

Neurobio 233: Neurobiology of Drug Addiction

Spring, 2017



Instructor Contact Information

<i>Instructor</i>	Office	<i>Email</i>	<i>Phone</i>
<i>Dr. Christie Fowler</i> (Course Organizer)	1232 McGaugh Hall	cdfowler@uci.edu	824-8363
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<i>Dr. Sean Ostlund</i>	3111 Gillespie	sostlund@uci.edu	824-1347

Purpose:

The objective of this intensive graduate-level course is to provide a comprehensive overview of topics and controversies in the addiction field. Main topics will include drug pharmacology, models/approaches to investigate addiction, brain circuits, genetics, epigenetics, and the cellular and molecular biology of drug addiction. Postdoctoral fellows and senior graduate students from respective labs will assist with the course under the direction of the faculty. At the course end, students will be required to present to high schools in an engaging and interactive manner to educate younger students about neuroscience and the dangers of drug use.

Course Objectives:

By the end of the course, you should have a basic understanding of:

1. Principles of drug pharmacology
2. Strengths and limitations of the current models/approaches to investigate processes mediating addiction
3. Basic understanding of brain circuits underlying different aspects of addiction processes
4. Mechanisms of action for the most common drugs of abuse
5. Contribution of genetics and epigenetics in vulnerability to addiction and addiction-related processing

Attendance and Participation:

Attendance and active class participation are expected and will account for 50% of the course grade. Active class participation includes reading any assigned material prior to the class meeting and intellectually contributing to discussions. In the event of an absence, it is your responsibility to contact the instructor prior to the missed class meeting. Points from approved absences (e.g., written medical excuse and/or at the instructor's discretion) may be made up with alternative assignments/exams. Any student that fails to contact the instructor by the next class meeting forfeits their eligibility to complete the make-up work.

Class and Community Presentation:

You will be placed into assigned groups and will be required to create a presentation to inform a lay audience about the dangers of drug abuse based on scientific evidence. Your presentations should cover the range of illicit and prescription drugs discussed during the quarter. Following completion of the oral presentation to the class, you will be required to travel into the community and present to high school students. The presentations are expected to be interactive and engage the audience. The class presentation will be worth 50% of your final grade. Further instructions will be provided in a separate handout.

Grading Policy:

Grades will be determined by total points earned out of a possible 200 points. Active class participation will be worth a total of 100 points, and the presentation will be worth 100 points. The grade scale will be based on the UCI standard scale.

Students with disabilities needing academic accommodations should contact me as soon as possible.

Classroom Etiquette:

In an effort to create a classroom environment conducive to learning and open participation, the following classroom etiquette is *required*:

- Be polite and respectful to others in class. The classroom is considered a 'safe' environment, allowing for everyone to express their opinions in an open manner.
- **PLEASE turn off your cell phone prior to entering the classroom each day.** If you need to receive an emergency call, let the instructor know about it in advance. Never take a call and start talking/texting during class.

Academic Honor Code:

Students are expected to uphold the Academic Honor Code of the University of California, Irvine. The Academic Honor System is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic honesty and integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the University community by reporting to the proper personnel, and (3) to foster a high sense of integrity and social responsibility on the part of the University community. Further information can be found on the University's website at: <http://honesty.uci.edu/students.html>

Tentative Schedule of Classes and Exams

DATE	TOPIC	INSTRUCTOR
M 3 April	Conceptualizing Addiction	Fowler
W 5 April	Invited Speaker – Mr. Gary Roman	Fowler
F 7 April	Animal Models	Fowler
M 10 April	Circuit Observation in Addiction Research	Mahler
W 12 April	Circuit Manipulation in Addiction Research	Mahler
F 14 April	CNLM Meeting	
M 17 April	Marijuana and Cannabinoids-Pharmacology & Brain circuits	Mahler
W 19 April	Marijuana and Cannabinoids-Development, Genetics, and Epigenetics	Mahler
F 21 April	Invited Speaker - Dr. Kwang Mook Jung, UCI, Cannabinoid Molecular Mechanisms	Mahler
M 24 April	Nicotine – Pharmacology & Brain Circuits	Fowler
W 26 April	Nicotine – Genetics & Epigenetics	Fowler
F 28 April	Nicotine – Cellular/Molecular	Fowler
M 1 May	Invited Speaker – Dr. Ziva Cooper, Clinical Researcher with Cannabis and Heroin, Columbia University	Cahill
W 3 May	Opioids – Pharmacology & Brain Circuits	Cahill
F 5 May	Opioids – Genetics & Epigenetics	Cahill
M 8 May	Opioids – Cellular/Molecular	Cahill
W 10 May	Cocaine and Amphetamine – Pharmacology & Brain Circuits	Wood
F 12 May	Cocaine and Amphetamine – Genetics & Epigenetics	Wood
M 15 May	Cocaine and Amphetamine – Cellular/Molecular	Wood
W 17 May	Alcohol – Pharmacology & Brain Circuits	Loptifour
F 19 May	Alcohol – Genetics & Epigenetics	Loptifour
M 22 May	Alcohol – Cellular/Molecular	Loptifour
W 24 May	Hallucinogens, PCP and Ketamine – Pharmacology & Brain Circuits	Ostlund
F 26 May	Hallucinogens, PCP and Ketamine – Cellular/Molecular	Ostlund
M 29 May	NO CLASS - Memorial Day – Enjoy!!	
W 31 May	Invited Speaker – Dr. Ariana Nelson, Clinician in Pain Medicine and Anesthesiology	Fowler
F 2 June	Presentation Concepts and Training Speaker – Officer Jose Ayala, DARE Officer, Irvine Police Department	Fowler
M 5 June	Presentation Development Speaker – Randy Haveson, MA; Motivational Speaker & Manager, Alcohol & Other Programs, UCI	Fowler
W 7 June	Class Presentations with Analysis and Preliminary Critique	Fowler
F 9 June	Presentation Final Critique and Community Outreach	Fowler