Instructors: Gene M. Heyman, Verna L. Mims
Meeting time and place: Thursday, 5:30 – 7:30 pm, William James 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 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, and ethnographies, (2) how drugs work (in a very schematic fashion), (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 course readings will be available online or in class handouts.

Grading
Undergraduates: Exam 1: 30%, Exam 2: 40%, Quizzes: 20%, Paper 10%  
Graduates: Exam 1: 25%, Exam 2: 35%, Quizzes: 20%, Papers 20%

Quizzes
There will be 4 short quizzes during the semester. Quizzes will be based on material found primarily in the assigned readings. Each quiz will contain 5 questions, worth 1 point each. There will be no make-up dates for quizzes.

Papers
Each undergraduate student will be responsible for writing 1 short paper, 2 to 3 pages in length, worth 10 points. Each graduate student will be responsible for writing 2 short papers, 4 to 5 pages in length, worth 10 points each. Students will be allowed to choose from a list of topics based on course readings. All papers should be double-spaced, typed in 12 point Times font, with 1” margins. Papers are due in the dropbox of the course website by 5:00pm on the dates below. More information about papers will be presented in class.

Key dates
March 14 Midterm exam
March 17-23 Spring break
April 11 Graduate first paper due
May 2 Undergraduate and graduate paper due
May 16 Final exam
January 31 – 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.


February 7 – 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.


McKim, W. A.: Chapter 4 (pp. 57-74).


February 14 – 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?


*Optional

February 21 – Lecture 4
Opiates, part 2: Does heroin promote compulsive drug use? Heroin use in Vietnam was widespread, but what became of those soldiers when they returned home? Is addiction typically a chronic relapsing disorder? We use clinical, epidemiological, and ethnographic evidence to answer these questions.


**February 28 – Lecture 5**

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.

McKim, W. A. (2007). Stimulants, read selectively as discussed in class.


* Optional

**March 7 – Lecture 6**

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?


*Optional

**March 14 – MIDTERM EXAMINATION**

**March 21 – No Class / Spring Break**

**March 28 – 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?

McKim, W. A. Chapter 6. Alcohol, read selectively as discussed in class.


*Optional

**April 4 – 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 11 – 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 18 – Lecture 10
Cannabis. Is marijuana addictive? Is it harmful? Topics include marijuana myths versus facts, an objective consideration of reasons to support and/or not support legalization of marijuana for medical or recreational use.


Meier, M. et al. (2012) Persistent marijuana users show cognitive decline from childhood to midlife. PNAS, August 27.


*Optional

April 25 – Lecture 11
Behavioral addictions and treatment issues for dual diagnosis.


May 2 – Lecture 12
On the nature of reward and choice. Voluntary actions can produce undesirable outcomes.


May 9 – Lecture 13
Pros and cons of current drug policy and should “values” play a role in the effort to reduce harmful drug use?


May 16 – FINAL EXAMINATION

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