Term Information

Effective Term	Autumn 2022
Previous Value	*Autumn 2021*

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

To approve the course to count under the Health and Wellbeing GE theme.; remove exclusion language: "Not open to students with credit for 2000. Not open to professional students in the College of Pharmacy."

What is the rationale for the proposed change(s)?

This course fits well into the new theme category. Approval is only being sought for Columbus at this time, as there are no Pharmacy faculty on regional campuses. We are currently developing a 100%DL version that will come forward for approval as soon as it is complete.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

no programmatic implications.

Is approval of the requrest contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Pharmacy
Fiscal Unit/Academic Org	Pharmacy - D1800
College/Academic Group	Pharmacy
Level/Career	Undergraduate
Course Number/Catalog	2400.01
Course Title	Addicting Drugs: Effects, Introductory Neurobiology, and Regulation
Transcript Abbreviation	Addicting Drugs
Course Description	Overview of effects, regulation, and mechanism of action of addicting drugs, with an introduction to function of the nervous system and how this function is altered by drugs.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	Yes
Is any section of the course offered	Greater or equal to 50% at a distance Less than 50% at a distance
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never

Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	
Exclusions	
Previous Value	Not open to students with credit for 2000. Not open to professional students in the College of Pharmacy.
Electronically Enforced	Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	51.2010
Subsidy Level	Baccalaureate Course
Intended Rank	Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Health and Well-being
The course is an elective (for this or other units) or is a service course for other units

Previous Value

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Successful students will analyze health and wellbeing at a more advanced and in-depth level than in the foundations.
- Students will integrate approaches to health and wellbeing by making connections to out-of- classroom experiences with academic knowledge or across disciplines or to work they have done in previous classes and that they anticipate doing in future.
- Students will explore and analyze health and wellbeing through attention to at least two dimensions of wellbeing. (Ex: physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.)

Previous Value

- *Students will have a basic understanding of major effects, mechanism of action, and origin of addicting and recreationally used drugs.*
- *Students will have a beginning knowledge of the neurobiology of addiction*
- *Students will have a basic understanding of legal regulations for addicting drugs.*
- *Students will be able to evaluate current issues relative to addicting drugs.*

Content Topic List

- Pharmacology and Addiction
- Neuropsychopharmacology
- Narcotics and Depressants
- Psychostimulants
- Hallucinogens
- Society and Addiction
- Laws regulating addicting drugs
- Research models relating to addicting drugs

Previous Value

- *Terminology used in pharmacology*
- *Drug-receptor interactions*
- *Basic neuron function*
- *Brain regions important to action of drugs*
- *Overview of various classes of addicting drugs*
- *Forensic issues involving addicting drugs*
- *Laws regulating addicting drugs*
- *Research models relating to addicting drugs*

Sought Concurrence

No

Attachments

- Syllabus_PHR 2400 GE _Newman.pdf

  (Syllabus. Owner: Bowman,Michael Robert)
- Course Map_PHR 2400_Newman.pdf

  (Syllabus. Owner: Bowman,Michael Robert)
- Theme Proposal_ health-well-being_PHR 2400_Newman.pdf

  (GEC Course Assessment Plan. Owner: Bowman,Michael Robert)

Comments

- Rationale for Columbus only (temporarily) is provided in the proposed changes box above. *(by Mercerhill,Jessica Leigh on 09/08/2021 09:38 AM)*
- Please check off all campuses as per OAA requests all courses in the new GE need to be available on all campuses (or provide rationale for why that should not be the case). *(by Vankeerbergen,Bernadette Chantal on 09/07/2021 04:24 PM)*
- approved by the Undergraduate Studies Committee *(by Bowman,Michael Robert on 08/20/2021 04:59 PM)*

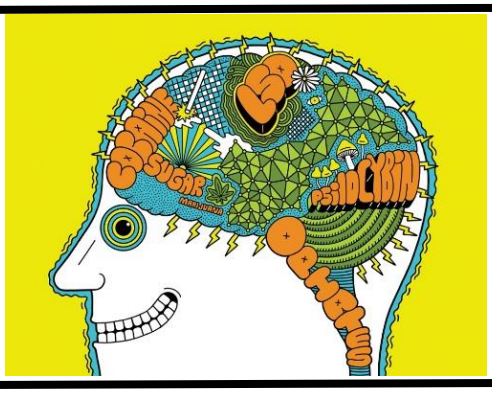
Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Bowman,Michael Robert	08/20/2021 04:59 PM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	08/23/2021 07:51 AM	Unit Approval
Approved	Kelley,Katherine Ann	08/24/2021 04:49 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	09/07/2021 04:25 PM	ASCCAO Approval
Submitted	Bowman,Michael Robert	09/07/2021 04:31 PM	Submitted for Approval
Approved	Mercerhill,Jessica Leigh	09/08/2021 09:38 AM	Unit Approval
Approved	Kelley,Katherine Ann	09/08/2021 09:43 AM	College Approval
Pending Approval	Cody,Emily Kathryn Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	09/08/2021 09:43 AM	ASCCAO Approval

PHR 2400

ADDICTING DRUGS

AUTUMN 2022



COURSE DESCRIPTION

Addiction is studied at many levels, including the effects of drugs on neurons through how these effects influence human behavior and society. In this course we will investigate the principles of drug addiction, including the neurobiology of addiction, to aid in understanding the effects, mechanisms of action, and regulation of addicting drugs. We will apply this knowledge to study the effects of addicting drugs on human health and behavior. We will also examine the variety of approaches and advancements in technology used to study addiction, which enable the exploration of how these advancements impact treatment and society's view of addiction. (3 credit hours Prerequisites: none)

INSTRUCTOR

Leslie C Newman, PhD
Division of Pharmacy Education and Innovation | College of Pharmacy
Parks 141 | 614-292-3025
Newman.439@osu.edu

COURSE INFORMATION

General Education – Health and Wellbeing

Goals

- Successful students will analyze health and wellbeing at a more advanced and in-depth level than in the foundations.
- Successful students will integrate approaches to health and wellbeing by making connections to out-of- classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.
- Students will explore and analyze health and wellbeing through attention to at least two dimensions of wellbeing. (Ex: physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.)

Expected Learning Outcomes

Successful students will be able to:

- Engage in critical and logical thinking about the topic or idea of health and wellbeing.
- Engage in an advanced, in-depth, scholarly exploration of the topic or idea of health and wellbeing.
- Identify, describe, and synthesize approaches or experiences as they apply to health and wellbeing.
- Explore and analyze health and wellbeing from theoretical, socio-economic, scientific, historical, cultural, technological, policy, and/or personal perspectives.
- Identify, reflect on, and apply the skills needed for resiliency and wellbeing.

Specific Learning Objectives

- Understand the basic principles of drug action.
- Explain the neurochemical and molecular adaptations characterizing the transition to drug dependence and ultimately addiction.
- Acquire basic knowledge of the behavioral approaches and neuroimaging studies that facilitate the study of drug addiction in animals and humans.
- Describe the mechanism of action and major effects of psychostimulants, opiates, hallucinogens, alcohol, nicotine, and cannabinoids.
- Apply foundational scientific knowledge of addiction to understand human health and behavior.
- Develop a holistic understanding of addiction by bridging emotional, behavioral, and biological/molecular elements.
- Evaluate current legal and social issues relative to addicting drugs.

