

University of Oregon
Oregon Institute of Marine Biology
Biology of Fishes, Summer 2018

Instructor: Dr. Daryl Parkyn, Summer Lecturer OIMB, Research Associate Professor, Dept. of Fisheries and Aquatic Sciences, University of Florida

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Office Hours: Anytime by appointment

Main Office: Biology of Fishes lab or by appointment

Telephone: Cell (352) 281-8611

Course Description:

The course focuses on the comparative biology of fishes including general classification, trends in evolution, integrative, sensory and general physiology as well as bioenergetics, feeding ecology, reproduction, age and growth, and population dynamics as it relates to fisheries. The course emphasis will on the Pacific Coast ichthyofauna with an emphasis on the fishes of Oregon, however, principles will be drawn from throughout the United States and worldwide. Lab exercises will emphasize collection and processing methodology, identification, and comparative morphology. Students will also complete several small research projects during the course of study. This course is intended for undergraduate sophomores, juniors, and seniors. Graduate students enrolled in this course will have additional course requirements commensurate with their level of study.

Course Outcomes

On completion of Biology of Fishes all students will be expected to have:

- A working knowledge of the general aspects of fish biology
- The ability to synthesize biology information spanning multiple areas (e.g., anatomy, physiology, and environment, ecology, migration behavior, population biology and fisheries management, historical plate tectonics, and zoogeography, etc.)
- Identify common and economically important species of fishes (in particular nearshore Pacific fishes) as well as demonstrate the ability to use dichotomous keys.
- Demonstrate practical laboratory skills for sampling of fishes, quantitative meristics and morphometrics. You will not leave the course until you can correctly measure a fish. Knowledge of fish anatomy including determination of sex and recognition of organs.
- Work on development of effective oral and written communication skills for scientific presentation
- On completion of Biology of Fishes, graduate students will also be able to draft, revise, and resubmit a grant proposal on a fish-related topic (aquaculture, fisheries, fish biology)

Course Format and Grading:

The course is offered for 6 Credits in the Summer semester over an eight week period. It consists of daily lectures and laboratory or field exercises.

Grades

Lecture Percentage of Course: 45/100

Final Exam (**August 14**) 20 % Exam will cover all of the lectures.

Round Table discussion paper 5% – (1 % for 1 page synopsis, 2.0% for leading the discussion of your paper, 2.0% for participation in discussion of others). For this assignment, you will choose a peer-reviewed paper on a topic in Fish Biology. You will write a short one-page summary of the paper, including why you chose the paper, its significance, as well as strengths and weaknesses of the paper. You will e-mail me a copy to distribute to the class. Prepare yourself to lead a discussion on your paper. **We will start discussing the papers July 10th. Written summaries are due July 10th.**

Oregon Fish Species E-poster and Selected Species Bibliography: 20% Each student will assigned a species of Oregon Fish on the first day of class. The species will be assigned to you by the instructor to prevent overlap. An E-poster will be prepared following the instructions at the back of this packet. You will also construct a comprehensive written bibliography of literature for the species that you are assigned. **Due online by 1155 pm July 8**

Lab: 55/100

Lab Quizes. Each Tues -on previous week's lab material (no quiz in first week)- 2% each Total 10%

Participation 10% You are expected to participate fully in discussions and fieldwork

Cape Arago Lab Report: Due July 26 A brief report on your findings of a tag and recapture study of fishes in tidepools. 10%

Fish Behavior Lab Report: (field trip July 17, **Report due August 5th**. 20% A comparison of the behavior of fishes using different sampling methodologies. Data to be collected at the Oregon Coast Aquarium.

Skelton Preparation 10%

You will prepare a skeleton for the class from a whole fish.

Course grades based on percentage of points earned

A+ 97-100 **A** 93-96.9 **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+** 67-69.9 **D** 63-66.9 **D-** 60-62.9 **N** < 70 **P** >70

Required Text: none

Recommended References (Will be available as reference texts)

Helfman, G.S., B.B. Collette, D.E. Facey, and B.W. Bowen. 2009. The Diversity of Fishes, 2nd Edition. Blackwell Science, MA.

