FAS 5203C: BIOLOGY OF FISHES

Instructor: Dr. Daryl Parkyn
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Campus Office: TBA

Office Hours: Monday and Wednesday from 11:30-12:30 TBA (McCarty Hall on campus), or by arrangement (call or email to set up a time).

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Course Description:

Course focuses on the general biology of fishes, including general classification, trends in evolution, integrative and sensory biology, physiology, bioenergetics, feeding ecology, migration, reproduction, age and growth, and basic population dynamics as they relate to fisheries. Lab focuses on demonstrations and practical experience based on lecture topics. Graduate students are also responsible for developing a research grant proposal. This course is intended for senior undergraduates and first year graduate students.

Prerequisites: BSC 2011-2011L or equivalent. Courses in animal physiology and ecology are recommended.

Time and Place:

Lecture (NZ 222):	MWF	All sections	Period 4 (10:40-11:30)
Lab (McCarty 3096):	Thursdays	Section 3105	Periods 6-7 (12:50-2:45)

Field Trip (Mandatory): Our destination is the Florida Aquarium in Tampa where you will collect data for your Fish Behavior Assignment and get a behinds-the-scene tour. This trip is on Thursday, 29 September 2010, and our charter bus will leave Newins-Ziegler at 7:45 a.m. and return by 7 p.m. (assuming no traffic delays). You will be provided with a note (if necessary) to be excused from your other classes on this day. It will be up to you to make-up for material that you miss in your other courses (as per your instructors). Please discuss this field trip with your other instructors to insure that you will be able to go on the field trip, as it is mandatory and forms the basis for a major paper (and grade) in the course. You can either pack your own lunch and snacks or purchase them at the Aquarium's cafeteria.

Course Outcomes:

On completion of FAS5203C, you should have general facts at hand, be able to synthesize them into concepts, and develop them into higher-order ideas requiring critical thinking. This is done by you having:

- A working knowledge of all general aspects of fish biology

- The ability to synthesize biological information spanning multiple areas (e.g., swim bladder function and its relation to catch-and-release mortality) and large-scale tradeoffs in fish feeding, growth and reproduction
- Practical laboratory experience in identification, external and internal morphology, tagging, reproduction, and aging of fishes
- Effective data collection, analyses, and written communication skills appropriate for an incoming graduate student
- Drafted, revised, and resubmitted a grant proposal on a fish-related topic (aquaculture, fisheries, fish biology) appropriate for a federal granting agency
- Summarized and discussed scientific papers on relevant topics

Course Communication:

This course will take advantage of e-Learning support (not Sakai) to post course information and to allow you day-to-day access to your grades. Please visit http://lss.at.ufl.edu to access the course via the e-Learning link and for information on how use the e-Learning site (Please use the help desk as your first course of action if you have any difficulties).

Lectures are based on PowerPoint presentations to facilitate the use of figures and visual representation of fish attributes. Please note that a lecture outline in point form will be handed out each class, sometimes with additional figures (complex ones), and it will therefore be your responsibility to take notes. A minimal number of slides requiring color for interpretation, along with any complex figures, will be posted on the e-Learning site. It will also be your responsibility to get lecture notes from your classmates if you miss any lectures.

Participation and Attendance:

Participation and attendance is expected for all lectures and labs. Students must be present a minimum of 10 out of the 15 times roll is taken randomly throughout the semester to obtain the participation/attendance grade, as well as attending and participating in all labs. Contact me as early as possible if you must legitimately miss a scheduled exam. If an emergency situation arises immediately before an exam, notify me as soon as the emergency is resolved. Make-up quizzes or exams will not be given except for an excused absence with written substantiation (e.g., official University event, illness, family emergency, etc.). Attendance in the laboratory is especially critical because it is difficult, if not impossible, to make up missed lab exercises.

Lab exercises will involve both demonstrations using preserved specimens and handling of freshly thawed fish specimens. Wear a lab coat or old field clothes when in the lab. Each student is responsible for bringing a basic dissection kit containing a minimum of: 1 blunt probe, 1 pair fine scissors, 1 pair large dissecting scissors, 1 pair fine small forceps and 1 pair blunt medium forceps. Handouts for the lab exercises will be given out in a lecture class prior to the lab and it is expected that you will have read through the handout prior to attending your lab section.

