

BIEB 166: Animal Behavior & Communication Course Information

Grading

Grading is on a fixed percentage scale, not on a curve. Grading on a curve forces you to compete with your classmates. I believe you should be rewarded for your own achievements, not upon how many people have lower or higher grades. In addition, grading with a fixed percentage allows you to have performance criteria that are specific, explicit, and clear. Each percentage shown is the **lowest** percentage corresponding to a letter grade. For example, any percentage that is greater than or equal to 76.3% and less than 80% corresponds to a B+.

46.3%=F
50%=D-
53.3%=D
56.3%=D+
60%=C-
63.3%=C
66.3%=C+
70%=B-
73.3%=B
76.3%=B+
80%=A-
83.3%=A
86.6%=A+

Your final grade is based upon the following:

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

To determine your overall grade to date, please use the following formula:

Total percentage = [(% from Midterm 1) x 0.25] + [(% from Midterm 2) x 0.30] + [(% from Final) x 0.45]

What does this formula mean? It weighs each exam by the percentage of your total grade that the exam is worth. Midterm 1 is worth 25%, Midterm 2 is worth 30%, and the Final is worth 45% of your grade.

How does my improvement affect my grade?

The weighting system that I use gives each successive exam more weight. Thus, you are automatically rewarded if you do better in each successive exam. In addition, I look at all the grades to see if you also exhibited steady **PERCENTAGE** improvement on the exams. Thus, if you scored 50%, 60%, and 70% respectively on each successive exam, I will increase your grade by one third of letter grade to reflect this improvement (for example, a B+ would become an A-). **HOWEVER**, this is based upon **PERCENTAGE** improvement, not on your raw points. Please calculate your percentages on each exam.

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. There are two different ways for you to access online readings. Because of copyright restrictions, readings are available on the course website **FOR A LIMITED PERIOD OF TIME, PLEASE DOWNLOAD THEM IMMEDIATELY!** Readings are **ALSO** available on the UCSD e-reserves website. However, you will not be able to access e-reserves from home unless you have a proxy server set up (see the UCSD website on how to set this up). Note that we have included additional readings that are not required, but are for your own enrichment. Required readings will be discussed in section and tested on the exam and are listed on the lecture schedule (see end of this document). All lecture notes, lectures slides, and lecture movies can be accessed from home, if you have the correct software configurations. If you cannot access these materials, please use a campus computer.

Sourcebook

The course sourcebook contains a syllabus (but not the most current one, see online), a study guide, the lecture slides, lecture outlines, instructor-written readings, and four years of old exams (all keys and other exams are online). I recommend purchasing this sourcebook because it can be more time and cost effective than downloading this information off the website and printing it out yourself. **However, this is up to you.** Increasingly, students also bring computers to class and view the information and take notes directly on these machines.

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 (one hour per section taught) with extra office hours before the exams. **There will be no sections during the first week of the course. To sign up for a section, please use the UCSD online section tool. We prefer that you attend the section you signed up for** but, if necessary, you can switch sections or attend another section if you are unable to attend your regularly scheduled section.

Where can I pick up my exams?

On your exam cover page, there will be a waiver which allows you to pick up your exam from the table in the North Lobby of the Muir Biology Building (this is directly across from the APM building). If you decide not to sign this waiver, then you must pick up your exams directly from the instructor after class.

Regrades

If an error has been made in the grading of your midterms, you may submit it to the instructor or TA within **one week** of the date when exams are first available for pickup. The cut-off date for final exam regrades will be announced later in the quarter. **Your midterm or final exam must with a DETAILED written description of the grading error explaining why it was incorrectly graded.** Simply writing, "this was incorrectly graded" is not sufficient. A verbal description to a TA or the instructor is not sufficient. 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 **WRITTEN** documentation of an unavoidable emergency (e.g. serious illness). 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. *For example, an excused absence for Midterm 1 means that the Final exam will now be worth 25% + 45% = 70% of your grade.* **You cannot take the final exam if you missed both midterms, even if you have written excuses. 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 same time as the class exam.** **You must present the documentation at least one 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.**

Academic Misconduct Policy

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. **Academic misconduct** is broadly defined as any prohibited and dishonest means to receive course credit, a higher grade, or avoid a lower grade. Academic misconduct misrepresents your knowledge and abilities, which undermines the instructor's ability to determine how well you're doing in the course. **Such cheating will not be tolerated, and I will fail any student caught engaging in academic dishonesty and report the case to the UCSD Academic Integrity Review Board. Punishment for cheating is severe, including possible suspension.** Please do not risk your future by cheating. All exams will be closed-book and closed-notes, so all personal materials must be stowed under your seat. **No electronic devices are allowed.** Only exams written in non-erasable pen will be considered for regrades.

