Secret Sensory Worlds

FYS 191 CNS 37
Fall 2023

Location: TBD
Time: TBD (Section 01)
     TBD (Section 02)

Instructor: Alex Winsor (he/him)
Email: amwinsor@umass.edu (include "FYS Sensory Worlds" in the subject line). Email is the best way to contact me — I will typically respond within 24 hours, not including evenings and weekends.
Drop-in (office) hours: TBD in 401 Morrill III South or via Zoom: Meeting ID *** use this link (& by appointment).

Credit Hours: 1 credit
Prerequisites: none
Canvas Link: https://umamherst.instructure.com/

Course Description:
How do animals perceive their surroundings? In the ancient Greek philosopher Plato's "Allegory of the Cave," prisoners able to see only the dancing shadows of a flame neglect to consider the hidden objects that cast them. We, too, are forced to create our own representation of reality using a mere sliver of filtered information. The cleverest human, smallest fly, and grandest whale are all confined to their self-centered worlds crafted by the senses. In this class, we will exit Plato's Cave and explore our own senses to better understand the secret lives of animals. Along the way, we will stumble upon some peculiar abilities, like ghost knifefish that speak with electric pulses, and bats that listen to a sea of echoes.

Course Objectives:
In this course, we will:

    1) appreciate the physical basis of information,

    2) explore our own human sensory systems to better understand how we all perceive the world in subtly different ways,

    3) survey the spectacular diversity of sensory-guided behavior across the animal kingdom, and

    4) build a sense of community at UMass, get connected with resources, and 'learn how to learn' (i.e., become a better student).

Tentative Schedule:

| Date	Topic
7 Sept	Umwelten and perceptual worlds
11 Sept	**LAST DAY TO ADD/DROP CLASSES**
14 Sept	It's all particles and waves
21 Sept	Chemoreception (taste and smell)
28 Sept	Mechanoreception (touch)
5 Oct	Phonoreception (hearing)
12 Oct	Photoreception (vision)
19 Oct	Electroreception
26 Oct	Magnetoreception and navigation
2 Nov	Multisensory integration (& decide groups)
9 Nov	**CLASS IS CANCELED...** *(work on final projects!)*
16 Nov	Open workshop: final projects!
23 Nov	**THANKSGIVING BREAK - NO CLASS**
30 Nov	Sensory pollutants in a changing world
7 Dec	Final project presentations, show-and-tell
14 Dec	**Scientific summary due on Canvas by 11:59 PM**

Required Materials:
There are no required textbooks for this course. Learning materials might include the primary literature, popular science articles, YouTube videos, and podcasts, all of which will be provided through Canvas. There you will also find other important course content, such as presentation slides, discussion boards, and descriptions of assignments with grading rubrics. If you develop a keen interest in animal senses, I highly recommend reading Ed Yong's New York Times Bestseller *"An Immense World: How Animal Senses Reveal the Hidden Realms Around Us"* (this book was an inspiration for this course).

Assignments:
In-class group activities (you'll have enough time to finish by the end of class), discussion posts (one post and two replies, due each

week before the following class), and a final project (due by the end of the semester) form the basis of graded assignments in this course. The relative breakdown is as follows:
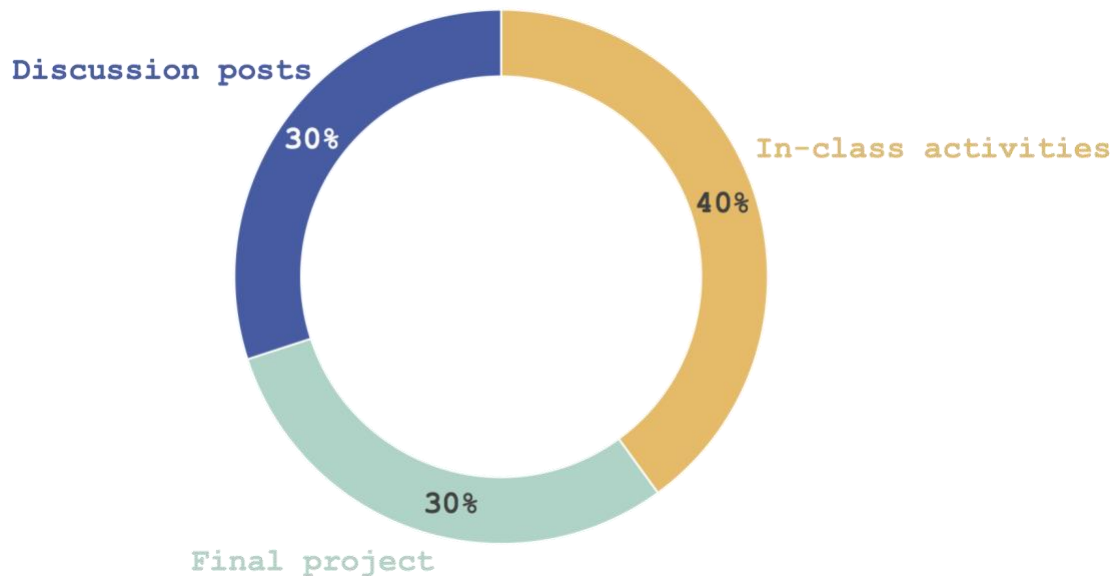
Overview of In-Class Activities:
In-class activities will vary, with explicit instruction given at the start of class. Typically, these group activities function to help you create original work by applying, analyzing, and evaluating concepts from the course.

