BI410/510 NEUROBIOLOGY OF MOTIVATION AND ADDICTION

Course and Contact Information
Instructor: Emily Sylwestrak, PhD (she/her)
Office Location: Huestis 225A
Email: emily@uoregon.edu
Office Hours:
Class Days/Time: MW 2:15-3:45
Classroom: Zoom
Prerequisites: BI 360

Course Description:
This course examines the neural mechanisms underlying motivated behaviors and how their dysfunction gives rise to addiction. Topics will include motivated behaviors that fulfill core physiological needs (osmoregulation, energy balance, reproduction) as well as rewarding experiences (food, drug use, social interaction). We will also discuss how drugs of abuse can hijack reward pathways, leading to addiction, and how operant conditioning is implemented by animal trainers and social media companies to control behavior. The course content provides a platform to think critically about scientific experiments, develop presentation skills, and craft testable hypotheses. The course will consist of short lectures, presentations by students on primary research articles, and writing a short proposal on a topic relevant to the course.

Course Objectives and Structure

Learning objectives for all students:

- Learn the molecular and cellular underpinnings of motivated behavior, including the circuits, cell types, and neurotransmitters used to drive these behaviors.
- Become proficient in the use of modern neuroscience approaches to understanding the neural basis of behavior.
- Gain skill in reading, discussing, and presenting scientific research and critically evaluating data.
- Learn to develop new hypotheses about the neurobiological basis for motivated behavior.
- Learn to present primary research articles to your peers, identify the key figures, answer questions, and propose future directions of research.
- Learn to write a short mini-proposal, in the format of an NIH-specific aims page that addresses a key gap in knowledge, delineates a testable hypothesis, and describes an experimental paradigm to validate it.
Course format: The course will be a combination of lectures, class discussions, student presentations, and writing assignments. This course uses the neurobiology of motivation as a vehicle to teach students how to critically assess scientific findings and craft testable hypotheses. You must attend lectures and take part in the discussions.

The detailed course schedule will be available on Canvas. It is tentative until groups are assigned for papers. I will notify the class of any changes to the schedule in Canvas.

Readings: Assigned readings will be available on Canvas.

Grading Policy

Assignments: 25%
Class Participation: 15%
Group Presentations: 30%
Proposal: 30%

Assignments (25%):
Assignments include 4 quizzes and surveys on feedback for the presentations. Quizzes will cover lecture material and group presentations.

Class Participation (15%):
Your participation is essential for the success of this course. This portion of your grade will reflect attendance, in class participation, and the quality of the feedback you give on student’s presentations and writing. Think critically about the papers to be presented: how have the authors arrived at their conclusions? What assumptions were made? What was measured and why? What are alternative hypotheses that also fit the data? What future experiments could support or refute the conclusions? Points come from class participation and feedback to your peers.

Group presentation - Oral (15%) - Rubric
Each student will work in a small group (typically 2-3 students) to lead a discussion of the paper selected for the week. Each student is expected to be extensively involved in the presentation.

Group presentation - Preparation (5%)
In the weeks before your presentation, a portion of lecture time will be set aside for your group to meet with me and show discuss a draft of the
slides. Your preparation for these meetings and your participation in the group discussion will determine your grade.

**Group presentation - Written (10%) -**

In addition to an oral presentation, you will submit answers to the Critical Reading Questions for your paper. Each student must submit original work. Grades will be issued to individual students.

**Research proposal (30% total) Rubric**

Proposal assignments, presentation, and written proposal: Each student will be required to write and to present an original research mini-proposal that uses similar experimental approaches as those in the class to resolve an unanswered question in the neurobiology of motivation. *Over the course of the quarter, you will be working toward preparing a research proposal, as indicated on the schedule.* These early draft documents will contribute to the final grade of your research proposal. Spending time early on crafting your proposal and getting feedback on your ideas and writing will be critical to a successful proposal.

