

Summer 2018_Drugs and Human Behavior 830:360:B6

Instructor: Alexander Kusnecov, Ph.D., Professor

SYLLABUS

830:360:B6

DRUGS AND HUMAN BEHAVIOR

Summer 2018

Class Location: Room [Arc 105](#) – Arc Building, Busch Campus

Meeting Times: Tuesday, 6-10 PM

Instructor:

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Office Hours: By Arrangement

Office Location: Room 233a, Psychology Bldg, Busch Campus

Directions to Professor Kusnecov's office on Busch Campus

Come into the Psychology building from the Allison Road end. Walk up the outside ramp (not steps – if you are going up steps, you're on the opposite side of the building). After you enter, turn RIGHT (not left), after which you go through a single door, then onward through a large double door. You will then find yourself in a long hall (which is the 2nd floor of the bldg.), and my office will be a few doors on your right (opposite my office is my lab, Room 232; it has an orange door and yellow 'caution' signs). Note: there is another room 233 at the opposite end of the building in the Graduate School of Applied Psychology (GSAPP), which is where most people end up. You will know you are in the wrong place, since my name will not be listed next to the door.

PLEASE READ THE REST OF THIS SYLLABUS VERY CLOSELY.

Important Note: *The posting of this syllabus on Sakai is confirmation that you have read this syllabus and understand the course requirements. You will be alerted in class and through email that the syllabus is available for you to review.*

Course Synopsis

Human nature is fickle, curious, and abhors a vacuum (. . . we are easily bored). People thrive on novelty and creativity. The allure of new experiences satisfies the basic characteristics of human behavior, and is at the heart both of personal growth and self-destruction. That's the way of it, and examples are abundant. In this course, we address one prominent instance of this particular rule. The consumption of chemical substances has long preoccupied humans due to the natural craving for pleasure and happiness, including relief from pain. *The downside of this preoccupation is addiction and dependence.* The presence in human culture of *psychoactive* drugs – mind-altering chemicals – is ubiquitous and entrenched at various levels of social activity. There are many reasons for this, and these can be analyzed from historical, sociological, biomedical and psychological perspectives. We will touch on all these perspectives, taking a *biopsychosocial* approach, that involves knowing about the neurobiological, behavioral and social factors that influence drug use and abuse. Given that any form

of dependence and addiction results from a drug's psychoactive properties, it is imperative to understand how the brain is "hijacked," and sometimes irreversibly changed, by substance abuse. Therefore, the course will consider how the brain allows us to experience reward and pleasure, and how long-term use of drugs modifies this important aspect of brain function. Moreover, studying drugs of abuse has led to important developments in understanding how to chemically treat psychiatric disorders. This latter area is particularly controversial at present, and the course will address the pros and cons of this area of psychopharmacology.

Learning Goals

At least 50% of the lecture material focuses on the neurobiological and physiological effects of psychoactive drugs. I assume little major background in neuroscience (other than what was covered in Gen Psych 101), and explain in detail only what you need to know (a more thorough treatment of brain-behavior relationships is another course, Physiological Psychology, 01:830:313). My role during our lecture time is to make sure you understand the physical substrate on which drugs act, thereby changing a person's behavior and consciousness.

In this context, we will address the following major learning goals:

- Appreciate human and animal research on how drugs of abuse impact the brain
- Understand why drugs of abuse are *psychoactive* and capable of producing dependence
- Consider the neurobiological and behavioral actions of the main classes of legal and illegal drugs of abuse
- Define *addiction*, *abuse*, *dependence*, and *tolerance* as these terms apply to drug use
- Learn about the major categories of psychoactive drugs: the stimulants, depressants, opiates, and hallucinogens
- Learn about the neurobiological and behavioral effects of cocaine, amphetamine, heroin, cannabis, alcohol and other psychoactive drugs
- Consider the motivational variables that contribute to drug-seeking behavior
- Understand the problems associated with preventing *relapse* to drug-taking behavior by addicted individuals
- Understand the management of *behavioral abnormalities* (eg., schizophrenia, depression, anxiety disorders) through pharmacological approaches, sometimes referred to as clinical psychopharmacology

Reading Material

There is no textbook. Readings will be posted in the 'resources' section of the course site on Sakai.

