

BIEB 166 Syllabus Spring 2020

Animal Behavior & Communication

Please note: **this syllabus is subject to change, particularly because of campus efforts to contain covid-19. Any schedule changes will be posted on the course website.** Make sure to frequently check the website to keep updated.

Please make sure that you check out this website for resources on how to learn remotely:
<https://digitallearning.ucsd.edu/learners/learning-remote.html>

Overall Learning Goals

I am excited that you will be learning about the fascinating field of Animal Behavior and Communication. The course is somewhat unusual in that it is a synthesis of traditional topics in Animal Behavior with a strong emphasis on mechanism and biophysics. I have the following learning goals for you.

- 1) **This is an extraordinary time, and I truly value and appreciate your commitment towards this course. I realize it can be difficult to sit in front of a screen for hours, as you will be, with all of your courses. One of my goals is therefore to encourage interaction, which will be facilitated by the IA's. Although there are multiple disadvantages to online learning, we may be able to handle far greater interaction, and I hope that this engagement will be fun and rewarding.**
- 2) Understand some of the amazing ways in which animal behavior and communication has evolved.
- 3) Learn how to analyze questions on multiple levels, on both the proximate (here and now) and ultimate (evolutionary) levels.
- 4) Be able to look at an animal behavior that you encounter, not only the ones that we discuss in this course, but any animal behavior, and form hypotheses and experiments as a scientist would. Why is the animal doing this? How can I answer my question? What are the appropriate control experiments?
- 5) Understand the constraints that shape animal communication in the acoustic, visual, and olfactory domains.
- 6) Years from now, I hope that you will retain an appreciation of the excitement and concepts that have arisen in the quest to understand the amazing behavior of animals. Above all, I hope that this course will expand your own horizons, giving you a sense of what it is like to live in different sensory worlds, and an admiration of the solutions that evolution has tailored.

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. Please note that I use two significant digits.

I understand this is a challenging time and that you may have challenges with accessing the course material, adapting to online-only learning, and perhaps taking the quizzes and exams. My goals are to teach you the course material, fairly test your knowledge of this material, and grade you accordingly, while keeping these challenges in mind.

A+	≥96.66%
A	93.33%
A-	90.00%
B+	86.66%
B	83.33%
B-	80.00%
C+	76.66%
C	73.33%
C-	70.00%
D	<70.00% is a D (there is no D+ or D-)
F	<60.00% is an F

Your final grade is based upon the following:

- 1) First midterm exam = 20%
- 2) Second midterm exam = 30%
- 3) Final exam = 45%
- 4) Quizzes = 5%

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

Total percentage = [(% from Midterm 1) x 0.20] + [(% from Midterm 2) x 0.30] + [(% from Final) x 0.40] + (% from quizzes) x 0.05

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 20%, Midterm 2 is worth 30%, and the Final is worth 40% of your grade. The quizzes count for 5% of your grade and are based upon your highest seven quiz grades (out of nine quizzes).

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. Sometimes, students are initially not familiar with how to best study for the course. Therefore, they may not do well on the first exam. However, they can compensate for this by improving their performance on successive exams.

In addition, the weights reflect the difficulty of the material covered in each exam. Midterm 1 covers 9 lectures. Midterm 2 covers 9 lectures (but in material that is more technical and that students typically find more challenging), and the Final Exam covers all lectures.

Accommodations

Students requesting accommodations and services due to a disability for this course need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD), prior to eligibility for requests. Receipt of AFAs in advance is necessary for appropriate planning for the provision of reasonable accommodations. **Please note that I am unable to provide any accommodations unless they are first authorized by OSD.** For more information, contact the OSD at (858) 534-4382 (voice), osd@ucsd.edu, or visit osd.ucsd.edu.

Each week will have a short online quiz. You can only take each quiz once. **Your highest 7 out of 9 online quiz scores will be used to calculate your online quiz grade.**

Exams

All exams will be given online and will be timed. You will have 50 min for each Midterm and 3 hrs for the Final.

*Midterms may be monitored by a UCSD-contracted proctoring service, ProctorU. You can a self-schedule a 50 min exam within a 48 h time window. You will need access to a computer, webcam, microphone, and a private, quiet space. If you cannot meet the [ProctorU / Examity] requirements, we will provide an alternate exam setting. More details will be provided at least one week before the exam for you to determine if you need to request an alternate exam setting. **We will also try to set up a test exam beforehand to see if you have any issues.***

What is ProctorU?