- **Proposal Draft Documents:** 5%
- **Oral Presentation:** 10%
- **Written Proposal:** 15%

**Grading Disputes:**

If you would like to dispute a grade, you must fill out a Grade Discrepancy Form no later than one week after you have received the grade.
<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Class</th>
<th>Learning objective</th>
<th>Assignments</th>
<th>Presentation Prep</th>
<th>Proposal Activities</th>
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<tr>
<td>3/29/21</td>
<td>1</td>
<td>M</td>
<td>Overview and Introductions</td>
<td>Neuro Background Quiz</td>
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<td>Techniques in Neuroscience</td>
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<td>Group Presentation Preferences</td>
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<td>Hunger</td>
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<td>Dopamine</td>
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<td>Sex, Social Behavior, &amp; Aggression</td>
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<td>Homework due - Constructive feedback</td>
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<td>Homework due - Constructive feedback</td>
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<td>Written Research Proposal DUE BY FINAL DAY/TIME - UO will post</td>
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<td>Proposal Due</td>
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Guidelines for Remote Class Participation

1. **Participate and Contribute**: Students are expected to participate by sharing ideas and contributing to the collective learning environment. This entails preparing, following instructions, and engaging respectfully and thoughtfully with others. More specific participation guidelines and criteria for contributions will be provided for each specific activity.

2. **Remote Learning Etiquette**: Identify yourself with your real name and use a subject line that clearly relates to your contribution. Write or speak in the first person when sharing your opinions and ideas but when addressing other students or discussing their ideas, use their names. Respect the privacy of your classmates and what they share in class. Be respectful of each other. Understand that we may disagree and that exposure to other people’s opinions is part of the learning experience. Use humor or sarcasm carefully, remembering that non-verbal cues (such as facial expressions) are not always possible or clear in a remote context. In addition, your language should be free of profanity, appropriate for an academic context, and exhibit interest in and courtesy for others’ contributions. Be aware that typing in all capital letters indicates shouting. Certain breaches of these rules of etiquette can be considered disruptive behavior.

3. **Interact Professionally**: Our learning environment provides an opportunity to practice being professional and rigorous in our contributions. As much as possible, use correct spelling, grammar, and style for academic and professional work. Use discussions and activities as opportunities to practice the kind and quality of work expected for assignments. Moreover, seize the chance to learn from others and develop your interpersonal skills, such as mindful listening and awareness of one’s own tendencies (e.g. Do I contribute too much? Too little?).

4. **Expect and Respect Diversity**: All classes at the University of Oregon welcome and respect diverse experiences, perspectives, and approaches. What is not welcome are behaviors or contributions that undermine, demean, or marginalize others based on race, ethnicity, gender, sex, age, sexual orientation, religion, ability, or socioeconomic status. We will value differences and communicate disagreements with respect. We may establish more specific guidelines and protocols to ensure inclusion and equity for all members of our learning community.

5. **Help Everyone Learn**: Our goal is to learn together by learning from one another. As we move forward learning during this challenging time, it is important that we work together and build on our strengths. We should be patient with each other, identify ways we can assist others, and be open-minded to receiving help and advice from others. No one should hesitate to contact me to ask for assistance or offer suggestions that might help us learn better.
Specific guidelines for using Zoom

1. Please test your video and audio prior to joining a live class session. You can learn more about testing your audio and video by visiting the UO Service PortalLinks to an external site.
2. Try to be on time when the meeting starts. It can be distracting to have participants join late.
3. Be mindful that others can see you and your surroundings if your video is on. Try to find a quiet setting without lots of noise or busy activities in the background. Please minimize distractions like eating or multitasking and speak and use gestures like you would in person.
4. Use a microphone or speak closely to your computer microphone so that others can hear you. If you have video on, try to look at your camera, not the screen, when you are contributing.
5. Mute your audio when you are not actively contributing. When contributing, avoid making other noises such as typing or eating or having side conversations with others that might be present with you.
6. Use chat to pose questions or offer insights “on the side” while others are contributing.
7. If you prefer to use a static image instead of video, you can keep your video off.
8. For help and troubleshooting with Zoom, visit the UO Service PortalLinks to an external site.

Code of Conduct

Academic Integrity

All students are expected to conform to the student conduct code (http://dos.uoregon.edu/conduct and https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code). As detailed in the policy, academic misconduct means the violation of university policy involving academic integrity. This includes cheating (“any act of deception by which a student misrepresents or misleadingly demonstrates that the student has mastered information on an academic exercise that the student has not mastered”), and plagiarism (“using the ideas or writings of another as one’s own.”) The instructor has a zero-tolerance policy for academic dishonesty. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures.