Teaching Methods

In addition to brief lectures, in-class work will involve active learning strategies focused on encouraging students to apply what they have learned to discussions and real-world applications in the classroom. Depending on the individual topic being covered and on the learning outcomes, Team-Based Learning, Problem-Based Learning and Breakout Groups will form the framework of in-class learning.

Team-based learning is a structured process which emphasizes student preparation out of class and application of knowledge in class. This format enhances student engagement as well as the quality of student learning.

Problem-based learning involves working in groups to solve an open-ended problem. This problem drives motivation and the learning.

Breakout Groups involve a less structured method of group work and discussions and may involve addressing current event topics and/or working on group projects/presentations.

Course technology

This course requires use of Carmen and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with Dr. Newman. For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at **ocio.osu.edu/help/hours**, and support for urgent issues is available 24/7.

- Self-Service and Chat support: **ocio.osu.edu/help**
- Phone: **614-688-4357(HELP)**
- Email: **servicedesk@osu.edu**
- TDD: **614-688-8743**

Course materials

Students are required to read **ONE** of the following memoirs for use in activities and discussions.

- Sheff, N. *Tweak: (Growing Up on Methamphetamines)*, New York: Anteneum Books for Young Readers, 2007.
- Sheff, D. *Beautiful Boy: A Father's Journey Through His Son's Addiction,* New York: Houghton Mifflin Company, 2008.

There is no textbook for this course. All course materials will be posted on Carmen at least one week prior to their relevant class period.

ASSESSMENTS

Exams
There will be 2 exams each covering approximately half of the material in the course.

Final Project
Students will choose between writing a two-page research paper (with proper citations and list of sources) OR a webinar-type presentation of a poster or slides on any research topic related to addiction. Documents/presentations should be submitted via Carmen by the end of the day on the due date but may be turned in early.

Quizzes
Online and in-person quizzes will be given on Carmen. The top 4 quizzes will be counted in the final grade. All other quiz grades may be dropped.

Activities
In-class activities will be done in groups throughout the semester to encourage peer discussion and to reinforce the material.

Assignments and Discussion Posts
Various assignments will be given to reinforce the material and will either be turned in independently or set up as discussion posts.

In-class examinations (2 @ 100 pts each)	**36%**
Final Project (100 pts)	**18%**
Quizzes (top 4 of 6 @ 10 pts each)	**7%**
Discussion Posts (5 @ 15 pts each)	**13%**
In-class Activities (top 7 of 10 @ 10 pts each)	**13%**
Assignments (3 @ 25 pts each)	**13%**
Total Points - 560	

Assessment policies
All students must take exams/quizzes at the time and date specified. Failure to take the exam/quiz at the time and date specified will result in a zero for that exam/quiz. Any makeup exam MUST include a *bona fide* reason and written documentation. There will be no make-up quizzes since the lowest quiz scores will be dropped.

Exams will be completed using ExamSoft software on your laptop or iPad. Please be sure that your device is FULLY charged for all testing periods. The exam will be made available for download the evening before the test date. You MUST download the exam with ExamSoft software BEFORE test time (i.e. the evening before) and assure the download went through (exam will show available on software). The exam will be encrypted on your device so that it cannot be accessed. At the beginning of the exam, you will be given the password which will unlock the exam and lock down all browsers and access to any files on your device except for the exam. Any attempt to access any function on the device other than the ExamSoft software during testing will abort the test progress. The software will shut down after the assigned testing time period is reached. The ExamSoft program has a built in timer that will alert you when 5 minutes are remaining. **No other electronic devices** are permitted during the examination period, including access to cell phones. We will practice with a mock test (~5-10 questions) before the first exam to assure that all procedures are well understood. In the event of an uncontrollable situation during the exam we will have paper copies of the exam. These contingencies are designed for uncontrollable events and not as backups for a failure for appropriate preparation and planning. At the end of the exam, your exam should be automatically uploaded and I will need to see the green confirmation screen in order for you to exit the room. Once uploaded, the exam will be deleted from your device by the program.

ATTENDANCE AND PARTICIPATION

It is the responsibility of a student to participate in all directives designed to promote learning. Poor attendance can adversely affect your understanding of and ability to complete assignments and will affect your overall activity grade. Students are expected to come prepared and fully participate during class activities. Activities, discussions and quizzes support the information presented and facilitate an understanding of the topics such that the student learns to apply and integrate the material. In every instance, the student remains responsible for all materials covered in the course.

Grading Scale

A	A-	B+	B	B-	C+	C	C-	D+	D	E
100 - 93%	92.9 - 90%	89.9-87%	86.9-83%	82.9-80%	79.9-77%	76.9-73%	72.9-70%	69.9-67%	66.9-60%	59.9-0%

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Disability statement

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: **slds@osu.edu**; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

ACADEMIC INTEGRITY AND COLLABORATION

While activities will consist of group work, **ALL** writing assignments, exams and quizzes **MUST** be your own work. It is the responsibility of the Committee on Academic Misconduct (COAM) to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/csc/)

Specific assignment considerations

Quizzes and exams (both online and in class): You must complete the exams yourself, without any external help or communication from others. Weekly quizzes are meant to help you practice learning the material but you are still expected to complete them on your own.

Writing and research projects: Written assignments, including discussion posts, must be your own original work. In your final research paper or presentation, you should follow [MLA/APA/Chicago etc.] style to cite the ideas and words (paraphrase or quote) of your research sources. You are encouraged to ask a trusted person/peer to proofread your assignments before you turn them in but no one else should revise or rewrite your work.

Reusing past work: In general, you are prohibited in university courses from turning in work from a previous class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss this with Dr. Newman.

Collaboration: The course includes many opportunities for formal collaboration with your peers. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you are unsure about a particular situation, please ask ahead of time.

WRITING HELP

Since this course will feature writing assignments worth a significant portion of your semester grade, you may find it helpful to utilize Ohio State's Writing Center. The Writing Center offers free help with writing at any stage of the writing process for any member of the university community. During sessions, consultants can work with you on anything from research papers to lab reports, from dissertations to résumés, from proposals to application materials.

Appointments are available in-person at 4120 Smith Lab, as well as for online sessions. You may schedule an in-person or online appointment by visiting WCOnline or by calling 614-688-4291. You do not have to bring in a piece of writing in order to schedule a writing center appointment – consultants are perfectly happy to just talk through your ideas with you. Check the Individual Writing Support and Group Writing Support pages for the types of consultations offered. The Writing Center also maintains a Writing Resources page with writing handouts and links to online resources.

MENTAL HEALTH

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at https://go.osu.edu/ccsondemand. You can reach an on-call counselor when CCS is closed at 614-292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at1-800-273-TALK or at https://suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at https://go.osu.edu/wellnessapp.

For non-crisis support, please reach out to the College of Pharmacy Office of Student Services at 614-292-5001 OR connect with Dr. Shawn Levstek, College of Pharmacy Embedded Counselor. Any College of Pharmacy student may contact Dr. Levstek directly via email (levstek.4@osu.edu), and he will offer you an initial counseling session via Zoom to initiate services. During this meeting, he will address your current concerns and mental health needs in addition to collecting background information and assessing your history of concerns. He will also discuss future treatment options with you and can connect you with other resources as well where appropriate. If any students have questions or concerns, please email Dr. Levstek directly.