ProctorU is a service that monitors you while you're taking your exams online to ensure that no cheating takes place, and to help you be successful. Using this service allows you the convenience of testing from home, in your dorm, or in a private room at the library. They are available 24/7, so you can take your test whenever it's most convenient for you.

Go to go.proctoru.com to create your free ProctorU account.

How does it work?

After you set up your account, you can schedule your test (or you can even take it on-demand for an additional fee). At the time of your exam, you'll log into your account and be guided through a 10- to 15-minute start-up process that will verify your identity, review the rules of your exam, and get you into your exam. You will be monitored and recorded during your exam to make sure that no one has any unfair advantages while testing. If cheating is suspected, I'll be notified and will have video evidence of your session.

If you experience any technical issues during the start-up process, ProctorU technicians will work with you until the problem is resolved. In extreme cases when you cannot connect due to technical problems, you may have to reschedule.

All you need is a computer with a strong internet connection, a microphone and a web camera. Laptops work, but you cannot use a tablet, Chromebook or mobile device. You will also need to have a valid government-issued photo ID (not a photo or copy of your ID). You'll need to be in a well-lit, quiet area with a clear workspace and no one else can be in the room with you.

Be sure to schedule each exam at least 72 hours in advance to avoid premium scheduling fees.

Basic technical requirements:

You may review all equipment and technology requirements [here](#). Please test your equipment with ProctorU's free helpdesk service by clicking on "Test Your Equipment" on your ProctorU account homepage. If any of your equipment does not pass the check, which will be indicated with an X, click on the chat box at the bottom right corner of that page labeled "Need Help? Chat now!" There you can speak with a representative to troubleshoot any issues. I suggest you test your equipment at least one day prior to your exam so they can resolve any problems that may be detected.

Do you need special accommodations?

If you require special testing accommodations, I will need to let ProctorU know. Please work with me prior to your exam to make sure your accommodations are noted in their system.

Does it negatively interfere with my computer?

ProctorU does not permanently impact your computer in any way. The only time they will go into your computer settings is to secure your testing environment or troubleshoot issues that may cause you to not be able to connect to their proctoring system. You will be able to see everything they are doing while they are working on your machine. Their proctors and technicians are right there with you every step of the way to provide free basic troubleshooting for common tech issues that can occur during your session, such as a slow connection or a high CPU. Depending on the requirements of your exam, your proctor may need to disable some settings and close any open programs. After your exam is over, you can ask the proctor to turn those settings back on for you. Once your exam is over and you have closed out of your chat session and video page with ProctorU, it completely removes the screen sharing client from your computer. You may also uninstall the browser extension after each exam session if you choose to do so.

Does ProctorU breach my privacy rights?

Absolutely not! ProctorU takes your privacy very seriously. They stringently adhere to all [Family Educational Rights and Privacy Act \(FERPA\)](#) guidelines. No student information can be shared without your direct approval. If you have any privacy concerns, you can visit ProctorU's [Privacy Policy](#) page.

FAQs:

More questions? Please view ProctorU's test-taker support FAQ page [here](#).

Still have questions or concerns?

ProctorU wants you to know that they are always available to help! You can always [open a support ticket](#), [start a live chat](#) with their support representatives, or call (855) 772-8678.

Exam Regrades

Having your exam accurately and correctly graded **is important to us**. Thus, you may request that your exam be regraded **within one week** after the exam is made available. The regrade due date will be posted on the course software. **You must follow the following rules to submit a regrade**. These rules apply to **all exams**, including the final exam.

- 1) For **incorrect points addition**, please state in writing (email) which questions were incorrectly added up. Make sure you double-check this against the online key. In the past, students have actually lost points because they were incorrectly given too many points originally. **We therefore encourage you to double check the points addition on your exams.**
- 2) You must state in **writing** (email) exactly which questions you want regraded and why. **We usually will only regrade questions that you ask to be regraded (but see below).** Stating “the question was not graded correctly” **is not sufficient.** You must explain in **writing** why you feel you **deserve** more points. Please note that writing down a vague or general answer or writing down a series of correct and incorrect answers does not mean that the question was answered correctly. Just because there is a hint of a correct answer embedded among incorrect answers does not mean that you correctly understood the concept being tested.
- 3) **YOU CAN LOSE POINTS ON A REGRADE.** We do not want to penalize you for submitting a regrade, but the logic of a regrade is to make sure that the regraded questions are **accurately** and **correctly** regraded. We will only regrade questions that you submit to be regraded, but these questions will be correctly regraded. Students have lost points in the past. To guard against this, please check the key carefully and make sure that you have a clear understanding of the correct answer
- 4) If it appears to the instructor that a student is submitting an exam for a **frivolous regrade** (defined as more than 66% of the questions to be regraded not deserving additional points), then the instructor may have the entire exam regraded.