Overview of Discussion Posts:
After each class, I will provide at-home learning materials to serve as preparation for the following week. These materials will provide background for discussions on Canvas. Discussion posts in response to the weekly prompts are expected to be insightful and thought-provoking (~ 200 words), with meaningful and respectful replies to at least two of your peers — even if you have different perspectives. Appropriate citations are required if outside materials are used. To ensure that everyone has enough time to post two replies before the start of class on Thursdays, the main post needs to be submitted no later than 24 hours prior (i.e., *** for section 01 & *** for section 02).

Overview of Final Project:
Throughout the semester, we will explore the many ways humans and other animals interface with the environment. From this, we will learn generalizable principles about the senses. To apply these concepts, the final project, hereafter called a 'behavior explainer,' will provide you and 1-2 other group members the opportunity to explore a sensory-guided behavior of your choosing. This can be in any animal,

although I encourage you to pick from the tremendous diversity of animals not discussed in class. The behavior explainer has two parts: 1) the scientific summary, a two-page report describing the behavior (using at least three references from the primary literature); and 2) the creative display, for which you can explain the behavior through any creative means (a poem, painting, song, etc.) **OR** a ~10-minute presentation, to be given in front of the class. Specific information and rubrics will be provided on Canvas.

How will you be graded?

Grades will be mostly based on completion, effort, and being a good team member.

The point system is as follows:

- 10 in-class assignments: each worth 12 points (up to 120 points)
- 9 discussion posts: each worth 10 points, 8 points for main post and 2 points for the replies (up to 90 points)
- 1 behavior explainer final project: scientific summary worth 45 points, and creative display **or** presentation worth 45 points (up to 90 points)

    Total: 300 points

To calculate your grade, divide the number of points you earned by the total, multiply by 100 for a percentage, and compare the result to this scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	F
100 – 93%	92.5 – 90%	89.5 – 87%	86.5 – 83%	82.5 – 80%	79.5 – 77%	76.5 – 73%	72.5 – 70%	69.5 – 67%	66.5 – 63%	below 63%

Attendance Policy:

I will not formally check for attendance. However, a large portion of your grade derives from in-class group activities, and therefore attendance and class participation are implicitly accounted for. That said, I understand life happens and you may need to miss class. Also, be kind to yourself and others and **please do not come to class sick!** If you are absent or anticipate extenuating circumstances, let me know as soon as possible so I can organize make-up assignments.

Late Work Policy:

Submitting an assignment late is far better than not submitting it at all. To be fair to all students in the class, points will be deducted for late work (unless you contacted me about extenuating circumstances). Point deductions are as follows:

< 1 week late	20% point deduction
1-2 weeks late	40% point deduction
By the end of the semester	60% point deduction
After Dec 14	zero possible points

Surveys and Feedback:
At the start of the semester, I will send out a Google Form that you can anonymously fill out. This will help me best cater the course material. Midway through the semester, there will be another anonymous Google Form, which will indicate to me if anything in the course isn't working and needs to be changed. Finally, at the end of the semester, there will be instructor evaluations (called 'Student Response to Instruction,' or SRTI). Please, please fill it out! It will help me improve future versions of this course.