The course website

The course will be using web learning software called "TED/WebCT". 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, please contact Academic Computer Support. **PLEASE CHECK THE COURSE WEBSITE FREQUENTLY!** All of the **READINGS** are available through this site and can be downloaded as PDF files or viewed directly on the web. Exam **keys** and **grades** are also on the website.

IMPORTANT! How to resolve issues with TED

If you are having **problems viewing the pdf** files, please make sure that you have downloaded the latest version of whatever browser you are using. The Adobe Reader and Acrobat plug-ins are not compatible with FireFox 4+ and Safari 5.1+ on Mac OS X. To resolve the error: install [PDF Browser Plugin](#) or use the [Google Chrome](#) web browser. The plugins can be accessed by clicking on the links on the lower right hand corner of the login screen for ted.ucsd.edu.

Podcasting

All lectures are audio podcast. In addition, all lectures are video podcast, *if the lecture hall is video podcast enabled*. When possible, the review sections led by the instructor will also be audio and video podcast, *if the review lecture hall has audio or video podcast enabled*. Please access these podcasts at <http://podcast.ucsd.edu>. You can listen and view them using your internet browser or download them for later access with software such as iTunes.

Movies (online video)

All movies shown in the course, with the exception of some short visual examples illustrating sound effects, are available online as Quicktime video files that you can download. **IT TAKES SOME TIME FOR THESE FILES TO DOWNLOAD, PLEASE BE PATIENT.** 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 posted on the course web site.** Make sure to frequently check the web site to keep updated.

READINGS

ALL READINGS ARE REQUIRED, UNLESS THEY ARE LABELED "OPTIONAL," PLEASE CHECK WHAT IS LISTED FOR EACH LECTURE.

- 1 Lecture readings:** These readings are available in the coursebook or you can download them from the course website.
- 2 PAC:** Bradbury J, and S.L. Vehrencamp (2011) Principles of Animal Communication, 2nd Edition, Sinauer Assoc., Inc., Sunderland, Mass. ***Please note that this 2nd edition is completely different from the 1st edition.***
- 3 PAB:** Dugatkin, L.A. (2009) Principles of Animal Behavior, 2nd 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).**

CONTACT INFORMATION & OFFICE HOURS

Instructor: James C. Nieh

Muir Biology Building Room 1268

Office: 858 822-5010

Email: jnieh@ucsd.edu

Office Hours: Please see the course website site for details

TA section times and Office Hours

Please see the course website site for details

Review sections

The instructor, James Nieh, will give a review section on the weekend (usually on Saturday) immediately before a midterm exam. The midterm exams are scheduled on Mondays to give you the preceding weekend to study. The review sections are usually scheduled on Saturday to give you one additional day after the review section to study. Review sections are always Question and Answer sessions to which you should bring questions. The instructor will cover topics that students had difficulty with, but cannot cover everything. If you cannot attend a review section, please try to listen or view (if available, depending upon the review section room assignment) the podcasts.

Part I. Ethology & Mechanisms of Behavior

NOTE: ALL READINGS ARE REQUIRED, UNLESS THEY ARE LABELED "OPTIONAL"

WEEK 1

- Jan 9 Lecture 1: Course Overview & History of Ethology
Lecture 1 reading (see sourcebook or course website for these readings)
- Jan 11 Lecture 2: The four questions of Tinbergen: Classical Ethology part I
Lecture 2 reading
- Jan 13 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 16 **NO LECTURE, MARTIN LUTHER KING HOLIDAY**
- Jan 18 Lecture 4: Behavioral Neurobiology.
Lecture 4 reading
Optional reading (NOT required, you will not be tested on it): PAB p90-98
PAB = Principles of Animal Behavior, available online
- Jan 20 Lecture 5: Behavioral Endocrinology.
Lecture 5 reading
Optional: PAB p81-90

Section reading:

Adkins-Regan (1998) Hormonal mechanisms of mate choice. American Zoologist, 38: 166-178.
This reading may be tested on the midterm. (If not, it will be tested on the final.) **Note: if you cannot attend the section for which you signed up, please attend whatever section you can make (see the course website for times and locations).**

WEEK 3

- Jan 23 Lecture 6: Behavioral Genetics.
Lecture 6 reading
Optional: PAB p100-104
- Jan 25 Lecture 7: Genetics & Learning (Part I)
Lecture 7 reading
Optional: PAB p146
- Jan 27 Lecture 8: Learning Part II
Lecture 8 reading
Optional: PAB p118-145

Section reading:

Capaldi, E.A., Robinson, G.E., and Fahrback, S.E. (1999) Neuroethology of spatial learning: the birds and the bees. Annual Review of Psychology. 50:651-682. The reading is available online.
This reading may be tested on the midterm. (If not, it will be tested on the final.) Please note that some of the topics covered in this paper are relevant to week 4 lectures.