Please conduct yourself in a professional manner while in lectures and labs and give consideration to your fellow classmates. Do not use electronic devices (e.g., cell

phones, iPods) or perform activities (e.g., texting, Facebook, web surfacing, talking) that can interrupt the class. An atmosphere of mutual respect is in order. The instructor reserves the right to request that you leave if you engage in distractive behavior.

Course Format and Grading:

This course is offered for four (4) credits in the Fall semester. It consists of three hours of lectures per week, and a two hour laboratory each week.

Lecture exams will be based on material given during class lectures. Supplemental readings from the recommended textbook (Helfman et al. 2009) will aid in understanding this material. Exam questions will include a mix of multiple choice, matching, true/false, short answers, as well as short essays. Grades will be allocated as: A (93-100%), A- (90-92), B^+ (86-89%), B (82-85%), B- (78-81%), C^+ (74-77%), C (67-73%), C- (63-66%),D^+ (59-62%), D (55-58%), D- (51-54%) and E (<50%).

Due Date	ACTIVITY		% of Total Grade	Lowest Grade Dropped from one of the following items:
26-Sep	Lecture Midterm A		10	*
31-Oct	Lecture Midterm B		15	
7-Dec	Lecture Midterm C		15	
	Paper Synopsis I and II (2.5% each)		5	
18-Nov	Grant Proposal		20	
5-Dec	Revised Grant Proposal		5	*
13-Oct	Lab Exam A		5	*
1-Dec	Lab Exam B		5	*
24-Oct	Fish Behavior Paper		10	
7-Dec	Age and Growth Paper		10	
	TOTAL		100	

Recommended Text:

Helfman, G. S., B. B. Collette, D. E. Facey, and B. W. Bowen. 2009. The diversity of fishes, 2nd ed. Wiley-Blackwell, West Sussex, UK.

Supplemental Texts (on reserve in the Marston Science Library):

Barton, M. 2007. Bond's Biology of Fishes, 3rd edition. Brooks/Cole.

Bond, C. 1996. Biology of fishes, 2nd ed. Saunders College Publishing, Orlando, FL.

Bone, Q., N.B. Marshall, and J.H.S. Blaxter. 1995. Biology of fishes, 2nd ed. Blackie Academic and Professional, Glasgow (Chapman and Hall, New York).

Evans, D.H. (ed.). 1993. The physiology of fishes. CRC Press, Boca Raton, Florida.

Moyle, P.B., and J.J. Cech, Jr. 1996. Fishes: an introduction to ichthyology, 3rd ed. Prentice-Hall, New Jersey.

Recommended Species Identification Guides (These will be available in the lab):

Page, L.M., and B.M. Burr. 1991. A field guide to freshwater fishes of North America north of Mexico (Peterson field guide). Houghton Mifflin Co., Boston.

Robins, C.R., and G.C. Ray. 1986. A field guide to Atlantic coast fishes of North America (Peterson field guide). Houghton Mifflin Co., Boston.

Hoese, H.D., and R.H. Moore. 1977. Fishes of the Gulf of Mexico, Texas, Louisiana, and adjacent waters. Texas A & M Univ. Press, College Station, Texas. 327 pp.

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 it 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."

UF Counseling 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 assault counseling; and
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

Accommodations for Students with Disabilities:

Students requesting classroom or laboratory 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.

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.

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

Lecture Schedule: Please see revised, updated lecture schedule (color-coded by specific midterm)

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Date	LABORATORY TOPIC
25-Aug	No Lab
1-Sep	External morphology of fishes; morphometrics and meristics; primitive versus advanced features, coloration
8-Sep	Internal morphology of fishes; primitive versus advanced features
15-Sep	Capture methods (***Note: Review Fish Behavior Assignment Handout for next lab)
22-Sep	Fish Behavior Assignment
29-Sep	FIELD TRIP TO FLORIDA AQUARIUM: Leave NZ at 8 am and return NZ at 7 pm
7-Oct	Morphology and diversity of feeding structures; Teeth, Gut allometry, and diet relations
13-Oct	**Lab Exam A**
20-Oct	Fish Health and Diseases
27-Oct	Tagging and tracking fishes
3-Nov	Reproductive Morphology and Development
10-Nov	Fish Ecology Lab
18-Nov	Methods of Aging Fishes
24-Nov	Thanksgiving: No Lab
1-Dec	**Lab Exam B**