

Fall 2021

Cannabis: From Counterculture to Cure-All

School of Arts and Sciences, Department of Kinesiology and Health
Undergraduate Course # 01:377:360; 3 credits

The Department of Kinesiology and Health supports an inclusive learning environment wherein diversity and authenticity are valued. We are committed to creating a culture of equality that respects the diverse voices of our students, faculty and staff. We will continuously strive to create a curriculum and academic environment to reflect the community we serve, and drive innovation, social responsibility and excellence. Our diversity in thought, skill, and academic discipline is a resource and strength, which stands to benefit the whole and positively contribute to University and global reach.

Course information

Pre-reqs: 01:119:115 (General Biology I), 01:119:116 (General Biology II), & 01:830:101 (General Psychology)

Online learning site: Canvas <https://canvas.rutgers.edu/>

Online format: IN PERSON, *amen*

Technology requirements for this course:

- Computer capable of watching videos, reading PDFs and documents, and completing exams.
- Device capable of recording a video to share with the class.

Instructor information

Instructor: Jennifer Buckman, PhD

jbuckman@rutgers.edu

Office Hours: 1:30-3pm Mondays & Wednesdays; for other times, please email me.

Office Hours Format: Zoom or in-person

Required Course Materials

No textbook required. All readings will be available within Canvas under the Files module.

Course Description

Cannabis, formerly known as marijuana, is having a moment. Americans are embracing this plant in all its psychoactive and medicinal glory, but how much do we really know about the causes and consequences of recreational and medicinal cannabis use? Individuals interested in careers in medical and allied health are, in particular, in need of understanding cannabis use as a medicine and as a psychoactive agent used for recreation. Like alcohol and tobacco use, cannabis use is a health behavior that can impact overall wellness and must be considered within the context of an individual's overall lifestyle.

This course is designed to teach basic principles of numerous scientific fields from the vantage of *Cannabis Sativa*. We will consider the pharmacology, physiology, and neurobiology of its most well-known active ingredients - THC and CBD. We will delve into cannabis' influence on human behavior and health, and its potential to cause (and cure?) addiction. Woven throughout will be a discourse on how the history and legality of *Cannabis Sativa* have affected (and continue to affect) scientific research. The goal is to push past the media hype, big money, and politics and examine the state of the scientific evidence.

Course Objectives

Upon completing this course, each student will be able to:

1. Summarize basic pharmacological principles as they pertain to common cannabis use behaviors.
2. Describe the psychoactive profile of cannabis and its interaction with alcohol and other drugs.

3. Explain the unique features of the endocannabinoid system and how cannabis acts on it.
4. Summarize current evidence-based medicinal and health uses for cannabis.
5. Discuss the weight of evidence for cannabis' medicinal, psychoactive, and addictive properties.

Grading Policy

This class uses a points-based system to calculate grades. The total numbers points for this class are 200.

- Points per assignment is described below.
- Assignment due dates and times are listed on the Schedule on the next page of this syllabus.
- Assignments turned in late will receive 0 points unless the student communicates with the instructor BEFORE the due date and receives written approval of an extension.
- Concerns about a graded assignment must be brought to the instructor within seven days of receiving the grade. Assignment grades are finalized after this seven day period.
- Grades on Canvas will be updated regularly; if you notice any discrepancies or have questions, please do not wait until the end of the semester – let your instructor know right away.

Letter Grade	Percent	Points Needed
A	90-100	180-200
B+	85-89.9	170-179
B	80-84.9	160-169
C+	75-79.9	150-159
C	70-74.9	140-149
D	60-69.9	120-139
F	0-59.9	0-119

Assignments and points

Participation: No one wants an 80-minute monologue. Questions, comments, dissenting opinions, and “*but Joe [or Seth] Rogan says*” statements are encouraged. I know, however, that some people talk a lot and some people don’t. Here’s my middle ground: top contributors to the conversations (through talking or homework responses) will earn full credit for Homework 8 & 9 without having to hand them in (worth 10 points).