Handouts for the powerpoint lectures will be posted on sakai prior to class.

Useful websites for those with little background in neuroscience:

If you take good notes to supplement my handouts, you should have no problem understanding the basics needed to appreciate drug effects on behavior. For those students that have not taken a neuroscience course or physiological psychology (830:313), and are a little stuck in understanding some of the material, the following

links may be helpful. Of course, always speak up and I will repeat anything you don't understand; or come to me to get clarification.

- (a) For the neuroscience novice: <http://thebrain.mcgill.ca/> (look at the top for 'brain basics' and follow the link 'from simple to complex' – this will supplement or round out any misunderstanding from my own slides; the link 'pleasure and pain' may also be helpful, but we will go far deeper than what is provided)
- (b) On the science of addiction: <http://www.drugabuse.gov/publications/science-addiction> (this is relatively simple and meant for the public, but useful to get you into the mood). I will actually draw from this website for some useful survey material on some of the drugs we will be discussing.

GROUND RULES (maintain decorum, and avoid my wrath) and Some Other Useful Information:

- (i) **RECORDING.** *Before you decide to record the lecture, ASK ME.* You will need a good reason, since there are slide sets to download, and I tend to repeat ideas and concepts quite a bit.
- (ii) **LAPTOPS.** *Laptop use is allowed, but you must sit in a location that will not distract others from seeing your screen and agree to shut it down if I request it. If you do not follow this rule, I will ask you to leave the class room.*

You should also note that in my classes laptops are a disadvantage. I am a heavy user of the black board and draw graphs and experimental designs. Best to print off the lecture slides, then use a pen. You will do so much better. Read on . . .

This section is designed to help you. PLEASE READ.

There has been a flurry of concern in academia regarding whether having a laptop in a note-taking class is useful for students (eg., go to these links: <https://www.washingtonpost.com/posteverything/wp/2014/12/30/this-year-im-resolving-to-ban-laptops-from-my-classroom/> and <http://www.newyorker.com/tech/elements/the-case-for-banning-laptops-in-the-classroom>). The expectation of the professor is that a student is using the laptop only to take notes, and not to check email, chat on facebook, surf the internet, watch videos, and so on and so forth. We all know this happens. When I have observed the lectures of my colleagues, I sit at the back, and it's astounding how many laptop-using students are actually scrolling through the lecture slides (very few).

Because I have received complaints from students being distracted by a laptop user's constant internet surfing and other non-class related activity (and the articles linked above and below confirm this), **if I receive a single complaint from a bystander student who is distracted by non-class related use of a laptop, the particular laptop user in question will be asked to shut it down. To control for this, those who think a laptop is a "must" for them, will sit in the back rows of the lecture room.**

NOTE-TAKING WITH LAPTOPS: not proven to be an advantage. Aside from the above links, formal studies have shown that laptop users don't do as well as those using more traditional approaches (pen and paper). (eg., read this <http://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/>). Also, those sitting near laptop users also fare worse (through unavoidable distraction). Over the years, I have also kept track of students who use laptops

in my classes, and it matches the literature: they don't do nearly as well as hand writers. Moreover, the top students (those who fall in the top 25%) in my classes over the years have been the ones who limit any form of distraction (they did not use laptops, nor kept checking their smartphones – well, some might have . . . we will address this particular addiction). The data were objective: they simply did better. If for some reason you cannot use a pen, and must use a laptop, stick to taking notes (in other words: turn off wifi access).

ACTIVE LEARNING: Film director Woody Allen once said: *80% of success is simply showing up. So come to class.* Experience the physical experience of listening and watching. Handwrite your notes. Then review them as soon as possible; rewrite and organize what you have written (this is where the computer is your friend) – in doing this, you have already had your first study session. Moreover, you have relived the lecture before you have forgotten it (eg., try remembering lecture 2 by the time you get to lecture 7 or 8; in this course, the information piles up fast, and the topics change quickly – if you don't regularly review and organize your notes, it will be like shoveling snow in a blizzard). If you follow the above advice, you will get to the review material quickly and do an active mental replay, and in doing so, you are effectively preparing yourself for that big crunch time – the day before the scheduled exam.