COLLEGIATE RECOVERY COMMUNITY (CRC)

The Collegiate Recovery Community (CRC) is a supportive peer community on campus for students in recovery from a substance use disorder or who may be currently struggling with substance use. The CRC is located in room 1230 of Lincoln Tower and meets regularly on Wednesdays 5:30-6:30 pm. Stop by or visit go.osu.edu/recovery or email recovery@osu.edu for more information.

Tentative Schedule

Module	Topic	Readings	Activities
Module 1 (Weeks 1-2): Introduction: Pharmacology and Addiction Aug 23 - Sep 2	• Course expectations • Introduction and Overview • What is a drug? • Historical use of drugs • How drugs reach their sites of action, receptor dynamics	• *Introduction to Pharmacology* • *Historical and cultural aspects of man's relationship with addictive drugs*	• **Disc Post #1** – Intro • **Activity (in class)**– What is Addiction
	• What is addiction? • Addiction through the lens of voluntary and involuntary behavior	• *Understanding Drug Use and Addiction*	• **Assignment #1**– Addiction Branch Chain • **Activity (in class)**– Addiction Scenario • **Quiz #1**
Module 2 (Weeks 3-4): Neuropsychopharmacology Sep 5 - 16	• Physiology of the nervous system • Psychopharmacology, and brain plasticity	• *A Brief Intro to Nervous System Physiology*	• **Activity (in class)**– Haiku • **Disc Post#2** – Characterizing Addiction
	• Neurocircuits in drug addiction	• *Drug Addiction: The Neurobiology of Behavior Gone Awry*	• **Activity (in class)** – Comic Creation • **Quiz #2**
Module 3 (Week 5-6): Studying Addiction Sep 19 - 30	• Animal models of addiction	• *Animal Models of Addiction* • *Rat Park*	• **Assignment #2**– Rat Park Exp
	• Neuroimaging	• Introduction to Neuroimaging	• **Activity (in class)** – Journal Analysis • **Quiz #3** • **Exam 1**
Module 4 (Weeks 7-8): Narcotics and Depressants Oct 3 - 14	• Opioids / Barbiturates, Benzodiazepines • The opioid epidemic	• *The Rise Of Illicit Fentanyls, Stimulants and the Fourth Wave Of The Opioid Overdose Crisis*	• **Activity (in class)** – Opioid News Analysis • **Disc Post #3** – Heroin Diaries

	• Alcohol pharmacology and psychology; genetic influences related to alcohol abuse
	• Cannabis
	  • History, uses
	  • Is marijuana addictive? Is it harmful?
		• Neurobiology of Alcohol Dependence
		• Neural Roots/Origins of Alcoholism Identified
		• Long-Term Effects of Marijuana Use on the Brain
			• **Activity (in class)** – Persona Perspective
			• **Quiz #4**

	 Fall Break 		

Module 5 (Weeks 9-10): Psychostimulants
Oct 17 - 28
	• Cannabis
	  • Analysis of the legalization of marijuana for medical/recreational use
	• Cocaine
	  • Addiction relapse mechanisms
		• The Role of Synaptic Plasticity in the Pathophysiology of Cocaine Addiction	• **Disc Post #4** – Choose topic
			• **Assignment #3** – Daily diary

	• Amphetamine / Methamphetamine	• The Need for Speed: An Update on Methamphetamine Addiction • Tweak/Beautiful Boy	• **Activity (in class)** – Memoir analysis • **Quiz #5**
Module 6 (Weeks 11-12): Hallucinogens Oct 31 – Nov 11	• MDMA / Bath Salts • Therapeutic use of MDMA	• Psychedelics as an Emerging Novel Intervention in the Treatment of Substance Use Disorder: A Review	• **Activity (in class)** – Most problematic drug
	• LSD, PCP, Schrooms • Therapeutic uses of hallucinogens	• Psilocybin: From Ancient Magic to Modern Medicine	• **Disc Post #5** – Mouse Party • **Quiz #6**
Module 7 (Weeks 13-15): Society and Addiction Nov 14 – Dec 7	• Drug use and Behavior • Subjective aspects of drug use: craving, intoxication, cognitive deficits • Reward / Choice	• Addiction as a brain disease revised: why it still matters, and the need for consilience	• **Activity (in class)** – Critical thinking/decision making • **Exam 2**
	 **Thanksgiving** 		
	• Revisiting drug legalization • Treatment of addiction	• The Legal Regulation of Drugs and Role of Government: Perspectives from People Who Use Drugs	• **Activity (in class)** – Social marketing • **Final Project**

GE THEME COURSES

Overview

Courses that are accepted into the General Education (GE) Themes must meet two sets of Expected Learning Outcomes (ELOs): those common for all GE Themes and one set specific to the content of the Theme. This form begins with the criteria common to all themes and has expandable sections relating to each specific theme.

A course may be accepted into more than one Theme if the ELOs for each theme are met. Courses seeing approval for multiple Themes will complete a submission document for each theme. Courses seeking approval as a 4-credit, Integrative Practices course need to complete a similar submission form for the chosen practice. It may be helpful to consult your Director of Undergraduate Studies or appropriate support staff person as you develop and submit your course.

Please enter text in the boxes to describe how your class will meet the ELOs of the Theme to which it applies. Please use language that is clear and concise and that colleagues outside of your discipline will be able to follow. You are encouraged to refer specifically to the syllabus submitted for the course, since the reviewers will also have that document Because this document will be used in the course review and approval process, you should be *as specific as possible*, listing concrete activities, specific theories, names of scholars, titles of textbooks etc.

Accessibility

If you have a disability and have trouble accessing this document or need to receive it in another format, please reach out to Meg Daly at daly.66@osu.edu or call 614-247-8412.

Course subject & number PHR 2400

General Expectations of All Themes

GOAL 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations.

Please briefly identify the ways in which this course represents an advanced study of the focal theme. In this context, "advanced" refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities. *(50-500 words)*

Addicting Drugs (PHR 2400) covers the effects, regulation, and mechanism of action of addicting drugs with an introduction to the function of the nervous system and how this function is altered by drugs. This course has been taught with an emphasis on the mechanisms and neurobiology of addiction. Uncovering the biological and physiological mechanisms of addiction are important in understanding how addiction manifests and how to approach prevention and treatment, but these underlying mechanisms do not convey the emotion and experiences of an addict nor do they divulge the impact of addiction on our culture. This course has been modified to become a GE Themes course to more thoroughly address this vast, complicated, and incredibly important topic. Through an analysis of the mechanisms of drug addiction and its effect on human health and behavior, students will evaluate the thought process behind decisions to take an addictive drug as well as the ramifications of falling into an addiction cycle. Additionally, students will examine the stigma of addiction prevalent in our culture and how this impacts social behavior as well as personal and medical treatment of addicts. Students will also analyze the social norms and beliefs associated with the perception that addiction is the result of a moral deficiency, which has important implications in our culture for health promotion and addiction treatment and prevention. The overarching goals are to increase student interest and motivation in learning the complex mechanisms associated with addiction as well as to enhance their understanding of the emotional complexity of the addict. Both of these goals are vital to addressing the physiological treatment of the addict as well as their emotional well-being, components that must be addressed together to better understand and prevent drug abuse. Overall, addiction is a complex topic involving many aspects, including neuroscientific, behavioral, clinical, and sociocultural and thus the level of depth of the material and engagement in this course is better represented in Themes rather than Foundations.