Exams: There will be 2 take-home exams, each worth 20 points. I will describe the grading rubric when the exams are posted on Canvas. UP TO: 40 points.

Reading & video worksheets: Students will be responsible for reading articles and watching videos throughout the semester and completing brief worksheets (5 pts each). All readings, video links, and worksheets will be available through Canvas. Worksheets are used to guide class discussions. 5=Excellent; 4=Very good; 3=Average; 2=Below Average; 1=Poor, 0 = missing. UP TO: 50 points.

Thought Experiment (TE): Is cannabis is really a cure-all?? The number of conditions it is being used to treat is staggering and potentially absurd. Health conditions have been binned into 8 major categories, 4-5 students will be assigned to each category. This project [50% of grade!] includes group and individual work; each student will create a 10-min video that will be shared with the class. The video should to put the information you’ve gathered together in a narrative format that explains the different sides, opinions, perspectives, and/or different types of evidence. The video should end with your opinion/conclusion based on what you have learned. Ten elements will be graded: (1) completeness of literature review, (2) organization of literature, (3) command of the topic, (4) summary of strength of evidence elements: endocannabinoids (5) summary of strength of evidence elements: exogenous cannabinoids, (6) blending of informational materials and opinions/ideas, (7) logic and professionalism of video, (8) presentation of multiple sides of the problem, (9)

insightfulness of presentation, and (10) ratings from each other. Each element will be graded on a 10 point scale: 10=Excellent; 8=Very good; 6=Average; 4=Below Average; 2=Poor. UP TO: 100 points.

Anticipated Class Schedule

Date	Topics	Assignments Due
9/1	Introduction to thinking about it versus googling it & other random stuff	
9/8	Introduction to you, me & a syllabus about ... <i>weed</i> ?	
9/13	Cannabis, a flowering plant	Homework 1
9/15	The active ingredients in cannabis	
9/20	The genetics of getting high (or not)	Homework 2
9/22	Context and expectancies of getting high (or not)	
9/27	Facts, opinions, and levels of evidence	<i>TE examples</i>
9/29	Why is CBD medicinal and THC recreational?	EXAM 1 due
10/4	<i>Exam debrief, videos & reading discussion</i>	Homework 3
10/6	A drug is a drug, of course	
10/11	A primer on pharmacology – pharmacokinetics	Homework 4
10/13	A primer on pharmacology – pharmacodynamics	
10/18	This is your brain on drugs	Homework 5
10/20	These are the drugs in your brain	<i>TE Q&A</i>
10/25	But is it addictive?	EXAM 2 due
10/27	<i>Exam debrief, videos & reading discussion</i>	Homework 6
11/1	Edibles, vapes, and bongs	
11/3	What are we doing to ourselves?	Homework 7
11/8	Who uses and why?	
11/10	THOUGHT EXPERIMENTS – Topics 1,2,3	
11/15	THOUGHT EXPERIMENTS – Topics 4.,5,6	
11/17	THOUGHT EXPERIMENTS – Topics 7,8	
11/22	'Cannabis is a gateway drug' and other false claims	Homework 8
11/29	Primordial cannabis	
12/1	Cannabis counterculture	Homework 9
12/6	Current cannabis culture	
12/8	Who won the war on drugs?	Homework 10
12/13	Drug use in general: Double standards	

Policies and Procedures

General Expectations:

- Access all online class material. Complete all assigned assignments on time. Follow the honor code. Most of your life, people will not take the time to teach you things. Learn while you can.
- Ask questions. Email me. Use my office hours. I want you to understand what I am teaching.
- **Check your email and Canvas announcements regularly.** I guarantee there will be updates. There are always glitches, missing items, confusing instruction sentences. Try as I might, I am not perfect.

Email Etiquette: When emailing, please use my Rutgers e-mail address, not Canvas. Students are expected to use appropriate email etiquette. Please make your emails brief and to the point. Maintain reasonable expectations for responses. I will respond to emails within 1-2 business days.

