

NRO C34 Neuroethology
Lecture: Monday 2:00-4:00 Location: HW215
Instructor: Dr. Yoni Brandt
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Office: S420A
Office hours: Wednesday 3:00-5:00, Friday 1:00-3:00

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Course Overview:

This course examines the neural basis of natural animal behavior. The emphasis will be on integrating between the ecological/evolutionary context of the behavior and the neural mechanisms that support it. This approach is facilitated by the course textbook, in which each chapter focuses on a suite of closely related behaviors and neural processes in a specific animal. To gain an appreciation of current research questions and practices, some of the book chapters will be accompanied with a paper from the primary literature. During the lecture periods I will highlight the key topics of the reading assignments, and solicit your questions. In addition, lectures will be used to initiate peer group discussions of the lecture and reading material. Further discussions are welcomed during my office hours. This combination of course activities will develop your ability to think like a neuroethologist, and it is this ability that I will be testing in the exams.

Study Tools

Readings: To successfully participate in lecture activities, the corresponding chapter from the textbook and any accompanying research paper must be read in advance.

1. Required Textbook: **Behavioral Neurobiology: the Cellular Organization of Natural Behavior**/by Thomas J. Carew.
2. Required readings from the primary literature will be added to course schedule and can be downloaded from the webpage.

Textbook sections and primary literature readings that should be read in support of lecture material are outlined on the course schedule. You should ensure that you UNDERSTAND everything you read and can follow the examples given. **However, details of textbook material will NOT be examinable unless I cover it or specifically direct you to it in class. Primary literature will be examinable at a level outlined in lectures. For exams, concentrate on learning material presented in lectures. Pay extremely close attention to the three 'codas' (at the end of each main textbook section). The codas present a summary of the most important *principles* that can be extracted from the book.**

Course webpage: Available through the intranet: <https://intranet.utsc.utoronto.ca/>. If you do not have access to the intranet, use the link on the intranet home page to activate your account. In addition to lecture slides, handouts and assignment information, the webpage will have a regularly-updated FAQ to which we will post all general-interest questions submitted by email.

Lecture slides: All lecture slides will be available on the course homepage as pdf files. They are generally posted on the day before the lecture. I post slides so you can use them as a note-taking aid. My intent is for you to concentrate on understanding what I say rather than writing down every word, but you will need to fill in additional information. **DO take notes** that will help you understand the lecture material.

Peer groups. You will form peer groups that consist of 4 or 6 students. In-class discussions of questions and problems will usually be conducted in peer groups. In addition, short writing assignments will be reviewed by your peers.

Evaluation:

1. Discussion questions	10%
2. Short written assignments	20%
2. Midterm	25%
3. Final Exam (comprehensive)	45%

Course tests.

The midterm and final exam will include material from lectures, and readings I cover or to which I specifically direct you in lecture. Guest lectures are examinable. Exams can include multiple-choice, matching and short answer questions. Many exam questions will focus on your understanding rather than straight recall of examples—the best way to study for these types of questions is to read and think about the examples and thought questions in the text, and discuss with your peers the questions. It is recommended that you do all assigned reading and ensure you *understand* what you are reading, however, **details from textbook and the primary literature will not be examinable unless they are covered in lecture.**

Students who will be unable to attend the midterm for religious reasons must notify me **by the end of September** to make alternative arrangements. Students who miss the midterm for a valid medical reason **must present a completed UTSC medical certificate (available via the registrar's website)** that confirms their illness, and medical attention, at the time of the exam. **This must be presented within 3 days of the test.** Medical certificates will be verified. Students who miss the midterm for a documented medical reason will have **one opportunity to write a make-up exam**, the date of which will be announced on the intranet homepage shortly after the midterm is written. It is the sole responsibility of the student who misses the midterm to check the intranet and be aware of the make-up date/time. Students who miss the final exam must petition the Faculty of Arts and Science for a rewrite.

Bring your U of T student ID, an HB pencil, pens and eraser to all tests. A non-programmable calculator is permitted in exams, but ANY other electronic device will be confiscated, and its use considered a violation of the University's academic code.

Plagiarism

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site.

Procedures for submitting to Turnitin.com will be provided when your paper is assigned.

If you are not sure what constitutes plagiarism, see:

<http://www.utsc.utoronto.ca/~tswweb/instruction/plagiarism.htm>

(from the teaching and learning services website)

Tentative schedule

Date	Activity	Reading
September 11	Lecture 1: Course outline & Model organisms	
September 18	Lecture 2: Neurons as the building blocks of behavior	Chapter 1
September 25	Lecture 3: Echolocation in bats	Chapter 2
October 2	Lecture 4: Prey location in barn owls	Chapter 3
October 9	Thanksgiving holiday – no lecture	
October 16	Lecture 5: Feature analysis in toad vision	Chapter 4
October 23	Lecture 6: Mate calling in crickets + Guest lecture: <i>Norman Lee</i>	Chapter 5
October 30	Lecture 7: Midterm	
November 6	Lecture 8: Escape behavior in crayfish	Chapter 7
November 13	Lecture 9: Associative learning in honeybees	Chapter 9
November 20	Lecture 10: Molecular genetics of learning and memory in <i>Drosophila</i>	Chapter 11
November 27	Lecture 11: Evolution and ecology of aggressive behavior + Guest lecture: <i>Patrick Guerra</i>	TBA
December 4	Lecture 12: Neuroethology of aggression	TBA

Note: each chapter will be accompanied with a paper from the primary literature.