

Course Syllabus

Fish Physiology (FISH 4500/6500)

Fall 2022

Instructors

Dr. Adam Fox

Warnell Rm. 3-421

Office hours: Any time I am in, or by appointment.

agfox@uga.edu

If you urgently need to reach me and email is not an option, you may call or text my personal cell phone at (518) 435-5933. Please be considerate about the time of day if you reach out to me by phone.

Mr. Max Kleinhans

Warnell Rm. 1-102

Office Hours: by appointment.

maxwell.kleinhans@uga.edu

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:

- 1) Understand the basic principles and practical applications of fish physiology
- 2) Understand the influence of environmental conditions on physiology
- 3) Discuss and evaluate primary 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

Class Time, Location, and Structure

This class is scheduled to meet on Tuesdays and Thursdays from 2:20pm-3:35pm in Warnell Building 4-517.

Students enrolled in this course are expected to attend all scheduled lectures. FISH 4500/6500L is a separate course and is required only for undergraduate aquatic science majors (and dual emphasis with aquatic science).

Your instructors would appreciate if you wore masks to class when Athens-Clarke County has an active mask mandate.

Before each lecture, some relevant materials will be uploaded to eLC – this may include an outline of the lecture slides and a list of important terms and definitions. Weekly quizzes will be administered each Thursday. Some quizzes and exams may be conducted through eLC, which means you may occasionally be required to bring your laptop to class. Your instructor will give you advance notice of this. It is essential that you regularly check your UGA email AND eLC for class announcements, information, assignments, and lecture materials.

Recommended Textbooks and Reference Materials

- Jobling, M. 1995. **Environmental Biology of Fishes**. Chapman & Hall.
[Available USED on Amazon for as low as \\$16 + shipping](#). This book is an excellent complement to lecture materials.

Additional lecture materials may be made available via [eLearning Commons](#).

- Primary literature will be used extensively. Electronic access to many journals is available via UGA Libraries: <http://www.libs.uga.edu/ejournals/>
- Fish Physiology online. R. Strange (U of TN). Link on [eLC](#).

Highly relevant reference material available from the UGA Science Library:

- Evans, D. & Claiborne, J. 2006. *The Physiology of Fishes*, 3rd Ed. CRC Press.
- Bond, C. 1996. *Biology of Fishes*, 2nd Ed. Brooks/Cole.

Attendance and Preparation:

Students are expected to attend all lectures – part of your grade for this class is based on your active participation in the classroom. Students should notify the instructor of any planned absences as far in advance as possible. If you have a time conflict with a quiz or exam, please let us know in advance – we will not consider any exam re-writes if we have not heard from you before the exam (or within a reasonable time of the exam if you have an unexpected, documented emergency). If you must miss a class, you are still responsible for all materials and assignments. Lectures will generally not be recorded.

Some classes may require students to prepare in advance – for instance, students are expected to read and take notes on assigned articles prior to in-class discussion. On some days, students may need to bring their laptop to class.

Late penalties will be assessed for assignments that are submitted after the deadline. If you have a problem (internet connection, etc.), please contact me ASAP, and I will do my best to accommodate.

Grading

Assignments will be weighted as follows:

	Fish 4500	Fish 6500
Exams (3)	300pts	300pts
Weekly Quizzes (12)	110pts	110pts
Article summaries/discussions (3)	90pts	90pts
Presentation (FISH 4500)	100pts	---
Topic Lecture (FISH 6500)	---	100pts
Other Assignments	20pts	20pts
Professionalism & Participation*	20pts	20pts

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

Grading scale for all students:

Letter Grade	Percent Required
A	93-100
A-	90-92.9
B+	87-89.9
B	83-86.9
B-	80-82.9
C+	77-79.9
C	73-76.9
C-	70-72.9
D	60-69.9
F	< 60

Penalties will be assessed for late assignments

Quizzes and Exams:

Tests will be a combination of T/F, multiple choice, fill in the blank, short answer, and essay. Some tests may be conducted through eLC, either in the classroom or as take-home tests. Your instructor will inform you if a quiz/exam will be open book – **by default, quizzes and exams are closed book**. In the case of an open-book test, you may use your class notes, course materials, textbooks, primary literature, or online references. In the case of conflicting sources of information, preference will be given to what we discussed in class. **You may not seek assistance on a test from any person**. Expect questions that require you to demonstrate your understanding of concepts, rather than just memorization of facts. Exams will be comprehensive.

Presentations:

- **FISH 4500: Current Topics Presentation.** 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.
- **FISH 6500: Physiology Presentation.** Graduate students will present an in-depth review lecture of a specific topic in fish physiology. Additional guidance will be provided in a separate handout.