Mask Mandate

In order to protect the health and well-being of all members of the University community, masks must be worn by all persons on campus when in the presence of others (within six feet) and in buildings in non-private enclosed settings (e.g., common workspaces, workstations, meeting rooms, classrooms, etc.). Masks must be worn during class meetings; any student not wearing a mask will be asked to leave. Masks should conform to CDC guidelines and should completely cover the nose and mouth

My Campus Pass symptom checker self-screening app. Academic Integrity: As an academic community dedicated to the creation, dissemination, and application of knowledge, Rutgers University is committed to fostering an intellectual and ethical environment based on the principles of academic integrity. Academic integrity is essential to the success of the University's educational and research missions, and violations of academic integrity constitute serious offenses against the entire academic community. Students are responsible for becoming familiar with the definitions, procedures and sanctions outlined in Rutgers University Academic Integrity Policy before submitting any assignment or exam. The policy can be found at: <http://academicintegrity.rutgers.edu/academic-integrity-policy/>.

All students should conduct themselves with the highest standards of academic honesty. Examples of academic dishonesty include: copying others' written work, not citing sources, and submitting the same assignments/papers multiple times in different courses. All incidences of questionable academic integrity are a serious matter and may result in a no grade (0.0) for the assignment or course. Academic dishonesty will not be tolerated and will be treated in accordance with Rutgers University Academic Integrity Policy.

Cheating and Plagiarism: Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of college. It is dishonest and unfair. I take cheating very seriously. By enrolling in this course, you are indicating implicitly that you have read, understood, and accepted Rutgers University's policies and procedures regarding academic integrity and dishonesty. Plagiarism and cheating will not be tolerated and all University policies apply. Specifically, if plagiarism or cheating is suspected, the student(s) will be asked to meet with the instructor. If the instructor concludes that an instance of plagiarism or cheating has occurred, the student(s) will be subject to an appropriate sanction or penalty outlined in Rutgers University Academic Integrity Policy.

Please note that plagiarism is using the ideas or writings of another as one's own. It varies in degree and severity. The most severe is the use of another's entire paper word-for-word. Less severe is the use of another's sentence, paragraph, or ideas without giving credit to that individual (i.e., without providing a reference). Students often assume that because information is available on the Web it is public information, does not need to be formally referenced, and can be used without attribution. This is a mistake. All information and ideas that you derive from other sources, whether written, spoken, or electronic, must be attributed to their original source.

Make-up Policy

No make-ups or extensions will be offered for missed assignments except in one of the following situations, provided that the instructor is notified in advance:

- Athletic or other Rutgers sponsored trips: Travel dates and times accompanied by a signed memo from the group's advisor/coach must be presented to the instructor prior to travel dates.
- Religious observances.
- Extenuating circumstances: This includes (but is not limited to) family emergencies, severe illnesses, accidents, etc. It will be up to the prerogative of the instructor whether or not the student will be allowed to take the make-up or receive an extension.

University Services

Although many of these offices remain closed to in-person visits, all remain accessible virtually. We encourage students to continue to use these resources during this semester of remote learning.

Service	Description	Contact Information
Student Accommodations	If you are a student in need of accommodations, please register with the Office of Disability Services in order to initiate the accommodations process. Please present your letter of accommodation to your instructor during the first week of the semester. Please note that accommodations are not retroactive.	(848) 445-6800 Lucy Stone Hall, Suite A 145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 https://ods.rutgers.edu/
Just In Case Web App	Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.	http://codu.co/cee05e
Counseling, ADAP & Psychiatric Services (CAPS)	CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.	(848) 932-7884 17 Senior Street, New Brunswick, NJ 08901 www.rhscaps.rutgers.edu/ Medical Services: http://health.rutgers.edu/medical-counseling-services/medical/ Counseling Services: http://health.rutgers.edu/medical-counseling-services/counseling/
Violence Prevention & Victim Assistance (VPVA)	The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.	(848) 932-1181 3 Bartlett Street New Brunswick, NJ 08901 www.vpva.rutgers.edu/
Scarlet Listeners	Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.	(732) 247-5555 https://rutgers.campuslabs.com/engage/organization/scarletlisteners
Academic Support	School of Arts and Sciences Academic Advising for personal, career, and educational goals. Department of Kinesiology & Health Academic Advising for questions about Exercise Science or Sport Management major/minor requirements.	SAS: https://sasundergrad.rutgers.edu/ Dept. of Kinesiology & Health: Daria Gonzalez Loree Gym, Room 110 Email: Daria.Gonzalez@rutgers.edu https://kines.rutgers.edu/academics/academic-advising

