 1995. Environmental Biology of Fishes. Chapman & Hall.
- Evans, D. & Claiborne, J. 2006. The Physiology of Fishes, 3rd Ed. CRC Press.
- Bond, C. 1996. Biology of Fishes, 2nd Ed. Brooks/Cole.

Additional lecture materials may be made available via eLearning Commons and/or provided in class.

Lab: FISH 4500/6500L is a separate course and is required only for undergraduate aquatic science majors (and dual emphasis with aquatic science). Lab grades will be incorporated into the course grade for students taking lecture and lab.

Exams: Exams will be a combination of T/F, multiple choice, fill in the blank, short answer, and essay. Exams will be comprehensive.

Scientific Articles: Students will be required to summarize and critique published scientific articles relevant to topics covered in lectures. Additional guidance will be provided in a separate handout.

Current Topics Presentations: Students will present reviews of controversial topics in fish physiology. Presenters will introduce the topic, discuss why it is controversial, and facilitate a class activity or discussion. Additional guidance will be provided in a separate handout.

Credit for FISH 6500: In addition to coursework required for FISH 4500, graduate students will be required to present an in-depth review lecture of a specific topic in fish physiology. Additional information is provided in a separate handout.

Attendance and Preparation: Attendance is expected of all students and absences will affect your participation grade. Students are expected to come to class prepared to discuss assigned readings. If you must miss class, you are still responsible for all of the materials and assignments.

Grading

Assignments will be weighted as follows:

	Fish 4500	Fish 6500
Exams	35%	30%
Article summaries	20%	18%
Presentation	10%	8%
Professionalism & Participation	10%	9%
Lab	25%	25%
Topic Lecture	---	10%

**Enthusiasm, attitude, and contributions to our class discussions and activities matter.*

***Penalties will be assessed for late assignments*

Grading scale for all students:

Letter Grade	Percent Required
A	92-100
A-	90-91
B+	88-89
B	82-87
B-	80-81
C+	78-79
C	72-77
C-	70-71
D	60-69
F	< 60

Make-up Policy

Absences from exams or other graded work must be arranged in advance and only for serious reasons. Re-writes for an un-notified absence from an exam will only be considered when there is an extreme and documented emergency and will be dealt with on a case by case basis.

Expectations

To receive the greatest benefit from this course, students are expected to:

- Demonstrate integrity
- Be engaged, take notes
- Come prepared
- Participate in class/group discussions
- Attend all scheduled lectures and labs
- Complete and submit assignments on time; and
- Be responsible for YOUR learning.

Expectations of in-class behavior:

- Be respectful of the instructor and fellow students
- **Turn off cell phones** and devices during lecture and lab
- Laptops are permissible for note-taking purposes. Inappropriate or distracting use of laptops will result in the student being dismissed from lecture for the day.
- Any distracting behavior may result in the student(s) being removed from the class.

As instructor, I commit to:

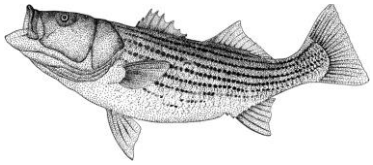
- Come prepared to class
- Make efficient use of class time
- Challenge students while being respectful
- Respond promptly (24 hr) to student questions and concerns
- Grade fairly and consistently
- Communicate via eLC or email.

Students with Disabilities: Students with documented disabilities who require reasonable accommodations in order to participate in course activities or meet course requirements should contact the instructor within the first week of the semester so that suitable arrangements can be made through the Disability Resource Center.

University Honor Code and Academic Honesty Policy: As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Legal: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

House Bill 280: 'Campus Carry' University System of Georgia Guidelines: http://www.usg.edu/hb280



Class Schedule[1]

Month	Date	Topic	Reference Material
Aug.	14	Syllabus, Introduction	
	16	Living in Water	Bond Ch.2
	21	Morphology & Anatomy	Bond Ch.2
	23	Morphology & Anatomy	
	28	Circulation	Evans Ch.2
	30	Gas Exchange	Jobling Ch.4; Evans Ch.4
Sept.	4	*Presentations I: Fish & Pain*	
	6	Swimming	Jobling Ch.8
	11	Buoyancy[2] – Swimming Article Review Due	Jobling Ch.8
	13	Buoyancy	
	18	***Exam I***	
	20	Reproduction	Jobling Ch.9
	25	Reproduction	
	27	*Presentations II: Fish Passage, Barotrauma*	
Oct.	2	Nutrition & Digestion	Jobling Ch.3,6; Evans Ch.5
	4	Digestion / Metabolism[2]	
	9	Metabolism	
	11	*Presentations IV: Aquaculture diets, GMO fish*	
	16	Endocrine system	Evans Ch.7
	18	Stress Response	Jobling Ch.5; Evans Ch.9
	23	Osmotic & ionic regulation[2]	
	25	Osmotic & ionic regulation	
	30	*Presentations III: Catch and Release*	
Nov.	1	***Exam II***	
	6	Senses & Communication	Jobling Ch.2; Evans Ch.11,12
	8	Senses & Communication[2]	
	13	Senses & Communication	
	15	*Presentations V: Control of invasive species*	
	20	**No Class; Thanksgiving Break**	
	22	**No Class; Thanksgiving Break**	
	27	Aquatic Toxicology	Jobling Ch.12
	29	Endocrine disruption[2]	
Dec.	4	**No class; Friday schedule**	
	11	***Exam III 3:30 – 6:30 pm***	

[1] Schedule is tentative and subject to change. Changes will be announced in class.
[2] Scientific article review due at the start of class.