Missed exams

There are no make-up exams. If you must miss an exam (outside of the scheduled exam window), please let us know why. For example, you may have missed an exam because of illness. Once the exam key has been released to students, you can no longer take that exam. The proportion of your grade **that is based upon your final exam** will then be increased to cover the midterm that was missed. You must contact the instructor with this information within one week after you return to health and resume the course. **If you missed your final exam and are able to meet the requirements of the UCSD incomplete policy, you may receive an incomplete.** You will then need to make arrangements to complete the course in the following quarter.

Incomplete policy

If you receive an incomplete, you must schedule your make up final exam ***before the end of the following quarter.*** *Once you and the instructor have agreed upon a final exam make-up date, you must take the make-up final. If you do not, you will have no further opportunities to take the make-up exam.*

Course Time Conflicts

You **should not** enroll in this course and course(s) that meet at the same day and time. If you do so, you will have a final exam time and date conflict and you will be unable to attend all the lectures. I realize that the situation is now somewhat different given online lecture delivery and saved videos of these lectures, but I would like to encourage live, active participation in the course, and this will be difficult if you take another course scheduled at the same times. You are

only able to take the final exam for BIEB 166 at the date and time determined by the registrar. If a conflict arises, you will not be able to take the exam for BIEB 166.

If you have multiple final exams on the same day as the final exam for this course, you will not be able to take your final exam at a different day or time. There is an **incorrect belief** that an instructor **must** provide an alternative exam time if a student has three or more final exams on the same day. **This is not true.** Please be responsible in scheduling your courses to ensure that such situations do not arise.

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 on the course website. We have included **additional readings that are not required**, but are for your own enrichment. All lecture notes, lectures slides, and lecture movies can be accessed from home, if you have the correct software and setup **a VPN client**. Please check the campus website for current instructions. If you cannot access these materials, please use a campus computer.

Sourcebook

The course sourcebook is available as a pdf file online (download from the course website).

Please note that there is no need to buy old exams. *All exams that have ever been given in this course (with J. Nieh as instructor)*, and the corresponding answer keys, are on the course website.

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. **Required readings will be discussed in section and tested on the exam and are listed on the lecture schedule (see end of this document).** **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. However, we strongly encourage you to attend.

What if I have a section on Monday that is also a holiday? You should then attend the online section rescheduled by your IA and, if you cannot attend this new time, you should go to another IA's section (see above).

The instructional 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.** **We prefer that you attend the section you signed up for** but, if necessary, you can switch sections or attend a different one if you are unable to attend your regularly scheduled section.

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.

The course website

The course will be using web-learning software called "Canvas". 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. You can also contact the instructor who can give you access (via Google Drive) to course file. **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.

Podcasting

All lectures and reviews are video podcast and available in Canvas You can listen and view them using your Internet browser or download them for later access. I have enabled computer generated captioning for these videos since it may be somewhat helpful. However, please note that this has multiple computer generated errors. You can turn the captions **off** when viewing the videos. ***Please note that only the material that is written in the lecture notes and readings and that is spoken by the instructor during the lectures is accurate, and you will only be tested on this material.***

All class meetings will be video and audio recorded to facilitate asynchronous learning.

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. **Not all videos on this website may be shown, so please check lectures to see what was actually presented. It is best to view the videos in the context of the lecture podcast since if you view the videos out of context, it will be more difficult to understand the concept(s) being illustrated.** Please note that viewing movies online (or, indeed, just watching the lecture video podcasts) is not a substitute for attending class because you are able to ask questions and benefit from the classroom setting.

Diversity and equity statement

It is important for us to make sure that how we teach this course and how we accommodate different student needs reflects the differences of race, ability, sexual orientation, age, and gender identity that enrich our classroom experience and campus. If you have any concerns related to diversity and equity in the course, please contact the instructor.

Discrimination and harassment

The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. OPHD is the UC San Diego Title IX office. Title IX of the Education Amendments of 1972 is the federal law that prohibits sex discrimination in educational institutions that are recipients of federal funds. Students have the right to an educational environment that is free from harassment and discrimination.

