

## PSYC/BIPN 189: Brain, Behavior and Evolution

**Time:** Tuesday & Thursday 9:30 - 10:50 AM

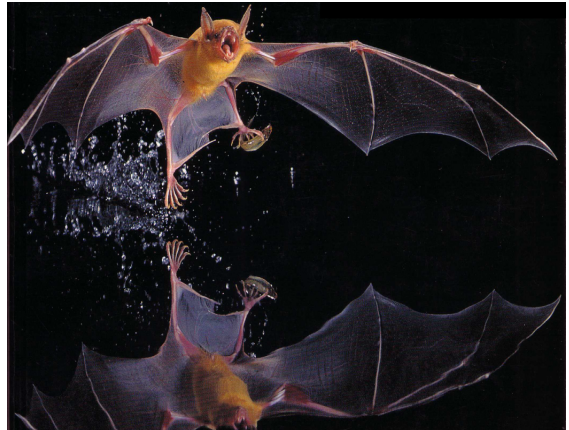
**Location:** MANDEVILLE B-150

**Instructor:** Tim Gentner

**Office Hours:** Tuesday 11 - 12 PM, or appointment

**Office:** 5334 McGill; <https://ucsd.zoom.us/my/tgentner>

**Email:** [tgentner@ucsd.edu](mailto:tgentner@ucsd.edu)



**Course Description:** Over the last 80 years the research traditions of Neuroscience, Ethology, and Psychology have intersected in pursuit of understanding how complex natural behaviors are regulated by the central nervous system. This field is called Neuroethology. Questions and areas of interest to neuroethologists include sensory signal detection, recognition, discrimination, localization, decision-making, coordinated movements and actions, orientation, and the hormonal mechanisms underlying periodic behaviors. By necessity, the context for these neuroscience questions and their corresponding study is set within the development and evolution of natural behavior. This course covers, in detail, several of the classic and contemporary neuroethological systems such as birdsong, prey capture and localization, electroreception, and echolocation. Students can expect to gain a deeper understanding of general principles and specific mechanism that guide the neural basis of behavior, critical thinking skills for consuming and interpreting scientific results, and greater expertise in technical writing.

**Grading:** Two exams (30% each), a research paper (35%), class participation (5%), **ATTENDANCE IS MANDATORY**. I will take attendance. There are no make-up exams without prior permission of the instructor.

**Research Paper:** You are required to write a research paper for this course. The paper must be 10-12 pages, written by you, and formatted as a scientific research review using only **primary literature citations**. The use of generative AI (e.g., ChatGPT) for any component of the paper is prohibited. Due dates for paper components are given below.

All students are expected to understand and comply with the [UCSD Policy on Integrity of Scholarship](#).

Take the pledge

<http://academicintegrity.ucsd.edu/forms/form-pledge.html>

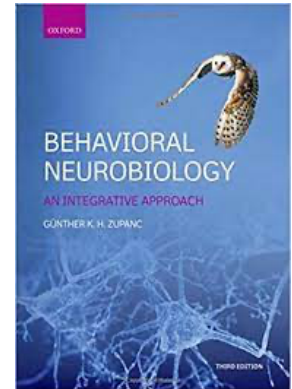
## Text

### Behavioral Neurobiology: An Integrative Approach, Zupanc (3<sup>rd</sup> edition)

Your digital course materials are provided by the UC San Diego Bookstore through Canvas and are **free for the first two weeks of classes**. After two weeks, your student account will be charged for the textbook unless you opt out by **Oct 13th, 2023**. To access your digital content via Canvas, login to the course webpage and choose the "BryteWave Course Materials" link in the sidebar. Used versions of the textbook (including earlier editions) may be available elsewhere.

To preserve student choice and promote student savings, UC San Diego has partnered with your campus bookstore to provide this program so you will have access to all required course materials on day one of class at prices not available elsewhere. If you decide you do not want to purchase the course materials provided to you as part of the program, you can use the following link to opt-out of the program: [UC San Diego Inclusive Access Opt-Out Portal](https://accessportal.follett.com/2298) (<https://accessportal.follett.com/2298>)

Look for an email from the portal in your [UCSD.edu](mailto:UCSD.edu) email address.



