

Syllabus: FAS 4202C/5203C, Biology of Fishes Fall 2020

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Teaching Assistant: Mr. Derek Chamberlin

Course Description: This online dual-listed undergraduate/graduate course is a survey of the diversity of fishes, including their anatomy, diversity, taxonomy, biogeography, ecology, and conservation. Evolutionary trends are stressed, along with biogeography and biodiversity hotspots. The last section of the course is focused on fish ecology and conservation. Weekly lab sessions will reinforce material covered in lecture. Three lecture exams will be given during the semester as well as two lab practicals. Students taking the course for graduate credit will write a review paper on the evolution, taxonomy, morphology, ecology, and conservation of a fish family prevalent in Florida waters.

Course Objectives: Upon completion of this course, you will be able to

- accurately employ biological terminology related to fish biology;
- detail the various organ systems of fishes and their functions;
- reproduce the phylogenetic tree of fishes and describe evolutionary trends among different groups.
- detail novel morphological designs and when the first appeared in fishes;
- describe the various aspects of the ecology of fishes, including the diversity in life history strategies, feeding ecologies, and habitats utilized;
- and, understand conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.

Credits: 4 hours

Prerequisites: BSC 2011/2011L or consent of instructor

Format: Fully online with course materials delivered via course Canvas site, except for weekly Zoom review sessions. Additional online sessions for graduate students will occur periodically.

Office Hours: Online via Zoom, by appointment. Email Dr. Patterson or Mr. Chamberlin to set up a Zoom meeting.

Email Communication: All email correspondence to Dr. Patterson must be from your ufl.edu account, have your full name in the body of the email, and contain your course and section number in the subject line. Emails not meeting these requirements may not be recognized by UF email filters, thus may not be answered. Any email you send within the Canvas app will convey your UF information.

Required Textbook: Helfman G.S. et al. (2003) The Diversity of Fishes: Biology, Evolution, and Ecology, 2nd Edition. Wiley-Blackwell, New York, 720 pp. ISBN-13: 978-1405124942,

ISBN-10: 9781405124942

Course Requirements: Students are required to read assigned text chapters, view online lectures and take notes, view online laboratory sessions and keep and submit a laboratory notebook, and take lecture exams and laboratory practicals (see schedule for dates/times). Graduate students will also be required to write a review paper on a fish family of ecological or economic importance to Florida.

Lecture, Reading, and Laboratory Schedule:

Week	Date	Lectures	Helfman Chapter	Laboratory Exercise
1	Aug 31 – Sep 4	Course Introduction Intro to the Diversity of Fishes	1	No Lab
2	Sep 7 – Sep 11	External Anatomy, Skeleton, Musculature Swimming Modes and Types	1, 3, 8a	Lab 1: Fish external anatomy
3	Sep 14 – Sep 18	Respiration and Circulation Thermoregulation and Buoyancy	5, 7	Lab 2: Myology and osteology
4	Sep 21 – Sep 25	Osmoregulation and Sensory Systems I Sensory Systems II	6, 6	Lab 3: Swimming and locomotion
5	Sep 28 – Oct 2	Sensory Systems III Jaw Evolution and Feeding	6, 8b	Lab 4: Fish internal anatomy
6	Oct 5 – Oct 9	Exam I Mon Oct 5, 13:00 - 14:30		Lab Practical I Thurs Oct 8, 13:00 - 14:30
7	Oct 12 – Oct 16	Reproduction and Life History I Reproduction and Life History II	9, 10	Lab 5: Reproductive biology and life stages
8	Oct 19 – Oct 23	Introduction to Evolution and Systematics Primitive fishes I	2, 11, 13	Lab 6: Feeding
9	Oct 26 – Oct 30	Primitive fishes II Chondrichthyes	11, 12, 13	Lab 7: Fish age and growth
10	Nov 2 – Nov 6	Teleosts I Teleosts II	14, 15	Lab 8: Estimating mortality
11	Nov 9 – Nov 13	Exam II Mon Nov 9, 13:00 - 14:30		Lab Practical II Thurs Nov 12, 13:00 - 14:30
12	Nov 16 – Nov 20	Zoogeography Special habitats and adaptations	16, 18	
13	Nov 23 – Nov 24	Fish as predators and prey Feeding ecology and trophic position	19, 20	Graduate student paper due
14	Nov 30 – Dec 4	Population dynamics Fisheries		
15	Dec 7 – Dec 9	Conservation Invasive fishes	26	
16	Dec 14 – Dec 18	Exam III Wed Dec 16, 7:30 - 9:30		

Lectures: Lectures will be posted on the Canvas site. Lecture format will be video files of powerpoint presentations presented by Dr. Patterson. In addition, weekly vocabulary and review questions will be posted on the courses Canvas site. Students should read the Helfman chapters assigned for a given week, watch lecture videos, and study vocabulary and review questions prior to taking a weekly timed (30 min) quiz, which will be open-note and administered in Canvas. In addition to lectures, each week there will be a review course material on Thursdays from 13:00-15:00

via Zoom. Zoom links will be emailed to students via Canvas.