- (iii) **TURN OFF YOUR CELL PHONES!** I once had a student texting for 5 minutes right in front of me, the very front row. I stopped talking, stood over her (still texting), and said: “I can't believe you don't realize what you are doing.” She turned bright red, and later realized the folly of her action, and how she must have come across. Needless, she stopped texting in class, and ultimately did well. Moral to the tale: **DON'T TEXT IN CLASS.** Before you sit down, let those important to you know that you are in class respecting the right of the professor to have your undivided attention. *After all he is giving you HIS undivided attention.* If you have to make an important call or get into some vigorous text-messaging exchange, please **STEP OUTSIDE.** I will draw attention to you if I suspect you have “left the room” and immersed yourself in another space and time. At which point, you will not feel terribly smart.
- (iv) **DO NOT ENTER INTO EXTENDED CHIT-CHAT** with your neighbors – this is the height of rudeness, disrespects the professor, and **MORE IMPORTANTLY** disturbs the listening rights of your student peers. BTW: Feel free to tell those near you to “put a sock in it” if you are distracted by silly giggles and mindless chatter that goes on far too long. FYI: In all my time of teaching at Rutgers (since 1998), I have thrown students out of the classroom for talking on only three occasions, after being unresponsive to requests to quiet down. That's a low rate. **BUT IT HAPPENED.**

Do good work, respect those around you, listen to the lecture, and come out ahead. Why else are you here?

Academic Integrity

I have on occasion encountered a situation of academic dishonesty, so you should be aware of the link to the Rutgers academic integrity office: <http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers/> . If you have not already done so, you should explore this, and in particular the ‘Academic Integrity Policy’ link, where you can read the levels of violation and sanctions. When submitting work through an online mechanism (eg.,

exams, quizzes and assignments), it is expected that you will do so without the assistance of any other person, and that you are the person submitting the work. This aspect of assessment simply requires an honor code. When submitting written assignments these will be screened for evidence of plagiarism. Go to this link <http://academicintegrity.rutgers.edu/?s=plagiarism> and access the information in the website given in the box titled: 'resources for students.'

Assessment

Exams (50% of total grade): There will be TWO exams. Both exams will be online (through sakai). The exams will be a mixture of written-answer and multiple choice questions. Exam 1, 20% of total grade; Exam 2, 30% of total grade.

Note that exams will also test you on some of the material from your reading and documentary assignments.

Assignments (50% of total grade: 20% for written reports on reading; 20% for written reports on documentaries; 10% online quizzes on lectures and reading)

The assignments will consist of the following.

- (i) Reading assigned material posted on sakai. This will be assessed using online quizzes and written assignments;
- (ii) Viewing documentary films and writing up reports on these films. Your reports will be based on probe questions posted on sakai. Discussion of the videos will be integrated into the basic lecture material, and provide a wider context to the more specific information learned in class.

There is no extra credit in this course, since the online exams are all open book. However, your attendance record is taken into account when finalizing the grades.

Grading System

There is no curving. Students will need to achieve predetermined cut-off points for grades of A, B+, B, C+, C and D. Cut-off points will be as follows:

A 90-100 B+ 86-89.9 B 78-85.9 C+ 74 -77.9 C 65 -73.9 D 55-64.9 F <55

Makeup Rules

The online submissions (whether exams, quizzes or assignments) will be docked points if submitted late. I will provide a *grace period of 8 hours* after the submission deadline. However, if such a grace period is given just once, this will eliminate my capacity for any grade adjustments when finalizing grades. Once the grace period has passed, **a submission that is 9-16 hours late will be docked 30%, 17-24 hours, 60%, and 25-36 hours 80%; beyond this, there is no opportunity for a grade.** I will need to verify all excuses for late submissions.

I know that “stuff happens,” and interferes with your ability to take an exam, a quiz, or submit an assignment on time. You need to provide me with documentation that proves the nature of the interference. *It is not guaranteed, but I will determine the merits of your case and make a decision as to whether you can make up a missed exam, quiz or assignment.*

After seeing the schedule below, if you anticipate a conflict, you have the option of taking an exam EARLIER than the scheduled time. Legitimate reasons for this are: Rutgers athletic obligations, religious events, and other similar (predetermined and fixed) events that are going to interfere with taking the scheduled exam. It is up to you to anticipate the conflict, and let me know about these upcoming events so that I can administer the exam earlier or allow you to submit an assignment earlier. If you don't take the exam or submit the assignment, then you will fail to receive any points.

