

## Biol 2002W Animal Form and Function Laboratory

### Required Books:

Invertebrate Zoology, a laboratory manual, 6<sup>th</sup> ed., by Wallace and Taylor.

Recommended: Measuring Behavior: An Introductory Guide, 3<sup>rd</sup> Ed. By Paul Martin and Patrick Bateson. Cambridge University Press, United Kingdom. **ISBN-10:** 0521535638 **ISBN-13:** 978-0521535632 (Amazon, online, xeroxes) \*.

\*-for fall 2023, email your instructor to confirm.

***Course Description:*** 5h, 3 cr. Writing-intensive. You will be examining slides, preserved specimens, dissections, and models of all members of the Animal Kingdom. You will apply what you have learned about animals by performing an Urban Field Zoology Project.

***Urban Field Zoology Project:*** You will choose an animal found naturally in Brooklyn or at the Prospect Park Zoo, and in groups of 4 perform scientific observations on these animals throughout the semester, using experimental methods learned in recitation. Students will compile, analyze and present data in a power-point presentation, and also in a formal scientific report. Students will learn basic writing skills, experimental technique, data analysis, and scientific presentations. ***Requirement: Every student must spend 1 hour in the field per week observing chosen animal, and keep a log book with the observations.***

***Laboratory Technique:*** Please feel free to ask questions in lab, but always try to find out on your own first. Every slide and animal you examine has a corresponding figure in your laboratory book. Always have the laboratory manual open to the figure of the animal you are examining and use it for reference. Examining material without looking in your laboratory manual is pointless.

***Laboratory Notebook:*** Here you will record notes and drawings of each specimen you examine, finding and labeling important structures. By drawing, you *learn* more about the animal *when you first see it*. You will therefore *remember* it when you sit down to study a few months later. I do not grade on how good an artist you are, but on whether you have found and labeled important structures and spent time reading about the animal's life history on the note cards I provide. Taking digital photos will not help you and is not allowed!

***Attendance:*** Attendance is mandatory. There are only 12 labs, so if you miss a lab that is almost 10% of the course. If you miss 2 laboratories, you should drop the course. Practical exams cannot be missed or made up.

***Final grade:*** will be based on laboratory practicals (20%), Laboratory Notebook (20%), oral presentation (20%), weekly editing/rewrites average (20%), and final paper quality (20%). **Cheating and plagiarism will result in a grade of F.**

### Weekly Topics and Assignments

Week	Topic	Due: Invertebrate Biol.	Measuring Behavior	Due: Writing/Field Project
1	Sponges, Cnidaria 1	2, 3A		Choose organism, Groups of 4
2	Cnidaria, Platyhelminthes 1	3B,C; 4, 5A	1-3	Preliminary Observations: 1 page for each student
3	Platyhelminthes 2, Roundworms	5B,D; 8; 12	4,5	10 behavior definitions, focal animal methods (Group)
4	Molluscs	10	6,7	
5	Annelids	11	8	3 Primary papers, paragraph summary on each (Each student)
6	Arthropods 1	16 A,B,C		feedback
7	Arthropods 2	16D		Craft summaries into: Introduction and Question (Each Student)
8	<b>Practical</b>	<b>Practical</b>		feedback
9	Echinoderms and Chordates	22; 25	9	Draft of methods (Each student)
10	Fishes and Amphibians	Supplement	9, appx	Feedback, Preliminary Results: Averages, Graphs (Group)
11	Amniota: Reptiles and Birds	Supplement		In class: how to write scientific paper
12	Amniota: Mammals	Supplement		
13	Your awesome work!			Presentations
14 12/9	<b>Practical</b>	<b>Practical</b>		Lab Notebooks Due

**FINAL PAPER DUE: last day of finals, at 5pm!**

# Urban Field Zoology Project

**The major writing/scientific project:** will be an Urban Field Zoology Project, based on the methods discussed in class. Students will work in groups of 4, collecting data. However, all written assignments are to be done separately. 1-hour per week of field observations is required for each student and described in a log-book updated weekly. Each group of 4 will choose an animal to study either in the field (or at the Prospect Park Zoo). They will first be required to provide 1) summaries of published research on the animal in question and 2) preliminary observations including 10 possible behaviors of interest (defined quantitatively by student) and sampling methods. With feedback they will then craft an Introduction and decide upon their question. Methods, and subsequent results will be turned in and given critique and feedback on writing. Throughout the semester, students will be required to update the class on their experiments with the animals, including any problems they may be having, and will receive feedback from their peers. The final project will include an ethogram of the animal in question (exhaustive description of at least 10 behaviors, including figures) and a time-budget analysis of the behaviors: which behaviors occur, in which order, over numerous focal-animal samples. Any seasonal or daily differences in time budget will be noted and analyzed. Student research will lead to outlining, choice of textual and visual material for an oral/power-point presentation, and, importantly, the development of drafts of the final scientific research report. Outlines and drafts will be discussed and revised in several cycles with their peers in groups of 4.