## Research paper

**Topic:** The topic is unrestricted, except that it must address the neural correlates of a naturally occurring behavior of interest to you. If you choose a neuroethological system that is well-studied you'll be expected to touch on contemporary research findings. If you choose a system that is less well-studied, you should focus on aspects of the behavior that you find interesting **and** describe potential experiments to explore their neural basis. **Do not choose a behavior that is unstudied!**

**Content:** The paper should focus on factual observations, conclusions and general principles derived from those conclusions. Use only **primary literature citations** to support the factual statements in your paper. Do not recite a list research methods and statistics. We will discuss how to structure the paper in class.

**Format:** The paper must be 10-12 pages, double spaced, including references.

**Process and due dates:** As a part of the scientific writing process, you must submit a draft for peer-review. Proposed paper topics are due by **Nov 3rd @ 11:59PM**. A draft of your paper, for peer review, is due on **Nov 17<sup>th</sup> @ 11:59PM**. Peer reviews are due on **Nov 20<sup>th</sup> @ 11:59PM**. The final draft of your paper is due by **Dec 1 @ 11:59PM**

**Peer review:** When you turn in your draft, you will be assigned one draft to review. We will discuss details of the peer-review process in class. Briefly, it involves reading and providing constructive feedback on a classmate's draft according to the grading rubric. Reviews are submitted through Canvas <https://guides.instructure.com/m/4212/1/54363-how-do-i-submit-a-peer-review-to-an-assignment>

**Rubric:** See [CANVAS>Modules>Research Paper Materials>research paper rubric](#)

## Lecture schedule

Date	Class	Topic	Notes
Sept 28	1	Principles of Behavior and Neurobiology (ch. 2 & 3)	189_behave_neuro
Oct 3	2	Principles of Behavior and Neurobiology (ch. 2 & 3)	189_behave_neuro
Oct 5	3	Sound & the auditory system	189_sound_aud
Oct 10	4	Bats 1 (Zupanc 5)	189_bats_1
Oct 12	5	Bats 2 (Zupanc 5 + readings)	189_bats_2
Oct 17	6	Owls 1 (Zupanc 7)	189_owls_1
Oct 19	7	Owls 2 (Zupanc 7 + readings)	189_owls_2
Oct 24	8	Crickets 1 (Zupanc 12)	189_crickets
Oct 26	9	Crickets 2 (Zupanc 12 + readings)	189_crickets
<b>Oct 31</b>	<b>10</b>	<b>MIDTERM EXAM</b>	
Nov 2	11	<i>Research Tutorial</i>	
<b>Nov 3</b>	<b>-</b>	<b>Research paper proposal due by <u>11:59 PM</u></b>	
Nov 7	12	Electric Fish 1 (Zupanc 8)	189_efish_1
Nov 9	13	Electric Fish 2 (Zupanc 8 + readings)	189_efish_2
Nov 14	14	Ants	189_Ants
Nov 16	15	Paper writing day!	
<b>Nov 17</b>	<b>-</b>	<b>Research Paper Draft Due by <u>11:59 PM</u></b>	
<b>Nov 20</b>	<b>-</b>	<b>Research Paper Peer Review Due by <u>5:00 PM</u></b>	
Nov 21	16	Locust Flight 1 (readings)	189_locusts
Nov 28	17	Locust Flight 2 (readings)	189_locusts
Nov 30	18	Bird Song 1 (readings)	189_birdsong
<b>Dec 1</b>		<b>Research Paper Due by <u>11:59 PM</u></b>	
Dec 5	19	Bird Song 2 (readings)	189_birdsong
Dec 7	20	Learning/Memory (Zupanc 13)	189_spatial
<b>Dec 14</b>		<b>FINAL EXAM 8:00 – 11:00 AM</b>	