LECTURE AND ASSIGNMENT SCHEDULE

Please note that this is the intended flow of topics that will be covered each week. The timing for introducing a topic may vary, and some weeks will have overflow material from the prior week. I may even skip certain sections. Nonetheless, the information will come thick and fast.

Online Quizzes

Note that where it is stated that quizzes and other material are posted online, this refers to the Sakai course site. On the left side of the Sakai course site will be a link to Tests and Quizzes.

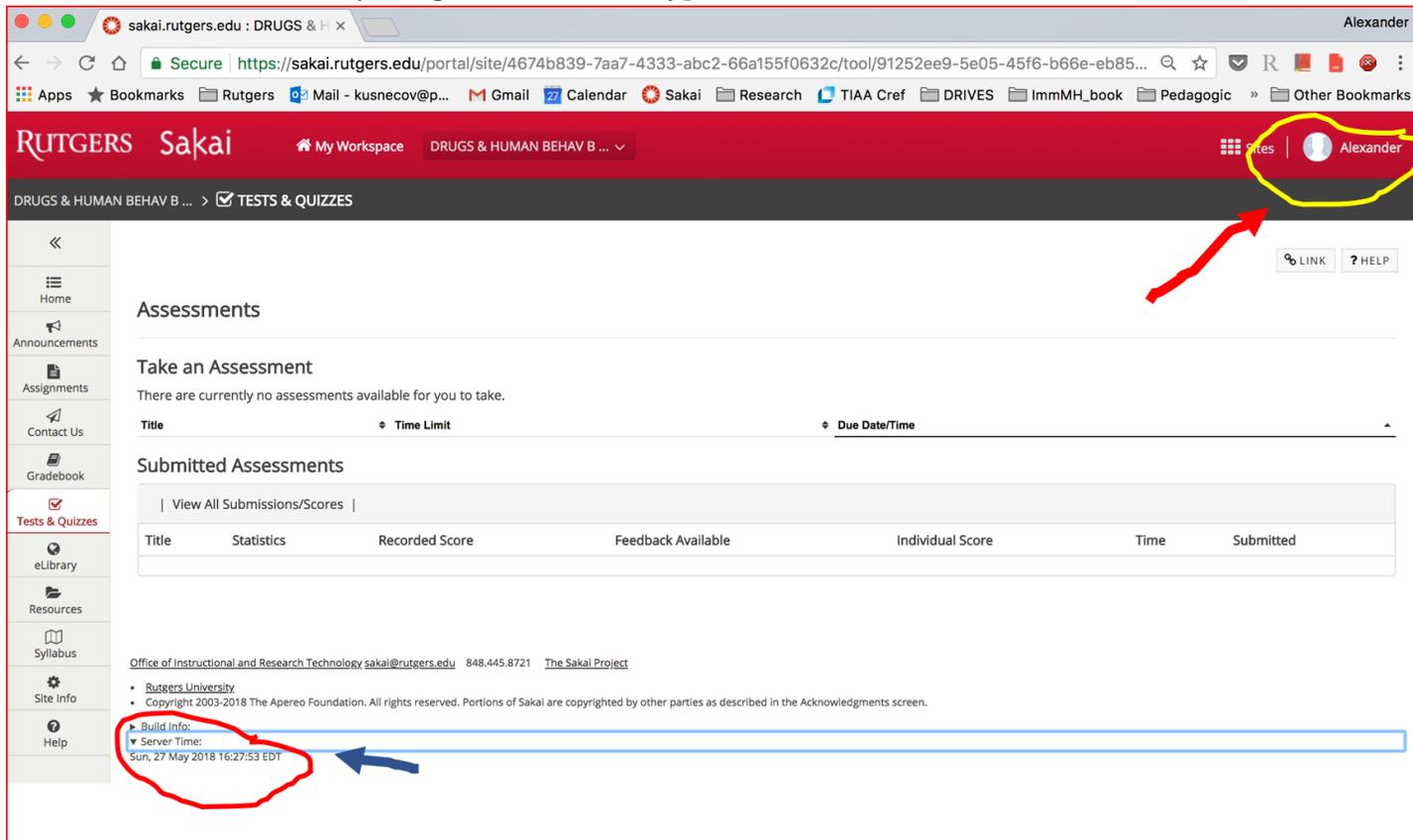
Dates and times for quizzes may be subject to change, but for the most part will be available as stated in the weekly schedule below. When they are ready to post, these will be delivered using the ‘announcements’ tool on Sakai, as well as in class.

