

# BIEB 166: Animal Behavior & Communication

## Course Information

### Winter Quarter 2010

#### Grading

Your final grade is based upon the following items:

- 1) First midterm exam = 25%
- 2) Second midterm exam = 30%
- 3) Final exam = 45%

#### What you need to buy

**You do not need to buy any books or course readers for this course!** All of the assigned readings, lecture notes, and lecture slides are available online for you to read and download. However, you will not be able to access the reading material (e-reserves) from home unless you have a proxy server set up (see previous section). Note that we have included additional readings that are not required, but are for your own enrichment on e-reserves. Required e-reserve readings will be discussed in section and tested on the exam and are listed on the lecture schedule (see end of this document). All of the lecture notes, lectures slides, and lecture movies can be accessed from home, but you will need a fast modem.

#### Sourcebook

The course sourcebook contains a study guide, all of the old exams, and all of the lecture slides and lecture outlines. I highly recommend purchasing this sourcebook because it is generally more time and cost effective than downloading this information off the website and printing it out yourself.

#### Additional weekly readings

These readings are papers published in scientific journals and are designed to expose you to scientific literature and the scientific method. The readings are also assigned to give you a deeper example of a particular topic. **You will be tested on the readings!** Sections will go over the weekly readings. Please attend the sections or office hours if you have any questions about the readings.

#### Sections

**Sections are optional.** Sections will review material presented in the lecture and any additional weekly readings that have been assigned. The teaching assistants will also have office hours (1 hour/week) with extra office hours before the exams. **There will be no sections during the first week of the course.**

#### Regrades

If an error has been made in the grading of your midterms, you may submit it to the instructor within *one week* of distribution for a regrade. The cut-off date for final exam regrades will be announced later in the quarter. Do not go to a TA for a regrade. **Your midterm or final exam must first be submitted to the instructor with a written description of the grading error.** Regrade requests will not be processed without a written description of the grading error. **No regrades will be given for exams written in non-permanent ink.**

### **Missed exams**

There are no make-up exams. If you must miss an exam, you will be required to provide official documentation of an unavoidable emergency (e.g. serious illness, etc.). Without such documentation, you will receive a failing grade for that exam. With valid documentation, the proportion of your grade that is based upon your final exam will be increased to cover the midterm that was missed. A missed final exam cannot be taken at a later date. If you are able to provide official documentation of an unavoidable emergency, you will receive an incomplete for the course. You will then need to make arrangements to complete the course in the following quarter.

### **Excused absences**

If you cannot be present in the classroom for an exam and can present a valid excuse (such as a note from your coach for a sporting event), then a sealed copy of the exam will be given to the coach, musical director, etc who will administer the exam **at the class exam time**. **You must present the documentation at least 1 week in advance of the exam**. If no UCSD official can be found to administer the exam, then it will count as a missed exam. If the exam cannot be taken on the class exam day, then it will count as a missed exam.

**No exam can be taken before or after the scheduled exam date.**

### **Cheating**

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Cheating will not be tolerated, and we will fail any student caught engaging in academic dishonesty. All exams will be closed-book and closed-notes, so all personal materials must be stowed under your seat. Students will be spaced in alternating seats. Only exams written in non-erasable pen will be considered for regrades. Because both exams are required for satisfactory completion of this course, any student caught cheating on an exam will receive a failing grade for the course. He or she may also be suspended from UCSD.

### **WebCT**

The course will be using web learning software called "WebCT". Our course website is <http://webct.ucsd.edu>. Your USERID and Password for your UCSD email account should work. However, if you are a recent transfer student or do not yet have a UCSD email account, we will need to issue you a password. If you experience problems accessing WebCT, please contact Academic Computer Support.

PLEASE CHECK THIS WEBSITE FREQUENTLY! Virtually of the course information is available through this web site. All of the **READINGS** (with the exception of the required textbook) are available through this site and can be downloaded as PDF files or viewed directly on the web. **GRADES** are also available on the website (you will receive a password once you register). All **LECTURE NOTES** will be available on the website immediately after the lecture.

### **Movies (streaming video online)**

All movies shown in the course, with the exception of some short visual examples illustrating sound effects, are available online as streaming video. This video can be viewed from a 56K modem, but be aware that few modems actually achieve this rate. For best results, view them from a computer on campus. Viewing movies online is not a substitute for attending class. The significance of the films will be discussed in class, something which is not available online.

