

**University of Florida
Department of Psychology**

Course: PSB 4934
Class: 28466; Section PO88

Neurobiology of Substance Abuse

Fall 2024

Meeting Times:

M Period 3-4 (9:35-11:30 am): Lecture recording to watch in Canvas

W Period 3 (10:40-11:30 am): Synchronous class meeting on ZOOM

Instructor: Dr. Lori Knackstedt, Ph.D.

Office hours: Wed. 11:30-12:30 and by appt.

Location: Zoom

TA: Cassandra Modrak

Office hours: Tuesday 10 am -12 pm; Fri. 1-2 pm

Location: Zoom

Course Description: This course presents an overview of neurobiological models for understanding why some individuals transition from casual use to substance abuse. Approaches to treatment will be considered.

Textbook (optional): *Neurobiology of addiction* by Koob & Le Moal (ISBN-10: **0124192394**)

Course Policies:

Attendance: On Wednesdays, attendance is required (Zoom). If you have a family emergency or illness that requires absence on Wednesday, please send me a written excuse from a doctor.

Missed assignments: An excuse from the Dean of Students office is needed for extensions.

Academic dishonesty: Guidelines for this course will follow the University of Florida Student Honor Code (www.dso.ufl.edu/sccr/honorcodes/honorcode.php). *Plagiarism*, *Collusion*, and *Impersonation* are serious offenses, and will be punished by receiving a grade of zero for that assignment. The student will receive a failing grade for the course, for repeated offenses. Definitions: *Plagiarism* - taking the work of another person or source (including ChatGPT & AI) and claiming it as your own (as paragraphs or sentences, even with slight modification) without acknowledgment of the source through proper referencing. Any submission with Turnitin® similarity scores higher than 25% will be manually checked. *Collusion* - two or more learners collaborating to produce work that is submitted by each in an identical or highly similar submission with the claim that the work was independently completed by an individual learner. We will check for this as well. *Impersonation* - the learner asks someone else to complete all, or part, of their assignment for them and then claims the work as their own.

Disabled Students: Students requesting classroom accommodation must first register with the Dean of Students Office/DRC. The DRC will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. It is important to share the accommodation letter and discuss access needs as early as possible in the semester so that the accommodations are given.

On a personal note: Topics related to substance use can touch on personal issues, and may make you more sensitive to difficulties in your own life. Please feel free to talk to me about anything, anytime. If you need more help than I can offer, please contact the Counseling and Wellness Center at 392-1575.

Student Learning Outcomes:

1. Identify brain regions and neurotransmitters involved in drug use and abuse
2. Understand the concept of neuroplasticity as it relates to drug use and abuse
3. Identify the cellular and molecular mechanisms by which drugs of abuse produce neuroplasticity
4. Understand the acute pharmacological mechanism of action of the major classes of abused drugs

5. Understand the research methods used by addiction neuroscientists
6. Gain experience in reading and critiquing peer-reviewed original research publications

Learning Assessment and Grading:

1. Weekly Canvas Quizzes (12). Open-note quizzes based on the weekly lecture recording only. Each quiz will have 10 multiple-choice questions and occasional essay questions. The quiz must be completed in one 50-minute period of your choosing between 8 am and 11:59 pm Thursday. There are a total of 13 quizzes. The lowest 2 quiz scores will be dropped automatically (including a 0 if you miss due to illness). **There are quizzes EVERY WEEK except for Weeks 2, 9 and 14.**

2. Weekly paper discussions and summaries (6). On 6 Wednesdays of the semester, we will discuss an empirical research paper as a group. Prior to that discussion, you will upload a Paper Discussion Summary to Canvas (by 11:59 pm SUNDAY). More information is found in the assignment description (link on Canvas Home Page).

****Full credit for this assignment is only given if you attend the Wednesday class meeting.** Absences may be excused (see above policy).

3. Final Project (see description on Canvas).

Final Grade Calculation

Quizzes (50% of your final grade)

Final Project (25% of your final grade)

Paper Discussion Summaries (25% of your final grade)

The grading scheme is as follows:

A	(outstanding)	93-100	C	(slightly below average)	73-76
A-	(superior)	90-92.99	C-	(below average)	70-72.99
B+	(excellent)	87-89.99	D+	(well below average)	67-69.99
B	(very good)	83-86.99	D	(poor)	63-66.99
B-	(above average)	80-82.99	D-	(very poor)	60-62.99
C+	(average)	77-79.99	E	(failure)	<60.99

At the end of the semester, if the average final course grade is lower than a 75%, points will be added to everyone's grade until the average is a 75%. Please see the following website for UF policy on grades:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades>

Week	Dates	Topic	Reading Assignment
1	8/26 8/28	What is substance abuse? (Quiz due 9/5 11:59 pm) Intro to course	
2	9/2 9/4	Holiday – no class Example Paper Discussion	Mitchell 2012
3	9/9 9/11	Research methods for studying addiction Parts 1 & 2 Research methods for studying addiction Parts 1 & 2	Ch. 2 Ch. 2
4	9/16 9/18	Neurotransmission & Drugs of Abuse Project Workshop #1	
5	9/23 9/25	Psychopharmacology of Drugs of Abuse Paper Discussion 1	Ch. 1 see Canvas
6	9/30 10/2	Neurocircuitry of Drug-Seeking Paper Discussion 2	pp. 387-404 see Canvas
7	10/7 10/9	Neuroplasticity Theory of Addiction Paper Discussion 3	pp. 96-99; 405-414 see Canvas
8	10/14 10/16	Psychostimulant Drugs Project Workshop #1	Ch. 3 & 6
9	10/21 10/23	Dopamine Theory of Addiction Part 1 *Quiz due 10/31 Paper Discussion 4	pp. 378-381
10	10/28 10/30	Dopamine Theory of Addiction Part 2 Paper Discussion 5	pp. 378-381 see Canvas
11	11/4 11/6	Imaging the brain of substance users Project Workshop #3	Ch. 8 see Canvas
12	11/11 11/13	Holiday – No class (Projects due at midnight!) No class meeting; Alcohol	Ch. 5
13	11/18 11/20	Stress, Allostasis & Sensitization Paper Discussion 6	pp. 435-447 see Canvas
14	11/25 11/27	Holiday – no class Holiday – no class	
15	12/2 12/4	Cannabinoids; Opioids and the Opioid Epidemic (1 quiz) In class Discussion	Ch. 4 and 7

There is no final exam in this class!

Color Coding: BLACK = Required In-class Paper Discussions

GREEN = Recorded Lecture with accompanying Canvas Quiz

BLUE = OPTIONAL textbook reading

ORANGE = OPTIONAL in-class workshop

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.