Instructors: Gene M. Heyman, Verna L. Mims
Meeting time and place: Tuesday, 5:30 – 7:30 pm; William James Hall, Room 105
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Addiction is studied at many levels, from how drugs affect neurons to how drugs affect society. Neural architecture and societal organization influence drug effects as well as bear the brunt of drug effects. This complexity is, in part, responsible for the conflicting views of the nature of addiction, with some arguing we should consider addiction a disease, much like heart disease or diabetes, and others arguing that drug use in addicts is a matter of individual choice. To understand addiction, we also need to understand basic bio-psychological relations, such as how neurons work, heritability, and empirical laws of choice. Consequently, course readings include papers on these topics as well as papers on addiction.

The course topics include (1) the characteristics of addiction as revealed in biographies, epidemiological studies, (2) how drugs work, (3) role of heredity in behavior and alcoholism, (4) whether heroin is an “enslaving” drug, (5) the reward/dopamine explanation of cocaine addiction, (6) drug craving, (7) cigarette smoking, (8) marijuana (9) addiction as choice, and (10) some comments on drug policy. The readings are largely research studies published in scientific journals.

Required text

Additional reading course readings will be available on the course website, in the library, or in class handouts.

Grades
Undergraduates: Exam 1: 30%, Exam 2: 40%, Quizzes: 20%, Paper 10%
Graduates: Exam 1: 20%, Exam 2: 30%, Quizzes: 20%, Papers 30%

Quizzes
There will be 4 very short quizzes during the semester. Quizzes will be based on material primarily contained in the assigned readings. Each quiz will be composed 5 questions, worth 1 point each. There will be a minimum of 5 extra credit points available on the midterm and final exams, which will provide an opportunity to recoup lost points, should you be absent for a quiz.

Papers
One short paper worth 10 points will be required from all students. Paper length will be 2 to 3 pages for undergraduate students, and 4 to 5 pages for graduate students. This paper will not require any additional reading or research, outside of what has been covered in regular class assignments. A list of topics will be provided in class. Additionally, graduate students will be
required to submit one term paper, worth 20 points, 8 to 10 pages in length. Students may select a topic based on their own interests, related to the study of addiction. Topics must be submitted for approval by November 12. All papers must be double-spaced, typed in Times 12 point font, with 1” margins. Papers are due by 5:00pm on the dates below. Additional information about papers will be presented in class.

Key dates
March 7 Midterm examination
April 18 Graduate paper proposals due
April 25 Short paper due
May 2 Graduate paper due
May 9 Final examination

Quiz dates
February 7, February 21, April 4, April 18

January 24 – Lecture 1
Introduction: Defining addiction, an overview of the topic, and course mechanics. “Addiction” identifies a self-destructive pattern of drug use. The popular understanding is that addiction is a compulsive, involuntary behavior. However, self-destructive behavior is not necessarily compulsive. Whether addictive drug use is voluntary or involuntary is an empirical question that can be scientifically tested. To answer it properly requires an objective definition of compulsivity and a sufficiently rich account of the determinants of drug use. This course offers insight into the nature of addiction based on objective definitions of voluntary and involuntary behavior, and the factors correlated with drug use.


January 31 – Lecture 2
Neurons, drugs, psychopharmacology: Drugs achieve their effects by changing the way the brain normally functions. To understand these changes, we will cover how drugs reach their sites of action, receptor dynamics, psychopharmacology, and brain plasticity.


February 7 – Lecture 3
Opiates, part 1: History, psychopharmacology, tolerance, and withdrawal. Heroin and morphine have been used in different forms, by different groups of people, for millennia. What makes using opiates so compelling that people continue to use it despite the dangers that are associated with its use?


**February 14 – Lecture 4**
The opiate epidemic. There has been a major change in opiate use. We will review the evidence for the role of painkillers and physicians in the increase in opiate use and overdoses. What other factors might matter?


**February 21 – Lecture 5**
Subjective aspects of drug use: Craving, intoxication, cognitive deficits. Why do some people experience craving and intoxication differently than others? What role does an individual’s experience of a drug’s subjective effects play in the likelihood that he or she will become addicted?


February 28 – Lecture 6
Stimulants, reward, and dopamine. Why is cocaine so addictive? How does it differ from other addictive drugs? We will look at the differences and similarities between powder cocaine, crack, and other stimulants to understand why addiction to stimulants can be so difficult to break.


March 7 – MIDTERM EXAMINATION

March 14 – SPRING BREAK

March 21 – Lecture 7
Alcohol, part 1. Introduction to alcohol and alcoholism. Selected topics will include the history of alcohol use, alcohol pharmacology and psychology, and genetic influences related to alcohol abuse. Does a genetic influence in alcoholism imply that it is a disease?


*Optional

March 28 – Lecture 8
Alcohol, part 2. Treatment, recovery, and AA. How successful are treatments for alcoholism? Topics include the history of Alcoholics Anonymous and the theoretical basis its widespread use for treatment of alcoholism.


April 4 – Lecture 9
Nicotine. Despite a concerted effort to dissuade people from smoking, millions of Americans continue to smoke cigarettes, and new users begin smoking every day. Why is nicotine sometimes considered the prototypical drug of abuse? Why is it so hard to stop smoking?


April 11 – Lecture 10
Cannabis, part 1. Is marijuana addictive? Is it harmful? Topics include historical and current usage of marijuana, current trends in marijuana use, myths versus facts, medical and recreational use of marijuana.


*Optional

**April 18 – Lecture 11**  
Cannabis, part 2. An objective consideration of reasons to support and/or not support expanding legalization of marijuana for medical, recreational, and social use.

**April 25 – Lecture 12**  
On the nature of reward and choice. Voluntary actions can produce undesirable outcomes.


**May 2 – Lecture 13**  
Pros and cons of current drug policy and should “values” play a role in the effort to reduce harmful drug use?


**May 9 – FINAL EXAMINATION**

* Nota bene: This is a preliminary syllabus. Some topics and readings may change.