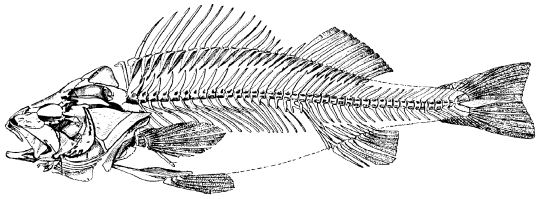
COURSE SYLLABUS –
FISH/WILD/MARS/ECOL 4300/6300
Environmental Biology of Fishes
Spring, 2018



Course Description:

Environmental Biology of Fishes presents an introductory study of the biology, ecology, and taxonomy of fishes. In particular, the course emphasizes the morphology, development, behavior, life history, evolution, and diversity of fishes. The course will include lectures on fishes from throughout the world; however, we will emphasize the freshwater fishes of North America and especially those species that are commonly found in the freshwater and estuarine habitats of Georgia. The course objectives are to introduce students to:

(1) the basic biology and ecology of fresh and saltwater fishes
(2) the classification of major taxonomic groups.
(3) the basic species identification skills for important GA fishes
(4) issues related to fish habitat and conservation.

Course material will be present through lectures, videos, discussion, and the textbook. Grading in the lecture portion of the course will be based on performance on 3 lecture exams, and an OPTIONAL final exam at the end of the semester.

MEETING TIMES AND LOCATIONS:

Lecture: MWF, 11:15 -12:05; room 1-306
Laboratory: F; 1-4 pm; room 1-107

INSTRUCTOR: **OFFICE/ HOURS:**
Dr. Douglas L. Peterson 3-421/ TBA
Email: sturgeon@uga.edu

TA:
Mr. Alex Pelletier TBA
Email: Alexander.Pelletier@uga.edu
Office: Warnell; 4-327

REQUIRED LECTURE TEXT:

Moyle, P.B. and J.J Cech, Jr. 1996. Fishes: an introduction to ichthyology. 5th Edition. Prentice-Hall, Engelwood Cliffs, NJ. 612 pp.

REQUIRED LAB TEXT (for those enrolled in the lab):

Page, Lawrence M. B. M. Burr. 2011. A field guide to freshwater fishes. 2nd Edition. Houghton Mifflin Harcourt, NY 663 pp.

ATTENDANCE POLICY:

Attendance in all lectures is expected and vital to student success in this class. However, lecture outlines, definitions of terms, and powerpoints will be made available to students through ELC. Please note, however, that *lecture notes* are <u>not</u> provided and that materials posted on ELC is intended to supplement lectures, not replace them. Approximate exam dates are listed below; however, final exam dates will be announced in class at least 1 week prior to each exam. Attendance on exam dates is required. Makeup exams will be granted only under extreme circumstances, and only by arrangement with the instructor before the exam date.

Exam Policy:

Possession and/or use of old exams from previous semesters of this course are strictly prohibited. I want students to learn the material – not merely memorize answers for a test. Consequently, students will only be allowed to review graded exams during the last 20 minutes of class, approximately 1 week after the exam has been given. This is the ONLY time that students will have access to a graded exam so be sure to come to class on the days when exams are returned. During that time, the instructor will review the exam results and answer general questions about the exam; however, ALL EXAMS MUST BE RETURNED BEFORE THE END OF THE CLASS PERIOD. Failure to return an exam at the end of the class period will result in a ZERO for that exam. Under no circumstances may any EBF exam be photographed, copied, or transcribed at any time.

GRADING:

Course grades are based on each student's cumulative performance in the course as outlined below:

3 Hourly Exams……. 33% each
Optional Final Exam……. 33% (will replace lowest hourly exam score)

Grades will be assigned according to the following point scale:

93-100% = A	77-79.9% = C+
90-92.9% = A-	73-76.9% = C
87-89.9% = B+	70-72.9% = C-
83-86.9% = B	Below 70% = D
80-82.9% = B -	Below 60% = F

UGA provides individuals with disabilities reasonable accommodations to participate in educational programs, activities and services. Students with disabilities requiring accommodations to participate in class activities or meet course requirements should contact me as early as possible

Content/Exam Schedule – Spring 2017

I. Course Introduction — Chapter 1
- A. Objectives & Format
- B. Fish Classification
- C. Fish Body Types

II. Skeletal System — Chapter 2
- A. Chemical composition
- B. Axial skeleton
- C. Appendicular skeleton

III. Locomotion & Buoyancy — Chapter 2 & 3
- A. Trunk musculature & skeleton
- B. Drag reducing morphologies
- C. Dynamic lift
- D. Static lift

IV. Respiration — Chapter 3
- A. Water Gasses and fish respiration
- B. Gill structure & function
- C. Buccal Pump mechanics
- D. Alternate respiratory structures

V. Buoyancy and Thermal Regulation — Chapter 5
- A. Physoclistic Swim Bladder
- B. Physostomic Swim Bladder
- C. Thermal Regulation

EXAM 1 - Approximately FEB 19

VI. Osmoregulation — Chapter 6
- A. Challenges of freshwater
- B. Challenges of saltwater
- C. Teleost adaptations (gross morphology/functions)
- D. Chondrichthyan adaptations

VII. Feeding and Nutrition — Chapter 7
- A. Morphology
- B. Digestive Tract
- C. Nutrition needs

VIII. Reproduction — Chapter 9
- A. Morphological adaptations
- B. Behavioral adaptations
- C. Saltatory Development

IX. Nervous & Sensory Systems — Chapter 10
- A. Vision
- B. Chemosensory system
- C. Acoustico-lateralis
- D. Electro-reception & generation

X. Behavior of Fishes — Chapter 11
- A. Migration
- B. Shoaling/Schooling
- C. Feeding
- D. Aggression
- E. Communication

Exam II – Approximately MARCH 26

XI. Important Sport Fishes	Page #s
A. Salmonidae – salmon, trout, char	324-328
B. Moronidae – Temperate basses	380
C. Siluriformes – Catfishes	308-312
D. Centrarchidae – Sunfishes	380-381
E. Percidae – percids	382
F. Sciaenidae – drums	384
G. Scrombidae – mackerals and tunas	398

XII. Fish Ecology — Chapter 27
- A. Predation
- B. Competition
- C. Symbiosis

XIII. Temperate Streams — Chapter 28
- A. Physical
- B. Chemical
- C. Biological

XIV. Temperate Lakes & Reservoirs — Chapter 29
- A. Physical
- B. Chemical
- C. Biological

EXAM III…. Mon, April 23

Final Exam: Friday April 7, 12-2 pm

TENTATIVE LABORATORY SCHEDULE[1]

Lab 1: External morphology of fishes:
Fish taxonomy, morphometrics, meristics

Lab 2: Fishes of Georgia I: Primitive Fishes - Clupeidae

Lab 3: Fishes of Georgia II: Catostomidae & Ictaluridae

Lab 4: Fishes of Georgia III: Cyprinidae

Lab 5: Fishes of Georgia IV: Esocidae - Triglidae

Lab 6: Fishes of GA V: Petromyzontidae, Lepisosteidae

Lab Exam I

Lab 7: Fishes of Georgia VI: Centrarchidae

Lab 8: Fishes of Georgia VII: Moronidae & Percidae

Lab 9: Fishes of Georgia VIII: Other Perciform Families

Lab Exam II

Lab 10: Field Collections

Lab 11: Field Collections

Lab 12: Field Collections

Field Collections due

[1] Field Trips subject to change depending on weather, logistics, etc.