SYLLABUS

Biology of Fishes
Marine Studies Consortium
Tuesdays, 5-8 pm, New England Aquarium

Instructor: Dr. Mike Armstrong
Email for all class communications: fishbiologyclass@gmail.com
Office hours: before class (with notice), after class

Lab contact: Brianne Dent
Fishes Department
New England Aquarium
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(617)973-5242

Optional text: *Fishes: An Introduction to Ichthyology*, Moyle and Cech (5th edition)

Grading:
- Three exams (60% total; three exams worth 20% each)
- Aquarium/lab activities (15%)
- Written research project (~7 concise and informative pages) on a commercially or socially important group/species of fish using the **primary literature**. Include information on phylogeny, biology, ecology, and management approach and status of the taxon (10%)
- Aquarium lab practical exam (15%)
- Participation and engagement (expected); will count if you need a small bump up to the next letter grade!

Weekly reading assignments: The reading assignment for each week is listed on the syllabus. These readings are optional but many people find them very useful to reinforce and clarify the lecture. The book will sometimes go further in depth on specific topics and this may be of interest to some students. If you intend to stay in the marine biology field this is an excellent text to have in your collection.

Aquarium/Lab activities: The aquarium portion of each class will include an informative introduction to the night's fish groups by the TAs. Each lab session will also include the sketching of a number of representative species, as well as answering associated questions. Activity sheets will guide you through the sketching, labeling, and questions related to each fish and material learned in lectures. There will be a reasonably strong focus on taxonomy (i.e. using characteristics of the fish to help you determine its identity). For the most part, you will be expected to be able to identify fish to the family level, which is perhaps the most useful, common, and intuitive taxonomic level. (Angelfish, butterflyfish, wrasses, billfishes are family-level groups, for example). You will be required to remember many common names

of fish families, and will be tested in an aquarium practical exam near the end of the semester. A good bit of effort here will make this one of the most rewarding take-aways of the course—you'll be able to answer the all-too-common question 'what kind of fish is that?'

You are expected to attend all classes. There's only one a week. If you will be unable to make it to class or meet assignment requirements or deadlines, contact me as early as possible. ***Regarding Spring Break:*** Because you come from several colleges, the spring breaks do not align. This course will not have a spring break. If you can attend during your institution's spring break week that would be good, but if you are off in a warm, sunny spot for the week this is an excused absence but we will carry on in your absence; you'll have to get the notes from a classmate (and all lectures will be available in a PPT online) and make up the aquarium activity for that week.

A word about integrity: Cheating and plagiarism will, at the least, result in a zero on the test or assignment in question and could result in failure of the course. You will be subject to the strictures of your institution's academic honor code/policy.

Week	Lecture Topic	Focal Fishes
1	Introduction, History of ichthyology; Water characteristics	
2	Taxonomy, Chordata, Early fishes	Jawless fishes
3	Evolution of Jawless and Jawed Fishes	Cartilaginous fishes
4	Evolution of bony fishes	Greg Skomal Lecture
5	Form, movement, respiration	Relict bony fishes
6	Exam	
7	Circulation, Buoyancy, Thermoregulation	Bony tongues, eels, herring, minnows
8	Growth, Reproduction	Protacanthopterygii
9	Hydromineral balance,	Paracanthopterygii, Teleosts
10	Exam	
11	feeding, excretion, Fish Habitats, Diadromy	Topminnows, rockfishes, perciformes
12	Fisheries Manag. and Conservation, Population Dynamics	Flounders; puffers
13	Exam	
14	Aquarium Practical	