Course subject & number PHR 2400

ELO 1.1 Engage in critical and logical thinking about the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. (50-700 words)

Students will be challenged to understand and evaluate the neurobiological mechanisms of addiction and integrate this knowledge with what they learn about the experiences of an addict and the effect of addiction on our culture. Various readings, activities and assignments will provide up-to-date information and support efforts to encourage thoughtful, evidence-based analysis of addiction. These components will also stimulate enhanced discussions to inspire thoughtful, logical communication about this complex topic. Short descriptions are listed here but please see the PHR 2400 Course Map for details and descriptions of all components of the course referred to in this document.
To initiate critical thinking and discussions on addiction, in Module 1, students will work in groups (What is Addiction activity) to begin to address key questions associated with addiction which provides an initial framework to begin to think critically about this topic. Students will also work through a "choose your own adventure" style activity, which will engage them in deep thinking and discussion around complex issues in addiction. In Module 2, as students begin to learn about the mechanisms of addiction they will complete an activity (Haiku) which challenges them to consolidate their knowledge and logically present a succinct description of what they are learning as well as to be able to logically interpret their peer's descriptions. Another in-class activity (Comic Creation) encourages students to take their knowledge of the mechanisms of addiction and illustrate it visually. This activity will strengthen complex concepts and highlight areas where there are gaps in knowledge to further enhance learning, reasoning, and communication. Students will also participate in a discussion post, where they will critically think about how drugs affect brain structure and function and how to logically convey this information to the public. In Module 3, as students begin to learn how addiction is studied, students will continue to think critically about how drugs affect behavior and decision-making by analyzing and critiquing revelations from The Rat Park Experiment, which challenges the view that drugs alone are responsible for addiction. Students will also do a Journal Analysis activity where they will critique a current research article on addiction. In Modules 4-6, as students begin to learn about specific addicting drugs, students will start to look at different perspectives on addiction. In the Persona Perspective activity and the Heroin Diaries activity, students will experience the view of addiction from the perspective of an addict. These activities will encourage students to think more critically about all viewpoints on addiction and will stimulate their interest in investing in the complex material associated with understanding how addiction manifests. Students will also analyze and critically think about the differences and similarities between the experiences of an addict ('Tweak', addict's memoir) and an addict's family ('Beautiful Boy', written by the father of the addict in 'Tweak'). These activities will enhance understanding of the emotional complexity of addiction and help students to begin to engage in thoughtful discussions about how to treat and prevent addiction. Additionally, students will be encouraged to think critically about aspects of addiction relating to the effects on individuals and society through the Most Problematic Drug activity, which encourages students to consider the criteria used to define 'dangerous' or 'addictive' and how this impacts views and treatment of addiction and addicts. In Module 7, where students begin to realize the impact of addiction on society, students will participate in a Critical Thinking and Decision Making activity to increase awareness of the representation and interpretation of data and how this affects our culture and perceptions of addiction. Students will work in groups to assimilate information and take a stand, which they will work together to effectively and concisely communicate.

ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. *(50-700 words)*

Students will need to deeply engage in neurobiological material to begin to understand the mechanisms of addiction. In addition to various readings and lectures, students will participate in in-class activities and will complete several assignments which will challenge them to develop a thorough knowledge of what happens in the brain as a result of exposure to an addicting drug. Students will regularly engage with an interactive program called Mouse Party, which helps students to delve into the inner workings of the brain as it reacts to specific addicting drugs. In the Discussion Post, Drugs, the Brain, and Behavior: The Science of Addiction – Understanding and Explaining Addiction, students will watch short videos to further strengthen their knowledge on the neurobiology of addiction and will be challenged to explain this knowledge to someone unfamiliar with these processes. This activity helps students realize the importance of truly understanding a topic versus having an 'illusion of knowing' where it is difficult to accurately relate knowledge.
Students will also need to understand how addiction is studied. They will need to learn the various animal models of addiction and methods involved as well as develop the ability to interpret data from these models and realize the translational value to humans. Students will analyze various experiments, including The Rat Park Experiment, both via lectures and through the Journal Analysis activity.
Students will be asked to read up-to-date journal articles relating to each class of addicting drug including narcotics, depressants, stimulants, and hallucinogens, to understand not only the mechanisms of action of these drugs but also their impact on our culture. Students will participate in an Opioid News Analysis activity to explore how information is presented and how to correlate it with their ongoing knowledge.
In addition to understanding the science behind addiction, this course encourages students to realize the impact of addiction on the individual and on society. In addition to hearing from an addict in the Heroin Diaries activity, students will be asked to read one of two memoirs (one written by an addict and the other written by his father). This reading will give students an in depth look at the life of an addict and the influence of addiction on the family. Confronting the emotions and experiences of an addict yields insight into an addict's mind and perspective can enhance student motivation to invest in understanding the complex, underlying science that contributes to addiction.
Finally, students will complete a Final Project where they will choose and perform more in depth research on a topic of interest related to addiction and will logically present this information in a written, visual or oral format. Students will be required to use multiple, current scholarly sources in their research. This project will focus on scholarly investigation as well as professionalism in presentation.

Course subject & number PHR 2400

GOAL 2: Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.

ELO 2.1 Identify, describe, and synthesize approaches or experiences as they apply to the theme. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. *(50-700 words)*

The knowledge and experiences students obtain in this course will help them navigate the plethora of information in news and social media and may connect with personal experiences with drug use or with that of loved ones. For students in the natural and behavioral sciences, this learning experience will supplement material in their foundational and major-specific courses. By examining their own beliefs, thoughts, and feelings towards addiction, students will address the issues and stigma associated with addiction and will generate and evaluate ideas that society and the scientific community can use to influence our healthcare beliefs relating to our drug culture.
The Addiction Scenario activity will help students think about the various ways in which addiction can manifest and will encourage students to consider the emotional toll of addiction through addressing its medical, moral, social, behavioral, and criminal aspects. This activity also addresses and challenges the conventional impression and assumptions surrounding a drug addict.
The scientific journal activities and analysis of specific experiments within the studying addiction module will help students strengthen their ability to interpret information from scientific studies which will translate to other science related classes or investigative efforts in other, non-scientific fields.
The module covering opioids and the opioid epidemic is especially timely, giving students the ability to critically think about and generate ideas to address social issues resulting from addiction. This information will also help them to learn and interpret the complex issues that led to the opioid epidemic, helping them further think about prevention measures.
In the Social Marketing to Communicate Addiction activity, students will analyze former and current campaigns to address addiction and will brainstorm ideas to determine what aspects are essential for reaching the public and influencing progress.
Furthermore, while this class focuses on addicting drugs in light of their potential to wreak havoc on individuals and society, we cannot overlook the therapeutic potential of several addicting drugs and the cutting edge advancements unfolding in the treatment of depression and emotional trauma. Students will synthesize their knowledge of addiction and its associated mental health issues and expand their views and understanding of addicting drugs with the new developments of these drugs aiding in mental health therapy. This experience will help students understand the need for and effectiveness of a multidisciplinary approach, including science and the humanities, to addiction prevention and treatment.