You are encouraged to discuss ideas with each other. However, all work submitted in this course must be your own. Instances of suspected cheating or plagiarism on any material will be referred to the Office of Student Conduct and Community Standards. I take such cases seriously and pursue charges of academic misconduct and their sanctions to the fullest extent allowable, including but not limited to a failing mark for the course.

Inclusiveness

UO is working to create inclusive learning environments. Please notify me if there are
aspects of instruction or design of this course that result in barriers to your participation. You may also wish to contact the Accessible Education Center (541-346-1155; usaec@uoregon.edu).

Campus resources

**Tutoring and Academic Engagement Center:** Drop-in math and writing support in addition to tutoring, study skills support, and Class Encore. Located in the 4th Floor Knight Library (541) 346-3226, [https://engage.uoregon.edu/services/Links to an external site.]

**Counseling Center:** Call anytime to speak with a therapist who can provide support and connect you with resources. Located on the 2nd Floor of the Health Center (541) 346-3227

**Accessible Education Center:** The University of Oregon is working to create inclusive learning environments. The instructor believes strongly in creating inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify us as soon as possible. You are also encouraged to contact the Accessible Education Center. If you are not a student with a documented disability, but you would like for us to know about class issues that will impact your ability to learn, we encourage you to come visit during office hours so that we can strategize how you can get the most out of this course. Located on the 1st Floor of Oregon Hall (541) 346-1155, uoaec@uoregon.edu.

**Center for Multicultural Academic Excellence (CMAE):** Mission is to promote student retention and persistence for historically underrepresented and underserved populations. We develop and implement programs and services that support retention, academic excellence, and success at the UO and beyond. We reaffirm our commitment to all students, including undocumented and tuition equity students. Located on the 1st Floor of Oregon Hall (541) 346-3479, cmae@uoregon.edu.

**Discrimination and Harassment**

**Prohibited Discrimination and Harassment**

Any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment may seek resources and help at safe.uoregon.edu[Links to an external site.]. To get help by phone, a student can also call either the UO’s 24-hour hotline at 541-346-7244 [SAFE], or the non-confidential Title IX Coordinator at 541-346-8136. From the SAFE website, students may also connect to Callisto, a confidential, third-party reporting site that is not a part of the university. Students experiencing any other form of prohibited discrimination or harassment can find information at respect.uoregon.edu or aaeo.uoregon.edu[Links to an external site.], or contact the non-confidential Office of 514-346-3123 or the Dean of Students Office at 541-346-3216 for help. As UO policy has different reporting requirements based on the nature of the reported harassment or discrimination, additional information about reporting requirements for discrimination or harassment unrelated to sexual assault,
relationship violence, sex or gender based bullying, stalking, and/or sexual harassment is available at Discrimination & Harassment Links to an external site.

Reporting
The instructor of this class is a Student-Directed Employee. As such, if you disclose to me, I will respond to you with respect and kindness. I will listen to you and will be sensitive to your needs and desires. I will not judge you. I will support you. As part of that support, I will direct students who disclose sexual harassment or sexual violence to resources that can help. I will only report the information shared to the university administration when you as the student requests that the information be reported (unless someone is in imminent risk of serious harm or is a minor). Please note the difference between ‘privacy’ and ‘confidentiality.’ As a Student-Directed Employee I can offer privacy because I am not required to report certain information to the university. However, I cannot be bound by confidentiality as is the case with a counselor or attorney. Confidential resources mean that information shared is protected by federal and state laws. Any information that I as a student-directed employee receive may still be accessed by university or court proceedings. This means, for example, that I could still be called as a witness or required to turn over any related documents or notes that I keep.

Please note also that I am required to report all other forms of prohibited discrimination or harassment to the university administration. Specific details about confidentiality of information and reporting obligations of employees can be found at titleix.uoregon.edu Links to an external site.

Mandatory Reporting of Child Abuse
UO employees, including faculty, staff, and GEs, are mandatory reporters of child abuse. Child abuse pertains to individuals who are under the age of 18. This statement is to advise you that your disclosure of information about child abuse to the instructor may trigger my duty to report that information to the designated authorities. Please refer to the following links for detailed information about mandatory reporting: Mandatory Reporting of Child Abuse and Neglect Links to an external site.