Once a quiz is posted, you will have at least 24 hours to start the quiz. Once you start a quiz, you cannot stop, log out and come back to the quiz. You must complete the quiz in the allotted time (which will typically be 40-60 minutes; Exams will be longer). Save your answers as you move along.

Please note that reports of technical trouble in taking a quiz or exam (eg., browser not showing the quiz) needs to be reported to me immediately, and during the period when the quiz or exam is active (eg., if the quiz is active 5pm on a given date, you have to report within 24-36 hr hour period, before the quiz closes. There are no makeups for the quizzes except for reasons other than medical emergencies. You will be given advance warning when the quiz is going live. Therefore, if there is going to be a problem, you have to notify me and I will decide if it is a legitimate complication.

IMPORTANT: What you must do when you have a technical problem:

1. Firstly, if you suspect a poor connection wherever you live, go to the computer labs and/or terminals in the many libraries we have at Rutgers, NB. Any problems taking a quiz will very likely be addressed by the staff at the library. They are also witnesses to the problem.
2. If you do not see an active quiz or exam displayed, take a screenshot of the browser page, after you have clicked on the 'Tests and Quizzes' link. Email this screenshot to me. The screenshot should show your ID/NAME in the top right corner, and there should be a time stamp. Below is an example. Note the two arrows top right and bottom left. These are showing your name (top right) and the time signature (bottom left). When you take the screenshot, you **MUST HAVE** the information pointed out by these arrows **SHOWING SIMULTANEOUSLY**. **If I do not see both pieces of information, it will not be a legitimate report and I will not consider your problem as being legitimate**. If the browser is not showing both, reduce the browser window size [hold down ctrl and press the minus (-) key; or on a mac, hold down the command key and press the minus key].



3. To reveal the time signature, scroll to the bottom of the browser page and click the arrow next to 'Server Time.' This will reveal the current time, and the screenshot should simultaneously show your ID and this time stamp (that top right arrow).
4. Also email the screenshot and a report of your difficulty to sakai@rutgers.edu and make sure you explain the problem. When you email them, make sure to copy me.

Typically, there are no problems. Moreover, I have myself listed in the roster as a student (not instructor), so I will see what you will see. Sakai is showing you what is on a server and once logged in, like everyone else, you will see what other students will see. So if you tell me you don't see a quiz, while the rest of the class, including myself, can see it, then you are either not logged in, or extremely unlucky (which, frankly, won't be possible). We are also able to activate a 'student view' link, to provide an additional perspective.

All major browsers will work. Chrome, Firefox, Safari, Explorer – they're all good. If there are problems with any of these browsers during the course (eg., when viewing videos), update or reinstall your browsers and make sure any restrictions are removed. However, that should be rare, since all videos will be watched through the library link (eLibrary) that I have provided.

Weekly Schedule

Week 1 (Lecture Tuesday 5/29): How does the brain get hijacked by drugs of abuse?

Attitudes to drug use; Factors that determine drug use – eg., personality variables; the psychosocial environment

Overview of the central nervous system (CNS).

- (i) The Nervous System: Neuroanatomy; neurons and their organization in the brain
- (ii) Reasons why the default state of the brain is "excitation."
- (iii) Psychopharmacology – the study of how neurons communicate with each other chemically and what this means for behavior

Documentary Assignment #1: view and respond to the probe questions for the 2007 HBO documentary 'Addiction.' Submit your report through the 'assignments' link on the sakai course site. The **Submission Deadline is Sunday June 3, 11 pm**. The probe questions will be posted in the resources section. The file will be called 'HBO Addiction Probe Questions.'

Required Reading for Week 2: NIDA #1 (overview of drugs and addiction science) and the article 'Pleasure and the Brain.' Note that an online quiz will be given on these articles toward the end of Week 2 (see week 2).

