Syllabus Fall 2014

BIOL 5551 Ichthyology Lab

Lab: Tue 2:00 - 5:00 PM Room: BS-402

# Dr. Joe Luczkovich 328-9402/328-9405 (lab)

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**Required Text:** Cailliet, Gregor, Milton Love, Alfred Ebeling. 1986*. Fishes: A field and laboratory manual on their structure, identification, and natural history.* Waveland Press, Inc., Prospect Heights, Illinois, ISBN 0-88133-908-3

**Optional Identification Guides:**

C. Richard Robins, G. Carleton Ray, John Douglass (Illustrator). 1986. A Field Guide to Atlantic Coast Fishes: North America (Peterson Field Guides). Houghton Mifflin Co (Pap); ISBN: 0395975158

Lawrence M. Page, Brooks M. Burr, Eugene C., III Beckham (Illustrator), Roger Tory Peterson. 1998. A Field Guide to Freshwater Fishes: North American North of Mexico (Peterson Field Guides). Houghton Mifflin Co (Pap); ISBN: 0395910919.

**Equipment to be purchased by the student: Dissection tools, field clothing (wear clothes that you hate, raingear, seining shoes or boots, etc. You will get wet), laboratory notebook. Get a waterproof, or composition-style bound notebook. DO NOT USE LOOSELEAF or SPIRAL BOUND notebooks, because they can lose pages. See Dr. Joe for approval if you are unsure.**

**Objectives:**

* To learn to identify fishes and their taxonomic associations by sight
* To understand the anatomy of fishes
* To learn about the collection and preservation of fishes
* To learn about the biology and ecology of fishes in the field

**The lab grade will be determined as follows:**

*50 % - Laboratory Notebook* - You will be responsible for writing down observations on all species examined in the laboratory, including the species and family name, lists and relative abundance of all species collected on field trips, associated data from the field trips (geographic location of collection site (GPS), temperature, salinity, conductivity, dissolved O2, acoustic information, etc.). Notebooks should include notes on ecology and behavior of each species, along with a drawing of each specimen examined in lab.

*50 % - Laboratory Practical* – you will learn to identify approximately 100 species of fishes from NC and elsewhere, including their scientific and common names, families, and other taxonomic information. You will be tested on your ability to identify these fishes from memory and your knowledge of their physiology, ecology and behavior in a single lab practical using lab specimens.

**Class Attendance**: You will be expected to attend all laboratory sessions. Your grade will decline as the number of missed classes increases. Field trips will leave promptly at 2:00 PM. If you miss the van, you will miss the lab and thus get a 0 on that lab. Please be on time for all labs. You must go on all field trips.

**Late night or Saturday trips:** There are 5 field trips on the schedule. 3 will be local and occurs duing normal class times. But there are two that occur after class and lab time has ended. You must attend one of the following out of class trips:

(1) Night time trawling, ichthyoplankton and bioacoustics trip on Pamlico Sound 5 PM – midnight. Transportation provided.

(2) The Outer Banks trip, during the Fall Break. Stay overnight at the Pocosin Arts Riverside Lodge, Columbia, NC with trips to CSI lab and outer banks beaches (Oregon Inlet).

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| **Date** | **Lab Exercise** | **Museum Specimens**  **Taxonomic Groups** | **Readings** in Cailliett et al. |
| 26 Aug | Basic External Anatomy; Using dichotomous keys to ID fishes, preservatives and storage of specimens; | A selection of specimens from the fish museum and Core Sound, NC, | Chapter 7 (scientific names and using taxonomic keys) |
| 02 Sep | No class – this is a “Monday” |  |  |
| 09 Sep | Internal Anatomy - Dissection of a fish – Necropsy. **You will need a dissection tool kit for this lab.** | Sharks, rays, lamprey and hagfish  Sciaenidae (Atlantic croaker) | Chapter 1, 2 handout on key to fish families |
| 16 Sep | Field Trip 1 -Trawling trip on Pamlico River or Sound. Early and late trip (Departs ECU 9:30 AM and 1230 PM) | Whatever we catch that day | Chapter 10, 11 collecting techniques |
| 22 (Monday) &23 Sep (Tuesday) | Field Trip 2 – Pamlico Sound R/V Stanley Riggs – Red Drum mating, passive acoustics, trawling, ichthyoplankton sampling. **This is a night lab;** (leave at 4 PM – return late night after 12 mid night). You only need to go on one trip. | Sciaenidae, Batrachoididae, Ophidiidae (by acoustical means); fish eggs and larvae | Chapter 14 |
| 30 Sep | Field Trip 3 – Goose Creek Pamlico River Beach Seining – Survey and collection techniques, habitats**. You will need bathing attire and wading shoes or boots**. | Whatever we catch that day | Chapter 10,11 |
| 07 Oct | Field Trip 4 - Field Trip at the Tar River, or other nearby lake or river - Freshwater species | Centrarchidae, Perciformes | Chapter 10,11 |
| 10-14 Fall weekend trip | Field trip 5 - NC Aquarium Trawling and seining at Outer Banks near Manteo Coastal Studies Institute Stay Overnight at Pocosin Arts Riverside Lab in Columbia, NC | High salinity species | Chapter 10,11 |
| 21 Oct | Processing the samples from field trips – ID., measurement and enumeration lab |  | Chapter 6, 7 |
| 28 Oct | Review of egg and larval collections; Bioacoustics Lab Introduction to Raven software; Continue Review/ID of field collections | Perciformes  Carangidae,  Gerridae,  Sparidae,  Sciaenidae Atherinidae, Engraulidae, Clupeidae, Sygnathidae Scorpaenidae | Handout on larval fish and egg ID;  Handout on fish bioacoustics; Raven Manual (handout on-line) |
| 04 Nov | Continuing processing the samples from field trips – ID, scale and otolith dissections, aging |  | Chapter 11, 12 Age and growth |
| 11 Nov | Stomach Analysis Lab |  | Chapters 5, 13 |
| 18 Nov | Fish Osteology - Bone lab | Chaetodontidae, Cichlidae,  Labridae,  Scaridae, | Chapters 3, 5 |
| 25 Nov | Practice Lab Practical | More Perciformes (continued)  Uranoscopidae, Blennidae, Gobiidae, Ephippidae |  |
| 02 Dec | **Lab Practical** |  |  |
| 09 Dec @ 1230-1700 | Student Presentations |  |  |
| 12 Dec | **Notebooks due** |  |  |