Weekly Quizzes: The purpose of weekly quizzes is to ensure students are keeping up with the course material. These 10-question, multiple-choice quizzes will be given in Canvas and will be open-material. You will have access to each quiz for one week, from midnight on Sunday to Saturday at 11:59 p.m. of a given week. Once you open a quiz, you will have 30 minutes to answer the questions, which will be randomly pulled from a bank of questions for each week. Questions will be locked once answered, so there will be no opportunity to go back to a previous question. There will be no quizzes during exam weeks, thus a total of 12 quizzes will be given. The two lowest grades will be dropped, including zeros.

Lab Exercises: Eight online lab exercises will be completed by students during the course. The subject and timing of each exercise is listed in the calendar above. Recorded lab lectures, lecture files, handouts, and lab exercise activity descriptions and questions will be posted during lab weeks. Students should complete each exercise in the week scheduled and keep an MS Word file with all lab exercise activities completed and questions answered. These files will be turned in the week of each lab practical and graded for completion.

Exams: There will be three exams given during the course; see syllabus for dates and times. Exams will be available and proctored through an exam-taking app (HonorLock) that will be described in greater detail prior to first exam. Students will be required to have a web cam available to view while taking the exam; cameras integrated into laptops or tablets will suffice. Exam format will be fill in the blank, definitions, short answer questions, and long-answer questions. Undergraduates will only have to answer a certain number of questions in each section, while graduate students will be expected to answer all questions. We will review the exam format prior to the first exam.

Lab Practicals: Two online laboratory practicals will be given during the semester, with the first covering labs 1-4 and the second covering labs 5-8. These will be closed-note and given on Thursdays at 13:00 - 14:30 during exam weeks (see calendar). Each practical will consist of 50 questions worth 2 pts each. Practical format will be covered during weekly review sessions prior to each practical. Practicals will be taken via HonorLock.

Graduate Student Paper Assignment: The paper assignment will constitute 10% of the course grade for graduate students, thus lowering the percentage for each practical to 5%. The paper will be due Tuesday, November 24th by 5 p.m., emailed to Dr. Patterson. Each graduate student will pick a family of significance to Florida and write an 8-10 page (double spaced, 12-pt font, 1" margins) paper on the family's evolution, taxonomy, morphology, ecology, and conservation. Further details will be discussed with the graduate students enrolled in the course.

Grading: Undergraduate course grades will be based on weekly quizzes (average of quizzes, dropping lowest two grades = 10% of course grade), exams (20% each; 60% total), laboratory notebook grades (5% each; 10% total), and laboratory practicals (10% each; 20% total) scores. For graduate students, practical scores will each constitute 5% and the paper assignment will constitute 10% of your course grade. The grading scale is below; see current UF policies for assigning grade points: <http://gradcatalog.ufl.edu/index.php>.

Grading Scale:

Point Range (%)	Letter Grade	GPA Equivalent
≥93.0	A	4.00
90.0-92.9	A-	3.67
87.0-89.9	B+	3.33
83.0-86.9	B	3.00
80.0-82.9	B-	2.67
77.0-79.9	C+	2.33
73.0-76.9	C	2.00
70.0-72.9	C-	1.67
67.0-69.9	D+	1.33
60.0-66.9	D	1.00
60.0-62.9	D-	0.67
<60.0	F	0.00

Policies and Requirements

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

Communication Courtesy and Professionalism:

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. Respect for individual differences and alternative viewpoints will be maintained in this class at all times. All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

Semester Evaluation Process:

Student assessment of instruction is an important part of efforts to improve teaching and learning. At approximately the mid-point of the semester, the School of Forest Resources & Conservation will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Honesty Policy:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Inclusive Learning Environment:

This course embraces the University of Florida’s Non-Discrimination Policy, which reads, The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans’ Readjustment Assistance Act. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.ufl.edu>.

Services for Students with Disabilities:

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 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. 0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

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 university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFRC Academic Hub <https://ufl.instructure.com/courses/303721>

Student Life, Wellness, and Counseling Help:

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Connections Center <http://career.ufl.edu/>
- Other resources are available at <http://www.distance.ufl.edu/getting-help> for online students.

Student Complaint Process:

The School of Forest Resources & Conservation cares about your experience and we will make every effort to address course concerns. We request that all of our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered. If you have a more urgent concern, your first point of contact should be the SFRC Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: <http://www.distance.ufl.edu/student-complaint-process>
- Students in face-to-face courses: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>