

**SYLLABUS**  
**BIOL 636 Sensory Biology**

**GENERAL INFORMATION**

**Schedule:** TBD

**Location:** TBD

**Office:** CLS 606

**Phone #:** 803-777-6597

**Email:** speiser@mailbox.sc.edu

**Website:** See Blackboard for course documents and announcements.

**Office hours and communication:** I will hold office hours in my lab (CLS 606) on Friday afternoons from 1:30-2:30pm. If you would like to talk with me outside of class or office hours, please contact me by email. We can then arrange a time to talk in-person or remotely by email, phone, or video. If you send me an email between 9am and 5pm, I will do my best to respond the same day. Please do not expect immediate responses to emails sent after normal work hours or on weekends (i.e. later than 5pm).

**Required text:** We will read *An Immense World* by Ed Yong (ISBN 9780593133231) as a general survey of animal sensory systems. We will also read primary research articles to explore specific case studies in greater depth. These research articles will be made available to students on Blackboard.

**Other Required Resources:** Please bring a pen or pencil to class.

**Graduate Students:** Sensory Biology is a 600-level class, so it is available to graduate students as graduate credit. All students in the course will write a research proposal as their final project. To earn graduate credit, graduate students will write an additional document explaining the intellectual merit and broader impacts of their research proposal.

**Students with diagnosed learning disabilities:** I am committed to ensuring course accessibility for all students. Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the [Student Disability Resource Center](#): 777-6142, TDD 777-6744, email [sadrc@mailbox.sc.edu](mailto:sadrc@mailbox.sc.edu), or stop by Close-Hipp Suite 102. All accommodations must be approved through the Student Disability Resource Center.

## COURSE DESCRIPTION

Sensory Biology (BIOL 599), taught by Associate Professor Daniel Speiser, is a lecture- and discussion-based course that introduces students to the integrative and comparative study of animal sensory systems. Animals sense their environments in very different ways and in Sensory Biology we will compare the molecular, cellular, and physiological mechanisms underlying various sensory modalities. Types of sensing that we will cover include taste, smell, vision, pain, heat, touch, sound, and magnetoreception. We will also explore how differences in sensory perception influence the ecology and evolution of animal taxa and how the sensory worlds of animals are being impacted by human activities.

As an inherently integrative field of study that encompasses levels of biological organization ranging from molecule-scale to ecosystem-wide, Sensory Biology will help students see how material from lower-level courses (such as BIOL 301 and BIOL 302) is interconnected and how it can be applied to real-world issues (e.g. mitigating the effects of light pollution). Sensory Biology will also help establish foundational knowledge for students continuing in a variety of professional careers such as basic research in biology, bio-inspired engineering, neuroscience, and medicine (e.g. ophthalmology). I also hope that Sensory Biology helps enrich how students experience their own sensory worlds by revealing the remarkable mechanisms through which we enjoy the visual arts, music, scent, and food.

## LEARNING OUTCOMES

Upon successful completion of Sensory Biology, undergraduates should be able to:

1. **Recognize** the fundamental molecular, cellular, and physiological components of sensory systems and **identify** and **describe** their functions;
2. **Explain** how differences between the sensory systems of animals relate to the evolutionary histories of lineages and their current ecological contexts;
3. **Interpret** graphs, charts, and tables relevant to sensory biology;
4. **Summarize** and **evaluate** the findings of scientific papers in writing and through discussion.

Upon successful completion of Sensory Biology, graduate students should be able to:

1. **Defend** the intellectual merit and broader impacts of their research proposal in a separate document.

**COURSE EXPECTATIONS**

**Fundamentals:** Sensory Biology builds on a foundation of general biology, mathematics, physics, chemistry, and your prior experience with the natural world. Please reach out in the first or second week of class if you are concerned about the adequacy of your preparation for the course.

**Schedule:** A *tentative* timeline for the course is posted on Blackboard. The dates of the lectures and assignments will not change. However, topics for each day may change. Any changes or clarifications will be announced in class and on Blackboard.

**Textbook:** I expect that you will acquire a copy of the textbook assigned for the course (see above). Please review chapters from the book *prior* to the lectures with which they are associated. Attend class prepared: reading the assignments in advance will help you follow the lectures.

**Primary literature:** I will assign primary literature associated with many of the topics we cover in the course. I expect you to read these papers before the class period during which we will discuss them.

**Attendance:** Sensory Biology is an in-person course. I expect all students to attend in-person lectures. There will be no penalty for excused absences. Please consult USC's [Undergraduate Academic Regulations](#) to see what counts as an excused absence. If you miss class for some reason, I expect you to review the day's material. I consider unexcused absences above 10% of the course total (3 classes) to be unacceptable and reserve the right to enact a grade penalty for such excessive absences.

**Online materials:** Following each day of class, I will post lecture slides on Blackboard. I will also post papers for the course. I will not live-stream lectures or post recordings of lectures. The reason for this is that Sensory Biology is listed as an "in-person" course and not a "virtual" or "hybrid" course and I am required to abide by the course designation.

**Assignments:** There will be 21 quizzes, three exams, and a final project associated with this course. The quizzes and exams will involve short answer questions. Quizzes will be given in class (see Course Schedule for details). I will drop your lowest quiz score from your final grade. The exams will take place in class and will be limited in time to the class period (with extra time available if I have documentation from the SDRC). You will not use books, papers, or your notes during the exams.