ELO 2.2 Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. *(50-700 words)*

Students will have multiple opportunities to enhance their learning via a myriad of activities and learning experiences. Students will begin by obtaining a solid foundation in the neural mechanisms of addiction that they will translate into an understanding of addiction behavior. Through this foundational knowledge, students will be more equipped to contemplate potential strategies for addressing addiction solutions. Students will begin the course by assessing what they know about and how they view addiction by examining key questions meant to incite critical thinking. Additionally, a branch chain or “choose your own adventure” type activity will help students explore their viewpoints on addiction while also exposing them to alternate perspectives. Students will also have multiple opportunities to be creative in their learning by employing the arts in characterizing their understanding of the material. They will use short form poetry, Haiku, to express their understanding of addiction in a simplistic form, which is helpful in revealing the level of understanding. Students will also illustrate their comprehension of the neural processes in addiction through drawing. This allows students to express the flow of information about the brain into a visual context, which will help them to ensure they understand the material and will identify any gaps in their knowledge. The Persona Perspective activity will give students the chance to compare their views on addiction with that of another persona, which will give them insight into various conditions and scenarios that frame our perceptions. In the Memoir Analysis, students will keep a diary of a daily activity and assess the impact of removing this activity to evaluate the characteristics of addiction including craving, withdrawal, and relapse. This activity will allow students to get a glimpse of the life of an addict as detailed in the memoirs and further empathize with their struggles as they identify difficulties in giving up certain habits/rituals. The Final Project gives students an opportunity to do in depth research on a topic of interest. Students will have the flexibility to be creative in how they present their findings and can tailor their project to their strengths and interests.

Course subject & number PHR 2400

Specific Expectations of Courses in Health & Wellbeing

GOAL Students will explore and analyze health and wellbeing through attention to at least two dimensions of wellbeing. (Ex: physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.).

ELO 1.1 Explore and analyze health and wellbeing from theoretical, socio-economic, scientific, historical, cultural, technological, policy, and/or personal perspectives. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. *(50-700 words)*

Students will analyze health and wellbeing from a scientific standpoint from many angles in this course. Through readings, lectures, videos, and activities, students will learn about the areas of the brain and the neural circuits that contribute to addiction. Students will also delve into the methods used to study addiction and become adept at interpreting data. Moreover, throughout the course, students will learn about the mechanisms of action of specific classes of addictive drugs. Students will also examine this theme from a technological standpoint by learning about innovative neurobiological techniques that allow observation of the brain in action, such as visualizing and analyzing brain activity in real time as an animal or individual uses drugs. Students will also gain an appreciation for the historical aspect of addiction from examining the use of addicting drugs in various cultures from the beginnings of time to recognizing the emergence of the pathological use of drugs and the appearance of addiction. Students will also experience a personal perspective on health and wellbeing as they will have multiple opportunities to reflect on how they view and respond to addiction, including an activity where they will keep a personal diary to assess rituals and habits and the effects of giving those up. From a cultural standpoint, students will assess the impact of addiction on society as well as the facets of society that contribute to addiction. They will also examine policy related to addiction through activities focused on studying social marketing strategies (Social Marketing to Communicate Addiction Education activity), the positives and negatives of drug legalization (The Legal Regulation of Drugs and Role of Government: Perspectives from People Who Use Drugs reading and discussion), and the role of government in setting drug policy (Critical Thinking and Decision Making activity).

ELO 1.2 Identify, reflect on, and apply the skills needed for resiliency and wellbeing. Please link this ELO to the course goals and topics and indicate *specific* activities/assignments through which it will be met. *(50-700 words)*

Students will develop a thorough understanding of the tenuous line between emotional and physical health in addiction which will help them appreciate the need for multidisciplinary approaches for prevention and treatment. Additionally, throughout the course, students will reflect on how society's beliefs about therapeutics and drug addiction affect our perceptions of what is "normal" and how this affects the physical and emotional treatment of addicts. Students will also appreciate the need to understand the science behind the effects of addicting drugs on the brain. This foundational knowledge is vital to generating ideas for the prevention and treatment of addiction and students will contemplate how these ideas can influence our healthcare beliefs, battle current public health crises such as the opioid epidemic, and challenge the perception that addiction is the result of a moral deficiency. Students will have multiple discussions with their peers through various in-class activities where they will have the opportunity to postulate ideas for addressing this complex topic. In the Heroin Diaries activity and the Memoir Analysis activity, students will provide a reflection on how experiencing the details of the life of an addict affects their views regarding drug use and will help them make the connection that understanding the emotional battle is as important as understanding addiction itself for the treatment and recovery process. In the Critical Thinking and Decision Making activity, students will assess data from multiple angles and across multiple disciplines to discuss and mutually agree on best practices and solutions for the wellbeing of the individual as well as society with regard to drug use and legalization.

Addicting Drugs
PHR 2400
Course Map

1 Module 1 - (Weeks 1-2): Introduction: Pharmacology and Addiction

READINGS

1. *Introduction to Pharmacology and Pharmacodynamics*, G.M. Currie, J Nucl Med Technol 2018; 81–86.
    - Provides a basic review of the fundamentals of pharmacology and serves as a resource to complement lectures and activities.
2. *Historical and Cultural Aspects of Man's Relationship with Addictive Drugs,* M. Crocq*,* Dialogues in Clinical Neuroscience 2007; 355-360.
    - Illustrates the "normal" patterns of addictive substances across time spans and the recognition of pathological use and the appearance of the science of addiction.
3. *Understanding Drug Use and Addiction*, NIDA 2018; 1-5.
    - Provides a basic introduction to addiction and significant terminology.

ACTIVITIES

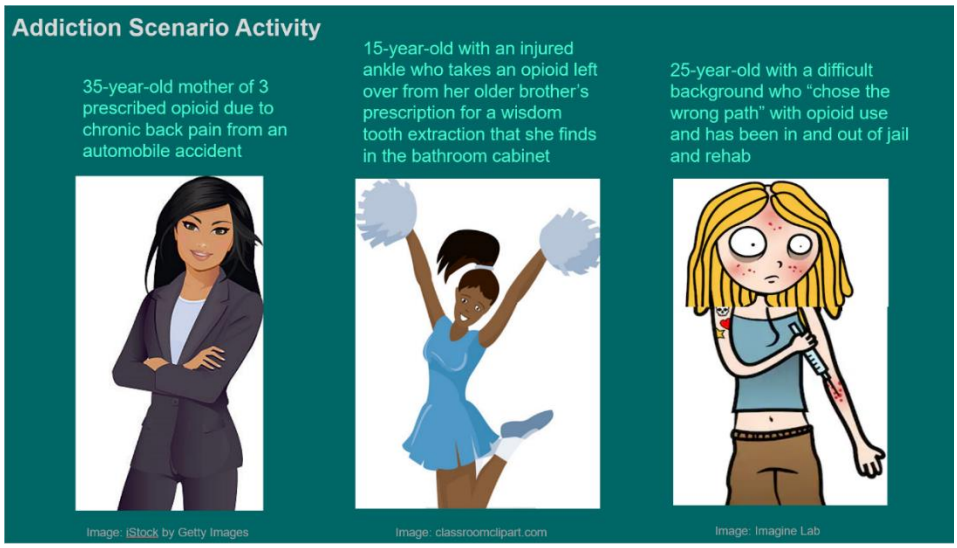
Note: Activities are designed to support the material, encourage thoughtful discussion, and strengthen peer communication and interaction.

- **Discussion Post – Introduction**
    - Objective
        - Students submit a post to introduce themselves to create a sense of community within the course.

- **Activity - What is Addiction (in class)**
    - Objective
        - Initiate discussions to characterize definitions and analyze perceptions of addiction.
    - Students will work in groups to discuss and address the following:
        - What characteristics of an action/behavior deem it an addiction?
        - Does doing something daily (or multiple times a day) make it an addiction?
        - Does a behavior have to be illegal for it to be considered an addiction?
        - What is the difference between really loving something and being addicted?
        - Are addictions only related to consumable drugs; are there other types of addiction?

