
ANIMAL BEHAVIOR in Fall 2018 (SC1080)

Course Code	SC1080	Professor(s)	Elena Berg
Prerequisites	None	Office Number	C-202
Class Schedule	MR: 10:35-11:55 in C-103	Office Hours	By appointment
Credits	4	Email	eberg@aup.edu
Semester	Fall 2018	Office Tel. Ext.	614

Course Description

Why do birds sing? Why do male pigeons puff up and strut around after females in the spring? Why do children play so much? How do we select our mates? This course explores how and why animals behave the way they do. No matter what our main life interests may be, all of us have at one time or another seen a cool nature program on TV; or stopped to watch cats, dogs, birds, squirrels or insects doing interesting or mysterious things; or have tried to figure out the motivations and actions of our fellow humans. All behaviors can be investigated at multiple different levels. Specifically, we can ask:

- 1) What are the neural, hormonal, and physiological mechanisms underlying behaviors?
- 2) How do behaviors develop over the course of an individual's lifetime?
- 3) What is the adaptive significance of specific behaviors and what role does natural selection play in maintaining behaviors? And finally,
- 4) What is the evolutionary history of these behaviors? How have behaviors developed over multiple generations?

Within the framework of these "four levels of analysis", we will explore a range of broad topics including natural selection and evolution; the interplay between genes and the environment; animal learning and cognition; hormones and their role in mediating and shaping behavior; the connection between brain and behavior; foraging behavior; predator-prey interactions; courtship and mate choice; parental behavior; conflict and cooperation; animal communication; and social behavior. The course will also explore the applications - and limitations - of an evolutionary framework for understanding human behavior. Throughout the semester, we will be highlighting the interdisciplinary nature of animal behavior and making connections to many other disciplines, including evolutionary biology, ecology, conservation biology, psychology, and the social sciences. In the labs, you will gain first-hand knowledge of the principles of animal behavior and will use the scientific method to design and carry out lab- and field-based research projects. You will have the opportunity to present your data and ideas in both oral and written

formats.

Each week, you will attend two 1-period lectures and one 2-period period. Please note that lectures will not strictly follow or summarize the textbook. Rather, the aim of the lectures is to complement what you are reading outside of class by providing additional case studies and in-depth examination of key concepts. We have a lot of material to cover this term, but I will always make time for your questions, comments, and ideas. The labs are designed to supplement the lecture material and will give you hands-on experience collecting behavioral data and thinking through and applying theoretical concepts.

Course Learning Outcomes

Gain a comprehensive knowledge of behavioral principles and how animal behavior has developed into a scientific discipline.

Apply the scientific method and behavioral theory to answer specific questions about the interaction between organisms and their environment.

Evaluate the relationship between animal behavior and other academic fields.

Develop critical thinking skills that will allow you to engage in debates on environmental and ethical issues related to the science of animal behavior.

General Education

The general education program at AUP consists of four requirements: Speaking the World, Modeling the World, Mapping the World, and Comparing Worlds Past and Present.

This course can be used to fulfill the Modeling the World requirement and as such has the following learning outcomes:

*Students will demonstrate knowledge of core concepts in a scientific field.

*Students will be able to interpret and apply scientific data from a variety of sources.

*Students will be able to apply the scientific method to solve problems.

*Students will demonstrate written and oral presentation skills to communicate scientific knowledge.

