

**ANIMAL BEHAVIOR LABORATORY (BIO 406/506)**  
**Spring 2009**

**INSTRUCTOR:** Dr. Chris Maher  
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**OFFICE HOURS:** W 1:00-3:00 PM; F 9:00-10:00 AM; or by appointment

**COURSE DESCRIPTION:** In this course, you learn how to study animal behavior: designing experiments, analyzing data, and reporting results. You observe animals and try to understand their activities, using rigorous scientific procedures. Be prepared, however. Animals do not necessarily do what we want, when we want. Therefore, you must exercise patience and keep an open mind. The amount that you learn depends greatly on the amount of time, effort, and creativity that you commit to tasks.

*This syllabus is a guide to the semester's activities; however, I reserve the right to make changes.*

**COURSE PREREQUISITES:** You must have completed successfully (i.e., grade of C- or higher) BIO 107 or BIO 211. If you have not met these prerequisites, please speak with me. A course in statistics (MAT 220) is highly recommended but not required.

**COURSE OBJECTIVES:** Upon successfully completing this course, you should be able to:

- 1) design and conduct laboratory and field experiments;
- 2) demonstrate methodologies that researchers use in animal behavior;
- 3) observe animals carefully and understand principles underlying their behavior;
- 4) communicate your ideas more effectively in written and spoken form.

**REQUIRED TEXTS:**

Martin, P. and Bateson, P. 2007. *Measuring behaviour: an introductory guide*. 3rd ed. Cambridge University Press, Cambridge.

Pechenik, J.A. 2007. *A short guide to writing about biology*. 6th ed. Pearson Longman, New York.

**ATTENDANCE POLICY:** I consider college students to be adults and thus responsible for making their own decisions about whether or not to attend class. However, if you miss a lab, you cannot make it up. Furthermore, since part of your grade is based on participation, if you are absent from class, you lose points in that area.

**ETHICAL CONDUCT:**

**ACADEMIC INTEGRITY:** Cheating, plagiarism, and fabrication of results all violate academic integrity. Plagiarism is a form of cheating, so you must educate yourself about this practice. Plagiarism includes portraying words or ideas as one's own, i.e., taking credit for the work of others. Even if you paraphrase, if you do not give someone credit for his/her ideas, you commit plagiarism. You must paraphrase, cite sources and include a list of those sources. Any violations of academic integrity will be handled through the Office of Community Standards, according to University policy. For more information, see [www.usm.maine.edu/ocs](http://www.usm.maine.edu/ocs).

**ANIMAL WELFARE:** Animal behaviorists are concerned with the ethical treatment of the animals they study. Doing research in behavior requires taking responsibility for those animals.

Whenever we interact with living organisms, we risk affecting them in negative ways. Therefore, we treat all animals humanely, without inflicting any undue harm or injury. We abide by all laws describing the treatment of animals in scientific research, and we try to minimize our impact (positive and negative) on the animals with which we work. USM's Institutional Animal Care and Use Committee approves research that involves direct interactions with vertebrates.

**FIELD WORK:** Many of our labs are conducted outdoors, so you must dress accordingly. Experience says that it's always colder and windier than you think it will be. Since you cannot collect reliable data if you are cold, wet or otherwise uncomfortable, be sure to wear appropriate clothing (layers are best).

**BASES FOR GRADE:**

1) Hypotheses: Most of this semester's labs are experimental labs. To help you to understand the process of science, you will be required to turn in a brief hypothesis (1/2 -1 page) at the beginning of each lab period in which we conduct an experiment or observational study. Your hypothesis should include a prediction about the outcome of the study (which you may have to design yourself) and a justification. The important thing is not to be right, necessarily, but to think about the study and the results that you may see. I will not grade on whether or not your hypothesis is "correct"; rather, I will base your grade on the completeness of your justification and your logic. No late assignments will be accepted.

2) Lab assignments and report: You will submit various written assignments during the semester. Most assignments will be specific sections of a lab report, i.e., Introduction, Methods, Results, Discussion and References. At the end of the semester, you also will turn in one complete lab report on the exercise of your choice. Review chapters 4, 5 and 9 in Pechenik for useful suggestions. **Lab assignments will be due at the beginning of the following lab. The final lab report is due Monday, 11 May, at noon.** No late assignments will be accepted.

3) Proposal presentation: To develop your communication skills, you will deliver a PowerPoint presentation of your proposed research project to your peers. You have 15 min to present the project, followed by 5 min for questions and discussion. Students also provide written comments on each person's presentation, which I distribute to each presenter electronically and anonymously. **Presentations must be emailed to me by noon on Monday, 9 February.**

4) Participation: The more you participate, the more you learn. Thus, participation is an important part of your grade. You do not receive points just for showing up to class. I will observe your level of participation throughout the semester and reward you accordingly.

**GRADE DETERMINATION:**

Hypotheses	5%
Lab assignments	65%
Final lab report	15%
Proposal presentation	10%
Participation	5%
TOTAL	100%

Grades are curved as follows: I use the highest score earned on an assignment as an indication of the best that students could do, and I curve from there, using the scale shown below. Final grades are determined in the same manner: I curve down from the highest number of points earned in the course. If you want to know your grade at any point during the semester, see me.

93-100%	A	87-89.9	B+	77-79.9	C+	67-69.9	D+
90-92.9	A-	83-86.9	B	73-76.9	C	60-66.9	D
		80-82.9	B-	70-72.9	C-	<60	F

### LAB SCHEDULE

DATE	LAB	TOPIC	READING ASSIGNMENT*	ASSIGNMENTS DUE
26 Jan	1	Introduction to lab; Using the library; Generating ideas from observations (FIELD)	M&B: Chapters 1-2 P: Chapters 1-3, 5 Handouts	
2 Feb	2	Describing and quantifying behavior; Sampling methods; Collecting and analyzing data (FIELD, LAB)	M&B: Chapters 3-6, 8-9 P: Chapters 4, 9 Handouts	References; Research project abstract
9 Feb	3	Proposal presentations (LAB)	P: Chapters 10, 14	Results
16 Feb		WINTER BREAK		
23 Feb	4	Foraging in diving birds (FIELD)	Handouts	
2 Mar	5	Schooling in fish (LAB)	Handouts	Introduction, Methods, References (diving)
9 Mar	6	Guppy mate choice (LAB)	Handouts	Results, Discussion, References (schooling)
16 Mar	7	Independent research		Results, Discussion, References (mate choice)
23 Mar		SPRING BREAK		
30 Mar	8	Optimal foraging (LAB)	Handouts	
6 Apr	9	Independent research		Introduction, Results, Discussion, References (foraging)
13 Apr	10	Bird song (FIELD)	Handouts	
20 Apr	11	Dominance-discovery in arthropods (FIELD)	Handouts	Introduction, Methods, Results, References (song)
27 Apr	13	NO LAB (Thinking Matters on 17 Apr)		
4 May	14	Territoriality in red winged blackbirds (FIELD)		Methods, Results, Discussion, References (arthro)
11 May				Lab report (by noon)

\*M&B = Martin and Bateson; P = Pechenik