Students have options for reporting incidents of sexual violence and sexual harassment. Sexual violence includes sexual assault, dating violence, domestic violence, and stalking. Information about reporting options may be obtained at OPHD at 858-534-8298, ophd@ucsd.edu, or <http://ophd.ucsd.edu>. Students may receive confidential assistance at CARE at the Sexual Assault Resource Center at 858-534-5793, sarc@ucsd.edu, or <http://care.ucsd.edu>, or Counseling and Psychological Services (CAPS) at 858-534-3755 or <http://caps.ucsd.edu>.

Students may feel more comfortable discussing their particular concern with a trusted employee. This may be a student affairs staff member, a faculty member, a department chair, or other university official. These individuals have an obligation to report incidents of sexual violence and sexual harassment to OPHD. This does not necessarily mean that a formal complaint will be filed.

If you find yourself in an uncomfortable situation, ask for help. The university is committed to upholding policies regarding nondiscrimination, sexual violence, and sexual harassment.

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 website and announced in lecture. Make sure to frequently check the website to keep updated.

READINGS

ALL READINGS ARE **REQUIRED**, UNLESS THEY ARE LABELED “**OPTIONAL**,” PLEASE CHECK WHAT IS LISTED FOR EACH LECTURE. We provide optional readings so that you can enrich your own understanding of these topics, if you choose.

- 1 Lecture readings:** These readings are available in the course book 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. YOU DO NOT NEED TO BUY THIS BOOK. THE CHAPTERS ARE AVAILABLE AS PDF FILES ON THE COURSE WEBSITE.***
- 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. YOU DO NOT NEED TO BUY THIS BOOK. THE CHAPTERS ARE AVAILABLE AS PDF FILES ON THE COURSE WEBSITE.***
- 4 SELECTED RESEARCH PAPERS** (see weekly schedule).

YOU MAY BE APPROACHED TO BUY AN OLD COURSE READER. PLEASE NOTE THAT I CHANGE THE LECTURES AND OTHER MATERIALS EACH YEAR, SO IT IS BEST TO SIMPLY PRINT OUT WHAT IS AVAILABLE FOR FREE ON THE COURSE WEBSITE. THIS WILL BE UP TO DATE. IN THE PAST, STUDENTS WHO HAVE BOUGHT OLD READERS HAVE BEEN SOMETIMES BEEN DISAPPOINTED OR CONFUSED.

CONTACT INFORMATION & OFFICE HOURS

Instructor: James C. Nieh

Office hours are held online, see website

Office: 858 822-5010

Email: jnieh@ucsd.edu

Office Hours: Please see the course website site for details

IA section times and Office Hours

Please see the course website site for details

Review sections

The instructor, James Nieh, will give an online review section on the weekend (usually on Saturday) before a midterm exam. The midterm exams are scheduled on Mondays or Wednesdays to give you the preceding weekend to study. His 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.

NOTE: ALL READINGS ARE **REQUIRED**, UNLESS THEY ARE LABELED “**OPTIONAL**”

WEEK 1: For this week, all lectures will be pre-recorded. You are encouraged to watch them in advance. During class time, the instructor will play the lectures, but focus more of his time on making sure that you are comfortable with using Zoom software and can ask questions. All Week 1 readings are very short and are basically the instructor's lecture notes.

- March 30 Lecture 1: Course Overview & History of Ethology
Lecture 1 REQUIRED reading (see sourcebook or course website for these readings)
- April 1 Lecture 2: The four questions of Tinbergen: Classical Ethology part I
Lecture 2 REQUIRED reading
- April 3 Lecture 3: Classical Ethology part II
Lecture 3 REQUIRED reading

No section this week. We understand that you may need to change sections at some point, so please come and see the head IA about this and other section issues.

WEEK 2

- April 6 Lecture 4: Foundations of Behavioral Neurobiology.
Lecture 4 REQUIRED reading
Optional reading (NOT required, you will not be tested on it): PAB p90-98
PAB = Principles of Animal Behavior, available online
- April 8 Lecture 5: Behavioral Endocrinology.
Lecture 5 REQUIRED reading
Optional: PAB p81-90
- April 10 Lecture 6: Behavioral Genetics
Lecture 6 REQUIRED reading
Optional: PAB p146

REQUIRED 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

- April 13 Lecture 7: Genetics & Learning I
Lecture 7 REQUIRED reading
Optional: PAB p146
- April 15 Lecture 8: Learning II
Lecture 8 REQUIRED reading
Optional: PAB p118-145
- April 17 Lecture 9: Imprinting & Kin Recognition
Lecture 9 REQUIRED reading
Optional: PAB p208-210

Sections:

Review for Midterm 1.