**Participation:** I expect you to participate actively during discussions in class.

**Extra Credit:** There will be no opportunities for extra credit.

**GRADING**

Your grade for Sensory Biology will be based on the following:

100 points	Quizzes: 21 total, 5 points each, I will drop your lowest score
120 points	Exams: 3 total, 40 points each
10 points	Research proposal topic
30 points	Research proposal rough draft
<u>40 points</u>	<u>Research proposal final draft</u>
300 points	Total Possible

**As an additional assignment** graduate students will defend the intellectual merit and broader impacts of their research proposal in a separate document that is worth 50 points.

Grades are based on the accumulation of points. The number of points necessary to earn each letter grade is as follows:

**Undergraduate Grading Scale** (out of 300 points total)

A	$\geq 270$	C	210 – 224
B+	255 – 269	D+	195 – 209
B	240 – 254	D	180 – 194
C+	225 – 239	F	< 180

**Graduate Grading Scale** (out of 350 points total)

A	$\geq 315$	C	245 – 261
B+	297 – 314	D+	227 – 244
B	280 – 296	D	210 – 226
C+	262 – 279	F	< 210

The grades for assignments will not be curved. However, a uniform post-hoc adjustment may or may not be applied for each assignment to account for its difficulty. These adjustments will not result in anyone receiving a lower grade than they would have received otherwise. If you request a re-grade, please note that your score may be adjusted upwards or downwards upon review.

## CLASSROOM POLICIES

**Please show consideration for your classmates and instructor.** You will do so by:

- Silencing your mobile devices before class starts.
- Not engaging in distracting behaviors during class.
- Asking questions relevant to the material being covered in class.
- Using proper grammar, spelling, punctuation, and capitalization when sending course-related e-mails. Text message language is not acceptable.

**Every student has a role in maintaining the academic reputation of the University.** It is imperative that you refrain from engaging in plagiarism, cheating, falsifying your work and/or assisting other students in violating the Honor Code. Important components of the Honor Code:

- Faculty members are required to report potential violations of the Honor Code to the Office of Student Conduct and Academic Integrity.
- Lying is a violation of the Honor Code.
- When a student is uncertain as to whether conduct would violate the Honor Code, it is the responsibility of the student to seek clarification from the appropriate faculty member.

**Any deviation from the University of South Carolina Honor Code will result in a minimum of a zero score on the relevant assignment.** As determined by the Office of Academic Integrity, more severe disciplinary measures may be taken as well.

**The use of previous semester course materials is not allowed in this course.** This applies to homework, projects, quizzes and tests. Because these aids are not available to all students within the course, their use by any individual student undermines the fundamental principles of fairness and disrupts your professor's ability to accurately evaluate your work. Any potential violations will be forwarded to the Office of Student Conduct and Academic Integrity for review.

**Course materials may not be redistributed to others in any manner.** Lectures and course materials (which is inclusive of my presentations, tests, exams, outlines, and lecture notes) may be protected by copyright. You are encouraged to take notes and utilize course materials for your own educational purpose. However, you are not to reproduce or distribute this content without my expressed written permission. This includes sharing course materials to online social study sites like CourseHero, Quizlet, or others. Students who publicly reproduce, distribute or modify course content may be in violation of the university's Honor Code's Complicity policy.

**STATEMENTS**

**Values:** Two core values, inquiry and civility, govern our class. Inquiry demands that we all cultivate an open forum for exchange and substantiation of ideas. Strive to be creative, to take risks, and to challenge our conventional wisdom when you see the opportunity. Civility supports our inquiry by demanding ultimate respect for the voice, rights, and safety of others.

**Access and Opportunity:** The University is committed to a campus environment that is inclusive, safe, and respectful for all persons, and one that fully embraces the Carolinian Creed. To that end, all course activities will be conducted in an atmosphere of friendly participation and interaction among colleagues, recognizing and appreciating the unique experiences, background, and point of view each student brings. You are expected at all times to apply the highest academic standards to this course and to treat others with dignity and respect. The decision to enter university and pursue advanced study is a choice that entails commitment to personal ethics expressed in the Carolinian Creed: “I will discourage bigotry, while striving to learn from differences in people, ideas and opinions.”

**Title IX and Gendered Pronouns:** This course affirms equality and respect for all gendered identities and expressions. Please inform me of your preferred gender pronoun and/or name if it is different from what is indicated on the official class roster. Likewise, I am committed to nurturing an environment free from discrimination and harassment. Consistent with Title IX policy, I must report all incidents of interpersonal violence and sexual misconduct, and thus cannot guarantee confidentiality. Please know that you can seek [Confidential Victim Advocacy and Support](#). If you want to make a formal report, you can [Submit an Interpersonal Violence Incident Report](#) or contact the institution’s Title IX Coordinator, or one of the Deputy Title IX Coordinators listed on the Stop Sexual Assault website. You can also file a police report by contacting USC Police at 803-777-4215.

**Office of Student Advocacy:** If facing illness, family emergencies, or other events requiring prolonged absence from class, please reach out to the [Office of Student Advocacy](#).

**Expectations of the Instructor:** I am expected to facilitate learning, to answer questions appropriately, to be fair and objective in grading, to provide timely and useful feedback on assignments, to maintain adequate office hours, and to treat students as I would like to be treated in their place.

**Copyright/Fair Use Statement:** I will cite and/or reference any materials that I use in this course that I do not create. You, as students, are expected to not distribute any of these materials, resources, quizzes, tests, homework assignments, and so on (whether graded or ungraded).