Technology Policy:
During class time, you are permitted to use technology as a learning tool (e.g., taking notes on a laptop). However, please keep in mind that studies have found that writing notes with pen and paper leads to more effective learning outcomes, and off-topic screen activities (e.g., checking social media) can be highly distracting to the people around you. If you need to use the phone in an emergency, please be discreet or step out of the classroom.

Evidence-Based Teaching
Many of the topics we will cover in class were discovered by scientists (although certainly not all, as we will discuss). There are also scientists and other workers that study how we learn! Modern evidence has shown that many traditional styles of teaching (e.g., emphasis on lecture, taking notes, and exams) do not lead to the best learning outcomes, and are certainly not equitable. In this course, I will incorporate evidence-based teaching practices, including inclusive and 'active-learning' approaches. By the way, since you have read this far… if you email me a picture of your favorite animal before the first day of class, you'll get one point extra credit added to your final grade! (Mine is tied between the eyelash viper and the regal jumping spider.)

Inclusive and Equitable Learning:
Academic institutions of higher education were originally built to serve only a small segment of society — since then, gatekeepers of the academy actively excluded those with other identities. This abhorrent legacy means that people of many other economic and social identities, including, but not limited to, transgender, non-binary, disabled, black, and indigenous people, have not been offered the same opportunities as those with non-minoritized identities. While it is fortunate that in recent years much progress has been made, the struggle is far from over, and barriers still exist for many. In this course, I will actively take steps to showcase the vast scientific achievements by scholars whose work was overlooked due to their identities; create a space in which implicit bias is recognized and minimized, so that all can feel welcome and safe; and enforce zero-tolerance for any exclusionary or hateful behavior. For this, I ask that EVERYONE in the class joins me in upholding these ideas.

Community Expectations:
In this class, we will build a learning community, which means we all get to learn from each other. Everyone should be given space to express their ideas and share different perspectives, as long as they are respectful. Let me know if something in the course is not working for you — likewise, I will do the same. Furthermore, attending class prepared and contributing equally to group work is expected of everyone. Above all else, be kind and courteous to your peers.

Accommodation Statement:
The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements. For further information, please visit Disability Services (https://www.umass.edu/disability/)

Academic Honesty Statement:
Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who

has committed an act of academic dishonesty. Thus, I am required to take reasonable steps to address academic misconduct. For this course, in-class activities and the final project are group-based and by consequence, multiple students might submit work with similar or identical content, but all group members are expected to have contributed equally. Discussion posts and replies are considered independent work. If you suspect academic dishonesty by any student in this course, it needs to be brought to my attention. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent (http://www.umass.edu/dean_students/codeofconduct/acadhonesty/).

I understand that emerging artificial intelligence (AI) technologies, including large language models like ChatGPT, introduce ambiguities to what comprises plagiarism versus an efficient use of modern resources. During your time at UMass, your instructors might take very different stances on the use of AI in their courses, of which you must abide by on a case-by-case basis. My personal policy: I view ChatGPT as a tool like any other. Using it as an advanced search engine to start learning about a subject or to help workshop a sentence you've been agonizing over is fine, but using it to write your essay is absolutely plagiarism (just like copying text from Wikipedia). We will discuss and build upon many ideas in class, but it is **incredibly** important that you properly credit ideas and writing to their *original* source.

Title IX Statement:
In accordance with Title IX of the Education Amendments of 1972 that prohibits gender-based discrimination in educational settings that receive federal funds, the University of Massachusetts Amherst is committed to providing a safe learning environment for all students, free from all forms of discrimination, including sexual assault, sexual harassment, domestic violence, dating violence, stalking, and retaliation. This includes interactions in person or online through digital platforms and social media. Title IX also protects against discrimination on the basis of pregnancy, childbirth, false pregnancy, miscarriage, abortion, or related conditions, including recovery. There are resources here on campus to support you. A summary of the available Title IX resources (confidential and non-confidential) can be found at the following link: https://www.umass.edu/titleix/resources. You do not need to make a formal report to access them. If you need immediate support, you are not alone. Free and confidential support is

available 24 hours a day / 7 days a week / 365 days a year at the SASA Hotline 413-545-0800.

I am not categorized as a "mandatory reporter" which means that if you choose to tell me about an incident of harassment, discrimination, assault, or another Title IX-relevant scenario, I am not required to share that information with the University. I am here to help if you need it.

Resources:
- Dean of Students Office
- Writing Center
- Learning Resource Center
- Student Success
- English as a Second Language (ESL) Program
- Center for Counseling and Psychological Health (CCPH)