Expectations

<i>To receive the greatest benefit from this course, students are expected to:</i> <ul style="list-style-type: none">• Demonstrate integrity• Be engaged and take notes• Come prepared• Participate in class/group discussions• Attend all lectures and labs• Complete and submit assignments <u>on time</u>• Be responsible for YOUR learning	<i>Expectations of in-class behavior:</i> <ul style="list-style-type: none">• Be respectful of the instructor and fellow students• Avoid the use of distracting electronic devices in class. Laptops are permissible for class purposes. Inappropriate or distracting use of electronics will result in the student being dismissed• Any distracting behavior may result in the student(s) being removed from the class	<i>As instructor, I commit to:</i> <ul style="list-style-type: none">• Come prepared to class• Make efficient use of class time• Challenge students while being respectful• Respond promptly (24 hrs) to student questions and concerns• Grade fairly and consistently• Communicate via eLC or email
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University Honor Code & Academic Honesty: As a University of Georgia student, you have agreed to abide by the UGA academic honesty policy. UGA Student Honor code: *"I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others"*. A Culture of Honesty, the University's policy and procedures for handling cases of suspected dishonesty, can be found at <https://honesty.uga.edu/>

You are responsible for informing yourself about the university's standards before performing any academic work. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Please ask if you have questions related to course assignments and the academic honesty policy. Any form of possible academic dishonesty will be reported to the UGA Office of the Vice President for Instruction.

Accommodations for Disabilities: If you require a disability-required accommodation, it is essential that you register with the Disability Resource Center (Clark Howell Hall; <https://drc.uga.edu>; 706-542-8719 [voice]; 706-542-8778 [TTY]) and notify me of your eligibility for reasonable accommodations. We can then plan how best to coordinate your accommodations. Please note that accommodations cannot be provided retroactively. **You must notify your instructor within the first week of class if you require an accommodation.**

Mental Health and Wellness Resources: If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services. UGA has several resources for a student seeking mental health services:

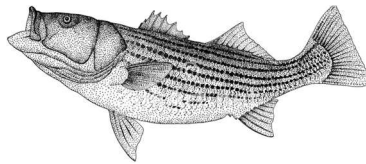
- (<https://www.uhs.uga.edu/bewelluga/bewelluga>) or crisis support (<https://www.uhs.uga.edu/info/emergencies>).
- If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (<https://www.uhs.uga.edu/bewelluga/bewelluga>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.
- Additional resources can be accessed through the UGA App.

FERPA Notice: The Federal Family Educational Rights and Privacy Act (FERPA) grants students certain information privacy rights. To comply with FERPA, all communication that refers to individual students must be through a secure medium (UGAMail or eLC) or in person. Instructors are not allowed to respond to messages that refer to individual students or student progress in the course through non-UGA accounts, phone calls, or other types of electronic media. For details, please visit <https://apps.reg.uga.edu/FERPA>.

eLearning Commons: eLearning Commons (eLC) is an online course environment where you can download digital versions of course materials. Your name and email will be automatically added to the eLC course site. You can access eLearningCommons by signing in with your UGA MyID and password.

House Bill 280: ‘Campus Carry’ University System of Georgia Guidelines: <http://www.usg.edu/hb280>

Syllabus Disclaimer: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. Major changes to the syllabus and schedule will be updated on eLC.



Class Schedule¹

Week	Month	Date	Topic	What's Due in Class Today?	
1	Aug.	18	Syllabus, Introduction		
2		23	Morphology & Anatomy (online)		
		25	Morphology & Anatomy (online)	Quiz 1 (online)	
3		30	Circulation		
4	Sept.	1	Circulation	Quiz 2	
		6	Gas Exchange		
		8	Gas Exchange	Quiz 3	
		13	Swimming		
		15	Swimming	Quiz 4	
		20	<i>Article Discussion</i> ; Review	Swimming Article Review	
		22	Exam I		
		26	Buoyancy		
		29	Buoyancy	Quiz 5	
		8	Oct.	4	Reproduction
6	Reproduction			Quiz 6	
11	Digestion / Metabolism				
13	Metabolism			Quiz 7	
18	Endocrine System; <i>Article Discussion</i>			Metabolism Article Review	
20	Endocrine System			Quiz 8	
25	Stress Response				
27	Stress Response			Quiz 9	
12	Nov.	1	Stress Response; Review		
		3	Exam II		
		8	Osmotic & Ionic Regulation		
		10	Osmotic & Ionic Regulation	Quiz 10	
		15	<i>Article Discussion</i>	Osmoregulation Article Review	
		17	Senses & Communication	Quiz 11	
		22	Ecotoxicology		
		24	No Class; Thanksgiving Break		
		29	Ecotoxicology		
		16	Dec.	1	Endocrine Disruption; Review
6	No Class: Friday Schedule				
9	Exam III (Comprehensive); 3:30-6:30 PM				

¹ Schedule is tentative and subject to change. Changes will be announced in class, lab, and on eLC.