

# Biology 396 –Ichthyology SYLLABUS

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Welcome to Marine Ichthyology! Please keep and read this syllabus as it contains important information that will facilitate your enjoyment and success in this class. Attached is a class schedule. Typically we will begin at 9:00 AM every day. The afternoon session will begin at 1 PM. there may be additional catch up lectures or optional activities scheduled in the evening. We will move at a rapid pace and I strongly encourage you to use your personal time wisely. You will find that a week of non-stop lectures and labs, particularly with intense fieldwork in the hot sun every day, is exhausting. Pace yourself and remember that each day of this course is equivalent to one week of a regular semester. Finally, bear in mind that our schedule is subject to numerous variables and can change at any time. Weather, boat availability, or other unpredictable events may result in shuffling our schedule; therefore, we will all have to be flexible.

## **Objectives**

The aim of this course is to introduce students to the biology and ecology of fish. This field-based course will focus in particular on marine fishes and habitats common to the mid- Atlantic region of the United States. Lectures will focus on basic anatomy, physiology, behavior and ecological relationships of fishes. In the laboratory students will participate in a variety of collection methods, including seine, trawl, and longline as well as anatomical techniques such as dissection and fish identification using taxonomic keys.

**Required Text:** M. Barton, 2007. Bond's Biology of Fishes, 3<sup>rd</sup> edition. Thompson Brooks/Cole Publishers. ISBN 0120798751.

Out of print, borrow a copy or purchase a used copy online but do not spend > \$100; I will have copies available to borrow\*.

**Required Materials:** Please bring your own dissection kit. You will also need plain white t-shirt(s) for gyotaku (fish printing).

**Recommended:** Murdy, EO, JA Musick, and VA Kells. 2013. Fishes of Chesapeake Bay. Baltimore: Johns Hopkins University Press, 360 pgs. ISBN-13: 978-1421407685 (*I will have copies of the 1997 edition available to borrow*)

\*Because the textbook is out of print I have obtained several copies that you may use IN THE LAB. *If, at the end of the course, I find any of my books missing, ALL students will receive a grade of incomplete until the book is returned.*

## **Classroom Etiquette and Participation**

Attendance is required and you are responsible for all material covered in lecture and lab, whether or not you attend. Obviously, there will be no opportunities to make up work. You are expected to be *fully engaged and involved* in all aspects of this course. This includes prompt attendance and participation in all class activities, care of the fish and aquaria, assisting in all field activities, and helping with daily lab clean up and maintenance. Although participation is not graded, it can affect your grade.

Please turn off all cell phones and other electronic devices when you come to class (this includes lectures and labs). Please let me know if you have any disabilities or special needs that might affect your performance in this course. I will do my best to accommodate you.

Academic misconduct will not be tolerated and each student is expected to adhere to the Academic Honesty Standards of Millersville University (attached) and also at:

<http://www.millersville.edu/admissions/undergrad/files/newlyadmit/honesty-dishonesty.pdf>

## **Safety and Comfort**

1. **Bugs.** Yes, it is “buggy” here. You will get bit by mosquitos and flies too. Use bug spray or other protection such as long sleeve shirts and pants. Ticks, although not technically “bugs”, are prevalent in wooded areas. Typically we will not be in tick habitats; however, protect yourself when walking in wooded or grassy areas by wearing long sleeved shirts and pants. It also helps to tuck pant legs into your socks if you plan to walk for long periods of time in areas where ticks are known to be abundant.
2. **Sun.** You will be outside every day, often for considerable amounts of time. Use sunscreen (SPF 15 or better) and wear a hat. If you are especially sensitive to the sun you may also need to wear protective clothing. Even on cloudy or cool days you can get sunburned. Also remember that we will be working on or near the water. Water is highly reflective and intensifies the sun’s rays.
3. **Lab Safety.** Shoes are required in the lab and bathing suits, if worn, must be covered by appropriate clothing. At times we may be using chemicals in the lab (e.g., formalin and ethanol). Gloves will be available in the lab. Do not pour any chemicals down the drain unless instructed to do so. We will also be doing several dissections in the lab. Please use all dissection instruments with care and alert me if you are cut or injured. As a general rule you should wash your hands often, particularly after field work and lab.

## Grading

### **Quizzes:** 35 points

A total of 7 quizzes (5 pts. each) will be given during the course.

### **Ichthyologists and what they do Worksheet** 15 points

Each student will research a career in or related to ichthyology and write their responses into a worksheet. Responses are expected to be thoughtful and thorough and written in complete sentences.

### **Fish Report:** 50 pts.

Each student will prepare a taxonomic account of an assigned group of fishes in a format that could be posted on Wikipedia. Specific instructions will be provided.

### **Student Presentation:** 50 points

Each student will give a presentation focusing on some aspect of fish biology, behavior, ecology, anatomy or systematics.

### **Group Project:** 25 points

Students will work in groups to analyze and present collection data from this class.

### **Exams:** 200 points

There will be two exams, each worth 100 points. Exams will be based on material covered in lecture and will consist of a mixture of matching, fill in the blank, short answer, and multiple choice questions.

### **Final Practical:** ~50 points

One cumulative laboratory practical exam will be given. This exam will test you on material covered in the laboratory portion of the course. In particular, the exam will focus on sight identification of fish species, identification of anatomical features, as well as questions relevant to lab techniques or other activities conducted as part of this course.

### **Final Quiz:** ~20 points

Following the practical there will be a short quiz with questions related to lecture content covered in the final week of class.

**Late Assignments:** Late assignments will be accepted, but subject to a penalty of 10% of total points for each calendar day an assignment is late after the due date.

### **Grades will be assigned as follows:**

A = 93 – 100%

A- = 90 – 92%

B+ = 87 – 89%

B = 83 – 86%

B- = 80 – 82%

C+ = 77 – 79%

C = 73 – 76%

C- = 70 – 72%

D = 60 – 69%

F = less than 60%