# BIEB 166 syllabus

## Animal Behavior & Communication

**Please note:** information in this syllabus is subject to change. Any schedule changes will be handed out in class and posted on the web site. Make sure to frequently check the web site to keep updated about the weekly readings, assignments, and exam schedule.

### READINGS

(all supplemental readings will be on the “e-reserves” section of the website)

- 1 Lecture readings:** These readings are available in the coursebook or you can download them from WebCT.
- 2 PAC:** Bradbury J, and S.L. Vehrencamp (1998) Principles of Animal Communication, Sinauer Assoc., Inc., Sunderland, Mass.
- 3 PAB:** Dugatkin, L.A. (2009) Principles of Animal Behavior, 2<sup>nd</sup> Edition, W.W. Norton & Company, Inc., New York, NY.  
*Please note that the readings from this book are suggested, not mandatory. Material that is ONLY found in this book and not in the required readings or discussed in lecture will not be tested. I have suggested readings because they supplement topics that we discuss in lecture and that are discussed in the readings that I have written.*
- 4 SELECTED RESEARCH PAPERS (see weekly schedule).** Note that we have included some additional readings on e-reserves that are not required, but are for your own enrichment.

### CONTACT INFORMATION & OFFICE HOURS

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**Office Hours:** Please see WebCT site for details

### TA section times and Office Hours

Please see WebCT site for details

## Part I. Ethology & Mechanisms of Behavior

### WEEK 1

- Jan 4      Lecture 1: Course Overview & History of Ethology  
**Lecture 1 reading**
- Jan 6      Lecture 2: The four questions of Tinbergen: Classical Ethology part I  
**Lecture 2 reading**
- Jan 8      Lecture 3: Classical Ethology part II  
**Lecture 3 reading**

No section this week, please register for a section. To register, please go online to <http://sections.ucsd.edu>. We understand that may need to change sections at some point, so please come and see the head TA about this and other section issues.

### WEEK 2

- Jan 11      Lecture 4: Behavioral Neurobiology.  
**Lecture 4 reading**  
*Optional: PAB p90-98*
- Jan 13      Lecture 5: Behavioral Endocrinology.  
**Lecture 5 reading**  
*Optional: PAB p81-90*
- Jan 15      Lecture 6: Behavioral Genetics.  
**Lecture 6 reading**  
*Optional: PAB p100-104*

#### Section reading:

Mayr, E. (1978). Evolution. *Scientific American* 239: 47-55. The reading is available online on E-reserves. This reading will be tested on the midterm. **Note: if you cannot attend the section for which you signed up, please attend whatever section you can make (see WebCT for times and locations) and then talk to the head TA to register for a different section time.**

### WEEK 3

- Jan 18      **NO LECTURE, MARTIN LUTHER KING HOLIDAY**
- Jan 20      Lecture 7: Genetics & Learning (Part I)  
**Lecture 7 reading**  
*Optional: PAB p146*
- Jan 22      Lecture 8: Learning Part II  
**Lecture 8 reading**  
*Optional: PAB p118-145*

#### Section reading:

Berdoy M, J.P. Webster, and D.W. Macdonald. (2000) Fatal attraction in rats infected with *toxoplasma gondii*. *Proceedings of the Royal Society London B*. 267:1591-1594. The reading is available online. This reading will be tested on the midterm.

## Part II. Orientation & navigation

### WEEK 4

- Jan 25 Lecture 9: Imprinting & Kin Recognition  
**Lecture 9 reading**  
*Optional: PAB p208-210*
- Jan 27 Lecture 10: Orientation: Kinesis & Taxis  
**Lecture 10 reading**
- Jan 29 Lecture 11: Orientation: Migration orientation mechanisms  
**Lecture 11 reading**  
*Optional: PAB p443-448*

#### Section:

Review for the first midterm. The instructor will also hold an additional review section over the weekend. Please see WebCT for the time and place. Please bring questions!

## Part III. Signal origins, properties, & design

### WEEK 5

- Feb 1 **FIRST MIDTERM in class (covering lectures 1-11)**
- Feb 3 Lecture 12: Representational communication  
**Lecture 12 reading**
- Feb 5 Lecture 13: Signal origin & evolution  
**Lecture 13 reading**  
*Optional: PAB p400-405*

#### Section:

Discuss results of first midterm and review problem areas.