Part II. Orientation & navigation

WEEK 4

- Jan 30 Lecture 9: Imprinting & Kin Recognition
Lecture 9 reading
Optional: PAB p208-210
- Feb 1 Lecture 10: Orientation: Kinesis & Taxis
Lecture 10 reading
- Feb 3 Lecture 11: Orientation: Migration orientation mechanisms
Lecture 11 reading
Optional: PAB p443-448

Section:

Review for the first midterm. In addition, your section TA will continue to discuss aspects of the Capaldi et al. (1999) reading that are relevant to this week's lectures.

Review:

The instructor will also hold an additional review section over the weekend. Please see the course website for the time and place. Please bring questions!

Part III. Signal origins, properties, & design

WEEK 5

- Feb 6 **FIRST MIDTERM in class (covering lectures 1-11)**
- Feb 8 Lecture 12: Representational communication
Lecture 12 reading
- Feb 10 Lecture 13: Signal origin & evolution
Lecture 13 reading
Optional: PAB p400-405

Section Reading:

Cheney, D.L. and Seyfarth, R.M. (1985) Vervet monkey alarm calls: manipulation through shared information? 94: 150-166. The reading is available online. This reading may be tested on the midterm. (If not, it will be tested on the final.). **In addition, you will results of the first midterm and review problem areas.**

WEEK 6

- Feb 13 Lecture 14: Properties of Sound
Beginning with this lecture, with the exception of lectures 19 and 25, readings are only in the book chapters. There are no more lecturer-written readings.
PAC (2nd edition, available online): p19-33.
PAC = Principles of Animal Communication, available online
- Feb 15 Lecture 15: Fourier Analysis
PAC (2nd edition, available online): p24-27.
- Feb 17 Lecture 16: Sound Production
PAC (2nd edition, available online): p33-63.

Section:

Review lectures and discuss examples of sound analysis, *particularly focusing on interpreting Fourier spectrograms and spectrums*. **There is no assigned section reading this week** because I want you to focus your section time on the topic of understanding how to use Fourier analysis for understanding animal communication.

WEEK 7

Feb 20 **NO LECTURE, PRESIDENT'S DAY HOLIDAY**

Feb 22 Lecture 17: Sound Propagation
PAC (2nd edition, available online): p65-83.

Feb 24 Lecture 18: Sound Reception
PAC (2nd edition, available online): p83-111.

Section:

Review lectures and discuss examples of sound analysis, propagation, and reception. Focus on Fourier examples. You may notice that there is no special section reading assigned. This is because these topics are typically challenging and require more intensive discussion and review.

WEEK 8

Feb 27 Lecture 19: Whale sound communication

Lecture 19 reading

Feb 29 Lecture 20: Properties of light
PAC (2nd edition, available online): p113-121.

March 2 Lecture 21: Visual signal production
PAC (2nd edition, available online): p121-151.

Section:

Review lectures and **prepare for Midterm 2**. No special section reading is assigned. The instructor will hold a review section over the weekend. Please check online for date and time!

WEEK 9

March 5 **SECOND MIDTERM in class (covering lectures 12-21)**

March 7 Lecture 22: Visual signal transmission & reception
PAC (2nd edition, available online): p153-169

March 9 Lecture 23: Visual signal reception II.
PAC (2nd edition, available online): p170-191.

Section:

Review second midterm results, discuss problem areas, and review light and vision. No special section reading is assigned.

WEEK 10

March 12 Lecture 24: Olfactory signaling: production & transmission
PAC (2nd edition, available online): p193-213

March 14 Lecture 25: Olfactory signaling: reception
PAC (2nd edition, available online): p214-234.

Lecture 25 reading.

March 16 Lecture 26: Course Summary
NO ASSIGNED READING FOR THIS LECTURE

Section:

Review olfaction and review for final exam. No special section reading is assigned. **The instructor will give a special review section for the final exam.** Please bring questions and

see the course website for the time and location of this review. Other TA's may also give reviews. Please see the course website for details.

FINAL EXAM WEEK!

FINAL EXAM to be held on March 19, 2012, from 11:30 to 2:30 pm in ROOM TO BE ANNOUNCED (please check online).

The final exam will be closed-book. No exam aids or electronic devices allowed.

Any material from any lecture and from the mandatory readings can be tested on the final exam. The final exam will emphasize material in Lectures 22-26 and material that you learned in Lectures 1-21 THAT YOU WERE NOT TESTED ON IN EITHER MIDTERM. In addition, the final exam will test you on the assigned papers. In particular, if no questions were asked about a particular assigned paper on either midterm, then you will be asked about this paper or papers on the final exam.

Bedtime Reading

If you would like to learn more about certain topics, I 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.