Week 2 (Lecture Tuesday 6/5): The Brain Reward or "Pleasure" System

In the lecture class, we will complete any outstanding information about the CNS and consider the "pleasure" system in the brain. Additional notes will be posted online.

Online Quiz #1: Thursday 6/7, 6PM. This quiz will be on the reading assignments from Week 1, and the lecture material covered on 5/29 and 6/5. You will be notified when this quiz is ready. Once posted, it will remain open for 36 hours.

Required Reading for Week 3: NIDA #2 (nicotine), #3 (cocaine), and #4 (methamphetamine); this will prepare you for the lecture material in week 3. Exam 2 in Week 3 will test your knowledge of these articles, as well as the lecture material.

Reading & Writing Assignment #1 (submission will be in Week 4; see below). Please read the four articles in the 'Reading_Writing_Assignment_1' folder in resources. There will be an assignment link set up through

which you will be able to submit your written report. The questions file is called 'R_W_Assignment 1 Questions,' and can be found in the same folder as the readings.

Week 2 (continued)

Documentary Assignment 2 (for submission in Week 4): Watch the Frontline documentary on the Meth Epidemic. The report can be submitted in Week 4, but watch it in advance to appreciate the lecture material on Tuesday 6/12.

Week 3 (Lecture Tuesday 6/12): Legal Stimulants and Illegal Stimulants

Lectures (on Tuesday 6/12) and posted online notes on Nicotine, Caffeine, Cocaine and Methamphetamine

EXAM 2 (active on Thursday 6pm). Information to be assessed: Lecture material (5/29, 6/5, 6/12) and the NIDA readings #2, #3, #4 from Week 2. This exam will be open from Thursday 6/14 at 6 PM and will close Friday 6/15 at 11 PM. This is a timed exam. You will have 2 hours to complete the exam.

Required Reading: NIDA reading #5 (on heroin) and a textbook chapter on alcohol (a quiz on these readings and lecture content will be given at the end of Week 5)

Week 4 (Lecture Tuesday 6/19): Alcohol and Opiates

Tuesday lecture will cover the opiates (eg., heroin); most of the information on alcohol will be covered through online material, including a posted reading on alcohol.

Submit Documentary Assignment #2 on Monday June 18, 11 pm: Submit Frontline Methamphetamine documentary report. Submission will be through an assignment link.

Submit Reading and Writing Assignment #1 on Thursday June 21, 11 pm.

Documentary Assignment #3: Watch Chasing Heroin and Cape Cod and answer probe questions (**submission deadline: Saturday June 23, 11 pm**)

Reading and Writing Assignment #2: Readings will be posted on the food industry and food addiction. You will need to submit an essay response in Week 6.

Required Reading: NIDA readings #6 and #7 to prepare for lecture material in Week 5.

Online Quiz #2: This will cover the lecture material and the required reading from Week 3. **This will be open Friday 6/22, 9am and close Saturday 6/23, 11 pm**.

Week 5 (Lecture Tuesday 6/26): Cannabis and Hallucinogens

Lecture on Tuesday and through online delivery.

Documentary Assignment: MDMA (ecstasy); **Submit report by Thursday 6/28, 11 pm.**

Week 5 (continued)

Writing Assignment #3: (**Submit by Tuesday 7/3, 5pm through the assignment link**). Write a short essay (no longer than 2 pages) detailing your thoughts about the legalization of cannabis. Some articles will be provided to stimulate your thoughts. You should be scholarly, objective and non-emotional in your essay. Provide any additional sources of information that you find.

Online Quiz #3: This will cover the lecture material and the required reading from Week 4. **This will be open Friday 9am and close Saturday 11 pm.**

No further readings for week 6.

Week 6 (Lecture Tuesday 7/3): Psychotherapeutic Drugs

Finish any material from Week 5. Proceed with lecture material on anxiety, depression and schizophrenia. Lecture material will cover the drugs used to treat mental health problems, and whether these are effective.

EXAM 2: Thursday July 5, 6PM. This will remain open until 11 pm Friday July 6. The material assessed in this exam will only be the lecture material (including any posted online notes not covered in the Tuesday lectures) from Weeks 4, 5 and 6.