### WEEK 6

- Feb 8 Lecture 14: Properties of Sound
- Feb 10 Lecture 15: Fourier Analysis  
**PAC:** chapter 3 (available on E-reserves)
- Feb 12 Lecture 16: Sound Production

#### Section:

Review lectures and discuss examples of sound analysis, particularly focusing on interpreting Fourier spectrograms and spectrums.

To pick up your exams, please to the North Lobby of the Muir Biology Building.

### WEEK 7

- Feb 15 **NO LECTURE, PRESIDENT'S DAY HOLIDAY**
- Feb 17 Lecture 17: Sound Propagation
- Feb 19 Lecture 18: Sound Reception  
**PAC:** chapter 6: 16-57 (available on E-reserves)

#### Section:

Review lectures and discuss examples of sound analysis, propagation, and reception.

**WEEK 8**

Feb 22 Lecture 19: Sound Reception II & Whale sound communication

**Lecture 19 reading**

Feb 24 Lecture 20: Properties of light

**PAC:** chapter 8 (available on E-reserves)

Feb 26 Lecture 21: Visual signal production

**PAC:** chapter 8 (available on E-reserves)

**Section:**

Review lectures and prepare for Midterm 2.

**WEEK 9**

March 1 **SECOND MIDTERM in class (covering lectures 12-20)**

March 3 Lecture 22: Visual signal transmission & reception

**PAC:** chapter 8 (available on E-reserves)

March 5 Lecture 23: Visual signal reception II.

**PAC:** chapter 8 (available on E-reserves)

**Section:**

Review second midterm results, discuss problem areas, and review light and vision.

**WEEK 10**

March 8 Lecture 24: Olfactory signaling: production & transmission

**PAC:** chapter 10, p279-304 (available on E-reserves)

March 10 Lecture 25: Olfactory signaling: reception

**PAC:** chapter 10 p305-318 (available on E-reserves)

March 12 Lecture 26: Course Summary

**Section:**

Review olfaction and review for final exam. The instructor will give a special review section for the final exam. Please bring questions and see WebCT for the time and location of this review. Other TA's may also give reviews. Please see WebCT for details.

**FINAL EXAM WEEK!**

**FINAL EXAM to be held on \_March 19, 2010\_ from 11:30 am to 2:30 pm\_ in \_To be announced\_**

**The final exam will be closed-book. Any material from any lecture and from the mandatory readings can be tested on the final exam.**

## Bedtime Reading

### If you would like to learn more about certain topics, we recommend:

- Alcock, J. 1988. *The Kookaburra's Song*. Tucson: University of Arizona Press.
- Cronin, H. 1991. *The Ant and the Peacock*. Cambridge: Press Syndicate of the University of Cambridge.
- Delthier, V. 1992. *Crickets and Katydid, Concerts and Solos*. Cambridge: Harvard University Press.
- Dethier, V. 1962. *To Know a Fly*. San Francisco: Holden-Day.
- Diamond, J. 1992. *The Third Chimpanzee*. New York: Harper Collins.
- Evans, H.E. 1966. *Life on a Little Known Planet*. New York: E.P. Dutton & Co., Inc.
- Goodall, J. 1990. *Through a Window: My Thirty Years with the Chimpanzees of Gombe*. Boston: Houghton Mifflin.
- Grandin, T. 1995. *Thinking in Pictures*. New York: Vintage.
- Griffin, D. 2001 *Animal Minds*. Chicago: University of Chicago Press.
- Heinrich, B. 2001. *Racing the Antelope*. New York: Cliff Street Books.
- Moss, C. 1988. *Elephant Memories: Thirteen Years in the Life of an Elephant Family*. New York: W. Morrow Inc.
- Sober, D. and D. S. Wilson. 1998. *Unto Others*. Cambridge: Harvard University Press.
- Steinbeck, J. 1951. *The Log from the Sea of Cortez*. New York: Penguin Books.
- Tinbergen, N. 1969. *Curious Naturalists*. New York: Anchor Books.
- Ryan, M. 1985. *The Tungara Frog*. Chicago: University of Chicago Press.
- von Frisch, K. 1967. *The Dance Language and Orientation of Bees*. Cambridge: Harvard University Press.
- Weiner, J. 1999. *Time, Love, Memory: A Great Biologist and His Quest for the Origins of Behavior*. New York: Vintage.
- Wilson, E.O. 1994. *Naturalist*. Washington, D.C.: Island Press.