William N. Eschmeyer, Earl S. Herald. A Field Guide to Pacific Coast Fishes of North America: From the Gulf of Alaska to Baja California (Peterson Field Guides) (Paperback). Widely available in many bookstores, but as cheap as 25¢ on Amazon.com.

Barton, ME, Bond's Biology of Fishes 3rd edition

Page, L.M and B.M. Burr. A Field Guide to Freshwater Fishes (Peterson Field Guide).(Paperback). Widely available in many bookstores, but as cheap as \$1.00 on Amazon.com.

J.L. Hart. 1973. Pacific Fishes of Canada. Ottawa, ON.

Good General Interest Fish Books

Kurlansky, Mark. Cod, A biography of the fish that changed the world

Moyle, P.B: Fish: An Enthusiasts Guide.

Supplies: You will need a Rite in the Rain field notebook, a box of No. 2H pencils and for laboratory sessions, a scalpel, tweezers, course and fine dissecting scissors, and a blunt probe. All of these can be purchased in the office. Rubber boots and raingear are essential (available at Walmart, Kmart, Home Depot, Lowes, etc.). Let me know ASAP if you need to run into town. You will be expected to collect field notes on each of our field trips. We require this information to keep track of the numbers of animals collected and from whence they came. Included in your notes will be observations of the habitats, data parameters collected and site locations

Readings and Discussions

Readings will be provided for round table discussions. To encourage students to carefully read the material provided a small (one page) summary of each paper will be required.

Academic Dishonesty Policy: Academic dishonesty (from plagiarizing work to cheating on exams) will not be tolerated. Plagiarism or cheating, if detected, will earn a **failing grade** in the course. The University may impose additional penalties in accordance with the U of Oregon student conduct code. **Plagiarizing** = the submission of the work of other individuals, as your own. **Cheating** = copying other people's quiz answers, or copying from someone else's final exam. What isn't cheating? Collaborative learning, **i.e., receiving** or **providing** help on homework assignments. Compare notes on homework (in person or on Blackboard) will help everyone do well. However, do not copy the work of others—make an effort to complete the assignment yourself.

Students with Disabilities: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements with me during the first week of the term. Please request that the counselor for students with special needs (164 Oregon Hall, University of Oregon) send me a letter verifying your disability.

Class Etiquette & Norms

Come to class and lab on time, and stay for the whole class or lab.

Treat your fellow students and your instructors with respect.

Please do not talk to other students during a lecture but it is fine to ask questions to me.

Silence your cell phone during class. Please leave the room if you want to text during class. It is distracting for lecturers.

Ask many questions and speak up during class

Biology of Fishes 2018 E- Poster Assignment Due (July 8th)

Your assignment will be to construct a E-Poster on a commercial or recreational fishery in species. I am going to provide a list of species to choose from. These will all be fishes of importance for our area. This project will be done electronically as a file in PowerPoint or equivalent. The poster should contain general points of discussion about the biology of the fish species you choose and its fishery. You must include information on:

1. The general distribution of the species, and interesting aspects of the biology including how to recognize it, life history, reproduction, table qualities, and a recipe for cooking it.

2. Discuss landings of this fish throughout the range of the fish and the trends in these landings. Are there conservation or management aspects of the fish that must be considered?

3. Since it is an electronic poster, hyperlink videos, audio (good music is awesome bad music not so much), or articles online or in files that you provide me. Try to avoid having a lot of text on the poster but instead have text as popups when the cursor is placed or clicked on a particular region of interest to the observer. Because this is a web-based poster, you are only limited by your imagination, however, don't make this a slide show. Try to make the poster both visually appealing and informative. Do not forget to provide references as well as credit for any photos used. Please feel free to discuss with one another and me about how to accomplish what you need but do not copy. Otherwise work independently. **You will be graded on:**

1. Content (what you include in text, figures, references for sources. Did you include all the aspects of the content outlined above) 70 pts

2. Originality/Creativity. Make certain to use legible fonts. 10 pts

3. Organization/Clarity 10 pts

4. Species Bibliography (A separate Word document). 10 pts. You will also construct a comprehensive written bibliography of literature for the species that you are assigned.