- **Assignment – Characterization of Addiction – Branch Chain Activity**
  - Objectives
    - Enhance student engagement in developing an opinion on a controversial subject.
    - Encourage student consideration of opposing views of their stances.
    - Encourage student discussion around complex issues.
  - This activity resembles a "Choose Your Own Adventure" type activity where students are given a question regarding a complex aspect of addiction (e.g. is addiction a moral choice or a medical condition?) and will then be given four choices to choose the best reason for their stance. Selecting this choice brings them to a page with a description and article in opposition to their stance. The students then provide a counterargument to support their view or discuss how the opposing information has altered their view.

- **Activity – Addiction Scenarios (in class)**
  - Objective
    - Illustrate the various ways an individual can encounter and begin to use an addicting drug.
    - Addresses and challenge the conventional impression and assumptions surrounding a drug addict.
  - In this activity, students are introduced to three different scenarios involving the use of an addicting drug as shown below:



    - This activity and class discussion provides a powerful illustration of how addiction can manifest in various ways and allows us to reference the emotional toll of addiction as we address the medical, moral, social, behavioral, and criminal aspects of addiction.
  - Discussion in this activity as well as referencing this activity throughout the semester in relevant sections will include addressing questions such as:
    - Do all of these individuals have an opioid use disorder (OUD)?
    - Are all of these individuals considered addicts?

- Is it ok to treat physical pain with an opioid but not emotional pain?
- Is there a difference between injecting a street drug vs taking a prescription pill? Is there a difference if they both lead to addiction?
- Does the failure of addiction treatment resemble failed treatment for something such as asthma? i.e. do we try other avenues to treat this problem or do we give up?
- Is there a difference between making lifestyle choices that result in diseases such as heart disease and diabetes and making lifestyle choices that lead to addiction?
- What roles do age, race and gender play in drug use?

QUIZ

Note: Quizzes encourage focus on foundational material and give students low risk practice in answering questions.

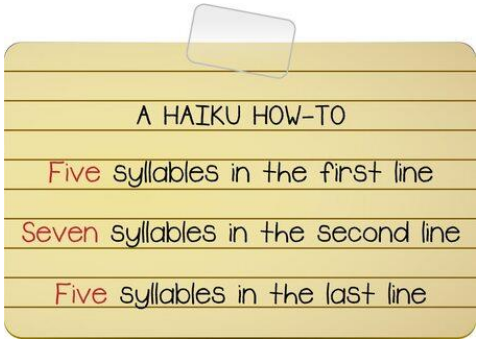
- **Quiz #1**
  - This quiz will be based on the lectures and readings focused on the basic concepts of drugs and how they work.

Module 2 (Weeks 3-4): Neuropsychopharmacology

READINGS

1. *A Brief Intro to Nervous System Physiology;* 1-12.
   - Provides essential nervous system foundational material to students who need it and serves as a review for those with prior knowledge of neuroscience.
2. *Drug Addiction: The Neurobiology of Behavior Gone Awry*, N.D. Volkow, K.R. Warren, Nat Rev Neurosci, 2014; 1-14.
   - Provides an introduction to addiction mechanisms and serves as a resource to support the material in lectures and activities.

ACTIVITIES



- **Activity - Haiku (in class)**
  - Objective
    - Solidify knowledge by honing the ability to construct a succinct representation of the material.
  - Bridging the arts and sciences, this activity has students create rich, accurate descriptions of what they are learning while encouraging higher-order thinking.
  - Students will be given index cards to create a haiku (17-syllable poem) as a means to convey neurobiological concepts in a succinct manner, encouraging student focus on the most salient features of addiction. Students will create

their haiku to convey their explanation of addiction and will then switch cards with classmates where they will interpret their peer's writing and then discuss as a class.
  - Based on *The Use of Haiku to Convey Complex Concepts in Neuroscience*, Pollack and Korol, The Journal of Undergraduate Neuroscience Education 2013.

- **Comic Creation Activity (in class)**
  - Objective
    - Help strengthen complex concepts, which will enhance engagement as students draw to enhance learning, reasoning, and communication.
  - Students will be given index cards (or use their ipads) to illustrate their understanding of the material presented in class. Students will draw on their own and then work within a group to help fill in their drawings.
  - This often helps students to ask questions as they begin to see gaps in their learning emerge as they draw.
  - Not only does this enhance student learning, but this is also significant because scientists rely on diagrams, graphs, and other images to make discoveries, explain findings, and excite public interest.
  - Based on *Drawing to Learn in Science*, Ainsworth et al, Science 2011.

- **Discussion Post – Drugs, the Brain, and Behavior: The Science of Addiction – Understanding and Explaining Addiction**
  - Objectives
    - Develop an understanding of and critically think about how drugs affect brain structure and function.
    - Practice applying knowledge of addiction.
  - Students will watch two short videos describing the mechanisms of addiction and will describe how drugs cause changes in the brain that might make it more difficult for an individual to stop using drugs. Students will craft a story as if to explain the concept of addiction to someone with no prior knowledge of addiction. The basis for this exercise is supported by the enhancement of learning through developing the ability to effectively explain a topic to someone else.
    - Dopamine and Glutamate in Addiction Video
    - The Addicted Brain: The Science of Addiction Video

QUIZ

- **Quiz #2**
  - This quiz will be based on the lectures and readings focused on the neurobiological characteristics of drug addiction.

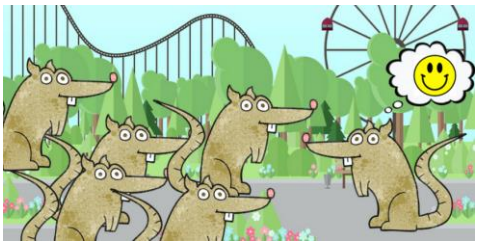
3 Module 3 (Weeks 5-6): Studying Addiction

READINGS

1. *Animal Models of Addiction*, R. Spanagel, Dialogues in Clinical Neuroscience, 2017; 247-257.
    - Serves to introduce the various uses of animal models to study addiction and how recent advances in addiction research have been made possible by these models.
2. *Rat Park: The Radical Addiction Experiment*, B.K. Alexander*; 1-9*
    - Describes a series of studies examining the role of mental health in addiction and will contribute to the assignment in this module.
3. *Cognition: An Overview of Neuroimaging Techniques*, S.A. Bunge and I. Kahn
    - Provides an overview of various neuroimaging techniques and their relevance in studying addiction.

ACTIVITIES

- **Assignment – The Rat Park Experiment**
    - Objectives
        - Develop an understanding of and critically think about how drugs affect behavior and decision-making.
        - Practice applying knowledge of addiction.
        - Think about the contributions of genetics and environment to addiction potential and development.
    - Students will read a synopsis and watch a short video, which gives an overview of Rat Park, a series of studies into drug addiction conducted in the late 1970s by Canadian psychologist, Bruce Alexander. The gist of these experiments suggests that “addiction isn’t you - it’s the cage you live in". These studies showed that rats living in a social environment are less likely to self-administer morphine than those housed in isolation, suggesting that environment and social construct determine addiction potential. Students will complete a short writing assignment where they will discuss how revelations from these experiments relate to what they have learned about addiction including thoughts and any criticism of the experiment and interpretations.