Course Outline

PRELIMINARY CLASS OUTLINE (subject to change):

Class #	Date	Lecture & Discussion Topic	Readings
1	Mon Sept 10	Course introduction; Tinbergen's Four Levels of Analysis	Dugatkin Ch. 1, Ch. 3 pp 70-75
2	Thurs Sept 13	Brief history of animal behavior	
3	Mon Sept 17	Quiz 1; Genetics	Ch. 2
4	Thurs Sept 20	What is evolution?	Ch. 2
5	Mon Sept 24	Evolution, continued	Ch. 2
6	Thurs Sept 27	Quiz 1 (on genetics, evolution); Hormones and behavior	Ch. 3 pp. 75-89
7	Mon Oct 1	Neurons and behavior	Ch. 3 pp. 89-103
8	Thurs Oct 4	Quiz 3 (on hormones, neurons); Genes and behavior	Ch. 4 pp. 106-118
9	Mon Oct 8	Development, learning and culture	Ch. 4 pp. 118-127, Ch. 5-6
10	Thurs Oct 11	Quiz 4 (on genes, development); What is sex? Why are there males and females?	Ch. 7
11	Mon Oct 15	Intersexual selection	Ch. 7
12	Thurs Oct 18	Intrasexual selection	Ch. 7
13	Mon Oct 22	MIDTERM EXAM	
14	Thurs Oct 25	Film!	
15	Mon Oct 29	Mating systems	Ch. 8
<i>Fall break – Weds Oct 31 to Sun Nov 4 – NO CLASS</i>			
16	Mon Nov 5	Mating systems, continued	Ch. 8
17	Thurs Nov 8	Quiz 5 (on mating systems); Kinship	Ch. 9
18	Mon Nov 12	Kinship, continued	Ch. 9
19	Thurs Nov 15	Quiz 6 (on kinship); Cooperation among nonrelatives	Ch. 10

20	Mon Nov 19	Cooperative breeding in the white-throated magpie-jay	Berg 2005
21	Thurs Nov 22	Quiz 7 (on cooperation, jays); Foraging behavior	Ch. 11
22	Mon Nov 26	Predator-prey interactions	Ch. 12
23	Thurs Nov 29	Quiz 8 (on foraging and predation); Play	Ch. 16
24	Mon Dec 3	Human evolution	Zimmer Ch. 14
25	Thurs Dec 6	Evolution of human behavior	Alcock Ch. 14
26	Mon Dec 10	Evolutionary medicine	Nesse & Williams 1998

Lab #	Date	Lab Topic	Description/Questions
1	Mon Sept 10 Thurs Sept 13	Water	An introduction to experimental design,"blind" testing, and subjective bias
2	Mon Sept 17 Thurs Sept 20	Levels of analysis	Debate on Tinbergen's Four Questions: distinguishing among levels of analysis
3	Mon Sept 24 Thurs Sept 27	The scientific method	How to make observations; formulate hypotheses; generate predictions; and collect, analyze, and present data
4	Mon Oct 1 Thurs Oct 4	Constructing an ethogram	How to objectively define behaviors before collecting data
5	Mon Oct 8 Thurs Oct 11	Behavioral sampling techniques	How to score behavioral data
6	Mon Oct 15 Thurs Oct 18	Cricket behavior #1	In this 2-part lab, you will observe cricket behavior in the lab and will use the scientific method to test hypotheses
7	Mon Oct 22 Thurs Oct 25	Cricket behavior #2	
Fall break – NO LAB Mon Oct 29 or Thurs Nov 1			
	Mon Nov 5 Thurs Nov 8	No lab this week! Trip to zoo this weekend instead...	

8 & 9	Sat Nov 10	Behavior of zoo animals	Both lab groups will meet together at the Ménagerie du Jardin des Plantes and will spend the day there (6 hours) observing and recording the behaviors of captive animals
10	Mon Nov 12 Thurs Nov 15	Human behavior #1	In this 2-part lab, you will use the techniques you have learned to test hypotheses about human behavior. In part 1, you and a partner will come up with a hypothesis to test.
11	Mon Nov 19 Thurs Nov 22	Human behavior #2	In part 2, you and your partner will carry out your study of humans
12	Mon Nov 26 Thurs Nov 29	Oral presentations	Each student will give 10-minute talks about one of their research projects
13	Mon Dec 3 Thurs Dec 6	Review sessions for final	To be held in my office, Combes 202