WEEK 4

- April 20 **FIRST MIDTERM (covering lectures 1-9)**
- April 22 Lecture 10: Orientation: Kinesis & Taxis
Lecture 10 REQUIRED reading
- April 24 Lecture 11: Orientation: Migration Orientation Mechanisms
Lecture 11 REQUIRED reading
Optional: PAB p443-448

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. Please note that some of the topics covered in this paper are relevant to week 4 lectures.

Review:

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

WEEK 5

- April 27 Lecture 12: Representational Communication
Lecture 12 REQUIRED reading
- April 29 Lecture 13: Signal Origins & Evolution
Lecture 13 REQUIRED reading
Optional: PAB p400-405
- May 1 Lecture 14: Properties of Sound
Beginning with this lecture, with the exception of lectures 19 and 25, there are no mandatory readings and there are no more lecturer-written readings. If you wish to learn more, there are OPTIONAL readings from the book Principles of Animal Communication (PAC: 2nd edition, available online) OPTIONAL PAC p19-33.

REQUIRED 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 review results of the first midterm and review problem areas.

WEEK 6

- May 4 Lecture 15: Fourier Analysis
OPTIONAL PAC (2nd edition, available online): p24-27.
- May 6 Lecture 16: Sound Production
OPTIONAL PAC (2nd edition, available online): p33-63.
- May 8 Lecture 17: Sound Propagation
OPTIONAL PAC (2nd edition, available online): p65-83.

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

- May 11 Lecture 18: Sound Reception
OPTIONAL PAC (2nd edition, available online): p83-111.
- May 13 **SECOND MIDTERM (covering lectures 10-18)**
- May 15 Lecture 19: Whale Sound Communication

Section:

Review lectures and discuss examples of sound analysis, propagation, and reception. Focus on Fourier examples. **Prepare for Midterm 2**. 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

- May 18 Lecture 20: Properties of Light
OPTIONAL PAC (2nd edition, available online): p113-121.
- May 20 Lecture 21: Visual Signal Production
OPTIONAL PAC (2nd edition, available online): p121-151.
- May 22 Lecture 22: Visual Signal Transmission & Reception I
OPTIONAL PAC (2nd edition, available online): p153-169

Section:

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

WEEK 9

- May 25 **MEMORIAL DAY, NO CLASS**
- May 27 Lecture 23: Visual Signal Reception II.
OPTIONAL PAC (2nd edition, available online): p170-191.
- May 29 Lecture 24: Olfactory Signaling: Production & Transmission
OPTIONAL PAC (2nd edition, available online): p193-213

Section:

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

WEEK 10

June 1 Lecture 25: Olfactory Signaling: Reception
OPTIONAL PAC (2nd edition, available online): p214-234.

June 3 Lecture 26: Course Summary
NO ASSIGNED READING FOR THIS LECTURE

June 5 Review session for course

Section:

Review olfaction and review for final exam. No special section reading is assigned.

The instructor will also give a special review section on the weekend before the final exam. Please bring questions and see the course website for the time and location of this review. Other IA's may also give reviews. Please see the course website for details.

FINAL EXAM: Monday, June 8, 8 am-11 am.

All exams will be given online.

Material from any lecture and from the required readings can be tested on the final exam. The final exam is a comprehensive exam, but will emphasize material in Lectures 19-26 and material that you learned in Lectures 1-18 THAT YOU WERE NOT TESTED ON IN EITHER MIDTERM. For example, if you were tested on a particular concept or example in Midterm 1, it is less likely that you will be tested on this same concept or example in the final exam. In addition, the final exam will test you on the assigned papers. 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.

The final exam for this course will be conducted online and monitored by a UCSD-contracted proctoring service. You will have a window from (to be announced) to self-schedule a 3-hour exam. You will need access to a computer, webcam, microphone, and a private, quiet space. If you cannot meet the [ProctorU / Examity] requirements, we will provide an alternate final exam setting. More details will be provided before Week 5 for you to determine if you need to request an alternate exam setting.

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.

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.

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.

Wilson, E.O. 1994. *Naturalist*. Washington, D.C.: Island Press.