        - The Rat Park Experiment Video

- **Activity - Journal Analysis (in class)**
    - Objective
        - Develop an understanding of research and a familiarity with scientific articles relating to addicting drugs through the examination of a research article

- Groups of students will select a recent article relating to stimulants and learn to extract useful information relating to the topic. Students will answer the following:
  - What is the question the authors addressed?
  - Does the strategy (methods) seem reasonable? How did you determine this?
  - What is the conclusion reached in the article?
  - How do you find more information relating to this article and topic?

QUIZ

- **Quiz #3**
  - This quiz will focus on the foundational knowledge relating to types of animal studies and neuroimaging techniques used to study addiction.
- **Exam 1**
  - Covers material from Modules 1-3.

Module 4 (Weeks 7-8): Narcotics and Depressants

READINGS

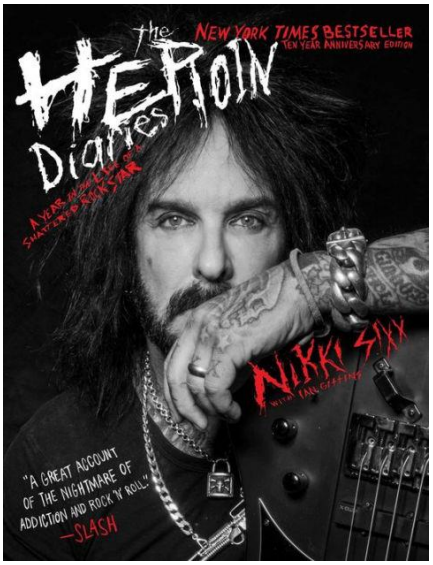
1. *The Rise of Illicit Fentanyls, Stimulants and the Fourth Wave of the Opioid Overdose Crisis*, D. Ciccarone, Addictive Disorders, 2021; 1-5.
   - Provides a look at current and future trends in opioid use.
2. *Neurobiology of Alcohol Dependence*, N.W. Gilpin and G.F. Koob, Alcohol Research and Health, 2008; 185-193.
   - Provides an overview of the mechanisms involved in alcohol dependence and supports the lectures and activities.
3. *Neural Roots/Origins of Alcoholism Identified*, T. Jia et al, Science Advances, 2021; 1-7.
   - Provides an update on the mechanisms involved in alcohol dependence.
4. *Long-Term Effects of Marijuana Use on the Brain*, F.M. Filbey, PNAS, 2014; 1-5.
   - Serves to characterize the initial and chronic use of marijuana to further illustrate the neurobiological mechanisms involved in marijuana use.

ACTIVITIES

- **Activity - Persona Perspective (in class)**
  - Objective
    - Experience and understand the different perspectives on drug use and legalization.
  - Students will assume a certain persona (FDA employee, Physician, Cancer patient, Police officer, Drug dealer) and discuss and answer questions about drug use and legalization relative to their mission/attitude/perspective.

- **Activity - Opioid News Analysis (in class)**
  - Objective
    - Apply principles learned in class to better understand accuracy of news reports and to better inform public policies.
  - Groups of students will be assigned a recent news article relating to opioids, opioid use disorder and/or the opioid epidemic where they will put together a short summary of the information incorporating principles they have learned to either support, refine or, refute the article.

- **Discussion Post - Heroin Diaries**
  - Objective
    - Gain a unique perspective on addiction from the viewpoint of the addict.
    - Increase student interest in subsequent complex material, such as the neurobiological changes contributing to relapse.
  - Based on the Heroin Diaries Soundtrack, which is the companion soundtrack to *The Heroin Diaries: A Year in the Life of a Shattered Rock Star*, which tells the story of the personal struggle of the severe heroin addiction of Mötley Crüe guitarist, Nikki Sixx.



  - Students will listen to soundtracks, compose a discussion post and participate in peer interactions. To generate ideas and to create diversity in the assignment, students will be given several prompts to choose from for discussion such as:
    - Do you think that what you learn about addiction from this personal account could be as effectively portrayed in a pamphlet, medical journal or website?
    - Does this story help in your understanding of the affective components of the illness beyond the medical diagnosis?
    - Do you think engaging in the story through music or other art forms can encourage empathy?
    - What does it mean to you that Sixx has had success in recovery despite how terrifying and hopeless his life was during his story?
    - Do you think this story will impact how you think about and potentially approach individuals with addiction or other mental issues?
  - Based on *A Music Assignment to Develop Pharmacy Students' Empathy Toward People with Opioid Use Disorder*, Richard J. Silvia, American Journal of Pharmaceutical Education 2020.

QUIZ

- **Quiz #4**
  - This quiz will cover the foundational material on the mechanisms of action of narcotics and depressants.

Module 5 (Weeks 9-10): Psychostimulants

READINGS

1. *The Role of Synaptic Plasticity in the Pathophysiology of Cocaine Addiction*, M.A. Daneff and N.M. Jadavji, Journal of Young Investigators, 2019; 33-36.
    - Illustrates the neural mechanisms involved in cocaine addiction.
2. *The Need for Speed: An Update on Methamphetamine Addiction*, Journal of Psychiatry and Neuroscience, 2016; 301-311.
    - Reviews the factors relating to methamphetamine use and the major health-related consequences.

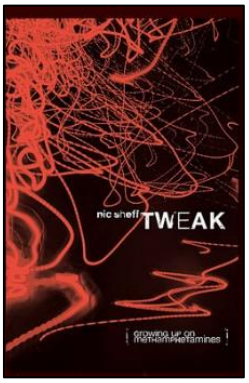
Note: Students will choose ONE of the following books. This reading will be assigned at the beginning of the semester to give the students sufficient time to read the book.

3. *Tweak: (Growing Up on Methamphetamines),* N. Sheff, 2007, New York: Anteneum Books for Young Readers.
4. *Beautiful Boy: A Father's Journey Through His Son's Addiction*, D. Sheff, 2008, New York: Houghton Mifflin Company.

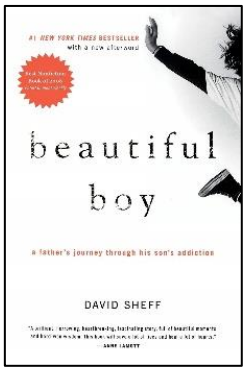
ACTIVITIES

- **Discussion Post – Choose a Topic for Final Project and Generate a Research Question/Outline**
    - Objectives
        - Apply written/visual/oral communication skills toward presenting a balanced view on a topic.
        - Assess peers' planning, ideas, and communication skills.
        - Gain help and feedback for enhancing the final project.
    - After developing a research question and outline, students will briefly reflect on their current understanding of their chosen topic and research question. As part of their reflection, they will write responses to the following questions:
        - Why did you choose this topic?
        - What do you want to learn about your topic?
        - Where might you find more information about your topic?
    - Students will offer and get feedback on their ideas and progress.

- **Assignment - Non-fiction - Memoir Analysis**
  - Students will choose one of two related memoirs to read which depict the impact of addiction on individuals and will complete an assignment and in-class activity.