The final exam will be held on Thursday December 20 from 8:30 - 11:00 in C-103

Textbooks

Title	Author	Publisher	ISBN	Required
Principles of Animal Behavior, Third Edition	DUGATKIN, Lee Alan	Norton	9780393922332	Yes

Attendance Policy

COURSE-SPECIFIC POLICY:

Students are expected to attend all classes, and to **be on time**. You should come to each lecture prepared, having read the assigned material. **If you have to miss a lecture or lab for any reason, please contact me ahead of time.** Lectures will be posted on Blackboard as a courtesy, but the material we cover in class is always your responsibility. **Students arriving more than 10 minutes late to a lecture or lab session may be asked to leave.** Please remember that missed quizzes and labs cannot be retaken for any reason. **If you miss more**

than four labs, you will receive an automatic F in the class.

AUP OFFICIAL POLICY:

Students studying at The American University of Paris are expected to attend ALL scheduled classes, and in case of absence, should contact their professors to explain the situation. It is the student's responsibility to be aware of any specific attendance policy that a faculty member might have set in the course syllabus. The French Department, for example, has its own attendance policy, and students are responsible for compliance. Academic Affairs will excuse an absence for students' participation in study trips related to their courses.

Attendance at all exams is mandatory.

IN ALL CASES OF MISSED COURSE MEETINGS, THE RESPONSIBILITY FOR COMMUNICATION WITH THE PROFESSOR, AND FOR ARRANGING TO MAKE UP MISSED WORK, RESTS SOLELY WITH THE STUDENT.

Grading Policy

Item	Num.	Duration	Evaluation	Percentage final grade
Class quizzes	8	20 min	Percentage of correct answers, average of top 6 scores	20%
Laboratory	12		A, B, C, D, F, average of top 10 scores	30%
Presentation	1	10 min	A, B, C, D, F	5%
Midterm	1	80 min	Percentage of correct answers	20%
Final exam	1	2.5 hrs	Percentage of correct answers	25%

Exams: There will be one midterm and a final exam scheduled during the semester. Each exam will contain a mixture of multiple choice, fill-in, true-false, and short-answer essay questions. Be prepared to synthesize ideas rather than just regurgitate information. The final exam will focus on material from the second half of the semester, but some central concepts will carry over. **The final exam is scheduled for Dec 20 from 8:30-11:00 in C-103.**

Quizzes: Approximately every week there will be a quiz during the first 20 minutes of a lecture period (10:35-10:55). These short quizzes will be based on the readings and lectures and are designed to keep you up to date on the course material. They should be an easy way to earn points. By staying on top of things as we go along, you will have a much easier time preparing for exams! There will be no way to make up a missed quiz, so please come to class. For your final grade, I will take the average of your top six quiz scores.

Lab Assignments: For most labs, you will work together in teams but will each write up a separate lab report. Labs will be a mixture of in-class and field activities. Some of the labs will involve small group activities designed to familiarize you with a specific concept. Other labs will involve observing cricket behavior in the lab or taking field trips to local sites to observe behavior in a more “natural” context. The labs are designed to build on each other so that by the end you will be applying all the concepts you learned in earlier labs. The labs are designed to be doable within the two-period time frame but in some cases you will be allowed to complete them at home and bring them to the next lecture period. For your final grade, I will take the average of your top 10 labs. **Please note: if you miss more than four labs, you will receive an automatic F in the class.**

Presentation: During the final lab period, each of you will give a short ten-minute presentation on one of the behavioral projects you conducted during labs. This presentation cannot be one of the two lab grades that you drop, and it cannot be rescheduled for any reason.

Grading Scheme:

<u>Total percent</u>	<u>Grade</u>
94-100	A
90-94	A-
87-90	B+
84-87	B
80-84	B-
77-80	C+

74-77	C
70-74	C-
67-70	D+
64-67	D
60-64	D-
<60	F

Other