    - ***Tweak*** by Nic Sheff, young adult addict OR ***Beautiful Boy*** by David Sheff, Nic's father's perspective.
    - **Assignment** - Students will keep a "diary" of a daily activity/ritual (e.g. coffee, soda, phone/screen time, video gaming etc.) for 2 days and assess the impact of removing this activity/ritual to evaluate the facets of craving, withdrawal, and relapse. Students will summarize their experience and comment on their perceptions of addiction, craving, withdrawal, and relapse with regard to their findings and how this experience relates to the experiences of Nic Sheff.
    - **Activity (in class)** - Students will participate in groups with peers who read the opposing book and will craft (in class) a compare and contrast analysis of the stories based on their discussions.
      - Students will also be asked to examine their own beliefs, thoughts and feelings towards addiction and generate ideas that society, the government, and the scientific and medical community can implement to promote a culture of health.



    - This assignment will increase student interest and motivation in learning the complex mechanisms associated with addiction as well as enhance their understanding of the emotional complexity of the addict. Both of these goals are vital to addressing the physiological treatment of the addict as well as their emotional well-being, components that must be addressed together to better understand and prevent drug abuse. Overall, it is vital to focus on the individual and their experiences and not just the addiction crisis.

QUIZ

- **Quiz #5**
  - This quiz will cover the foundational material on the mechanisms of action of psychostimulants.

6 Module 6 (Weeks 11-12): Hallucinogens

READINGS

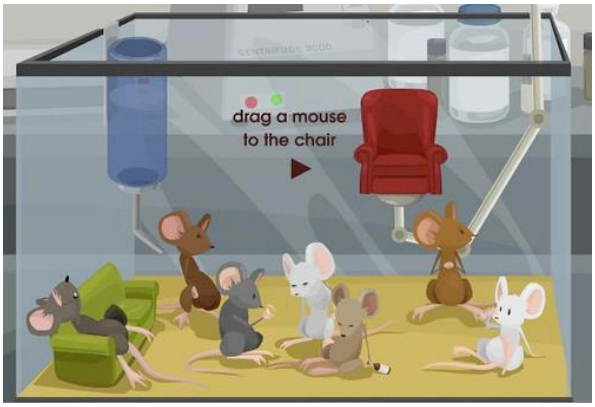
1. *Psilocybin: From Ancient Magic to Modern Medicine,* D.E. Nichols, The Journal of Antibiotics, 2020; 679-685.
   - Illustrates the vast history of mushrooms from magic and spiritual uses to present and future potential medical breakthrough treatments.

2. *Psychedelics as an Emerging Novel Intervention in the Treatment of Substance Use Disorder: A Review,* A.J. DiVito and *R.F. Leger,* Molecular Biology Reports*, 2020; 9791–9799.*
    - Provides current evidence in psychedelic pharmacology as well as their effectiveness in therapeutics and novel use in treatment of substance use disorders.

ACTIVITIES

- **Activity - Most Problematic Drug (in class)**
    - Objective
        - Develop the ability to think critically about aspects of addiction relating to the effects on individuals and society.
            - Questions that are often posed include, "which drug is most dangerous?" or "which drug is most addicting?". We need to evaluate what criteria are used to define dangerous or addicting. For example, danger to whom and does 'most addicting' refer to the largest number of users, the drug which produces the most intense craving, or the drug that is most likely to be used continually after the first exposure?
            - Groups of students will address questions such as:
                - Which drug would you consider most dangerous? Elaborate.
                - Which drug would you consider most addicting? Elaborate.
                - Which drug is the biggest problem for public health?
                - Which drug has the biggest cost to society?
                - Does it cost more to incarcerate or treat an addict?
                - Can we differentiate addiction vs lack of self-discipline?

- **Discussion Post – Mouse Party**



    - Objective
        - Reinforce and compare drug mechanisms to synthesize all the foundational material.
    - Note: Students will be introduced to this program early in the semester and will refer to it as each class of addicting drug is introduced.
    - Students will complete an interactive simulation (Mouse Party) of how drugs work and will complete a worksheet to reinforce these concepts.
        - Mouse Party (https://learn.genetics.utah.edu/content/addiction/mouse/) illustrates simplified mechanisms of drug action showing what happens when drugs enter the body and their complex effects in different regions of the brain.

QUIZ

- **Quiz #6**
    - This quiz will cover the foundational material on the mechanisms of action of hallucinogens.

7 Module 7 (Weeks 13-14): Society and Addiction

READINGS

1. *The Legal Regulation of Drugs and Role of Government: Perspectives from People Who Use Drugs*, A.Greera and A. Ritterb, Drug and Alcohol Dependence, 2020, 1-5.
    - Provides an overview of the status of drug regulation and legalization and looks at these issues from the standpoint of individuals who use drugs.
2. *Addiction as a Brain Disease Revised: Why It Still Matters, and the Need for Consilience*, M. Heilig et al, Neuropsychopharmacology, 2021, 1-9.
    - Provides an analysis of the consideration of addiction as a disease of the brain and proposes the need for multidisciplinary research that integrates multiple perspectives, especially science and the humanities.

ACTIVITIES

- **Critical Thinking and Decision Making Activity (in class)**
    - Objectives
        - Increase awareness of representation and interpretation of data and information, and improve the ability to detect flaws in arguments, and use evidence to use support conclusions and opinions.
        - Assess credibility and value of documents.
        - Take a stand and clearly and concisely communicate a viewpoint.

    - Students will be grouped together as members of the Mayor's (fictional) Committee on Public Health & Safety and must provide advice on whether to renew Buckeye Budski's (fictional) license to operate a medical marijuana clinic in Normopolis, OH (fictional). The students will rely on several documents to help them discuss and decide including a letter to the newspaper editor, a Political Action Committee Survey, data on marijuana clinics and crime, abstracts from medical journals, and a transcript of a respected citizen's speech to the Mayor's Ad Hoc committee.
    - Students are asked to discuss and explain how each document impacts their thinking as well as identify the strengths and weaknesses of each document.

- **Activity (in class) – Social Marketing to Communicate Addiction Education**
    - Objectives
        - Analyze media for the prevention of drug use and substance abuse (Social Marketing).
        - Describe the channels by which topics are communicated to the public.
        - Critically think about what is necessary for effectiveness in communications with the public, especially young/college-aged individuals.
    - Students will watch three short social marketing campaigns:
        - This is your brain on drugs, 1987 (~30 sec)

    - Youth Court Marijuana Prevention Video, 2015 (~2 min)
    - Don't be a Lab Rat, 2014 (~30 sec)
  - Groups of students will discuss the aim of the videos, the target audience, the accuracy of the facts, and the tone of the videos. They will also determine if one method stands out as a potentially effective means of communicating about addiction and what elements they feel help to communicate accurate information to the public. Students will also brainstorm ideas and determine what they think it takes to reach an audience. Finally, students will discuss the role media plays in shaping American attitudes towards drugs.

- **Assignment – Final Project**
  - Objectives
    - Obtain a more in depth analysis on a topic of interest by developing a clearly defined research question.
    - Develop the ability to conduct independent and original research on a topic of interest and convey the results of that research in a lively, intelligent voice in a written, visual and/or oral format.
    - Be able to apply relevant core concepts introduced in the course.
    - Analyze data and information to draw appropriate conclusions and be able to back up conclusions and predictions with analysis.
    - Learn from this analysis to be able to make useful recommendations, predictions, and solutions about the topic.
  - Students will choose a topic that they would like to research and will select a method by which to communicate their research. Students will either write a 2 page research paper or develop and present an oral webinar-type presentation consisting of either a poster or a slide presentation.

Q U I Z

- **Exam 2**
  - Covers material from Modules 4-7.