Homework Assignments

HOMEWORK 1

WATCH

America Has a Drinking Problem (WNYC vs Bill Maher)

<https://www.wnycstudios.org/podcasts/experiment/episodes/america-drinking-culture-coping-mechanism>

<https://www.youtube.com/watch?v=3Xa1L01ZNaY>

RESPOND

**** HINT: just say something interesting, it's QUALITY not QUANTITY that earns points**

Submit 3 *brief* 1-sentence comments that address any of these points (or something related):

- Both use a single story, printed in the Atlantic (“America has a drinking problem”). Good or bad? Why?
- Similarities & differences in the videos?
- Look at the book by Edward Slingerland they are referring to – how long is the book? How many chapters?
- Also, how relevant are these observations to college life? If relevant, how? If not, why?
- How does this relate to recreational cannabis use, or does it not?

HOMEWORK 2

READ

May 2020, A Hidden Origin Story of the CBD Craze

<https://www.nytimes.com/2020/05/23/sunday-review/coronavirus-cbd-oil.html>

April 2020, Cannabis Scientists Are Chasing the Perfect High (30 min listen, although)

<https://www.nytimes.com/2020/04/01/magazine/cannabis-science.html>

RESPOND

Submit 3 *brief* 1-sentences about surprising or interesting points made in each article. At least one should specifically address one of these points:

- What does the “Hidden Origin” article suggest about scientific origin of CBD?
- Based on the “Perfect High” article, how confident are you in the science of terpenes?
- Is expectancy psychological or does it also have physiological effects?

HOMEWORK 3

READ

July 2021, Evaluating cannabidiol (CBD) expectancy effects on acute stress and anxiety in healthy adults: a randomized crossover study

<https://pubmed.ncbi.nlm.nih.gov/33813611/>

June 2017, Cannabidiol Does Not Dampen Responses to Emotional Stimuli in Healthy Adults

<https://pubmed.ncbi.nlm.nih.gov/28861510/>

RESPOND

Submit 3 Twitter posts that highlight the findings of these articles, either separately or together. **HINT: Don't use the abstracts (*points off if you do*), instead select information from the Discussion section of the papers.**

HOMEWORK 4

READ

May 2019, Can CBD Really Do All That?

<https://www.nytimes.com/interactive/2019/05/14/magazine/cbd-cannabis-cure.html> ?

July 2021, Can Marijuana Make You a Better Athlete?

<https://www.nytimes.com/2021/07/11/well/move/marijuana-olympics-ban.html>

RESPOND

In 1 sentence, comment on what the neuroscientist Yasmin Hurd means in the “*Can CBD really do...*” article when she says that CBD “bring(s) the entire symphony into harmony”.

Look up Yasmin Hurd. In 1 sentence, address whether you think she is a legitimate expert on cannabis. Does she have a 'health perspective' or a 'disease perspective'?

Look up Angela Bryan. In 1 sentence, address whether you think she is a legitimate expert on cannabis. Does she have a 'health perspective' or a 'disease perspective'?

Now, go to pubmed.gov, search "Bryan AD, cannabis, exercise". You'll see 6 articles.

IF YOUR LAST NAME starts with:

- A-E, describe article 1 results (1 sentence);
- F-G, describe article 2 results (1 sentence)
- H, describe article 3 results (1 sentence)
- J-L, describe article 4 results (1 sentence)
- M-O, describe article 5 results (1 sentence)
- P-Z, describe article 6 results (need I say, in 1 sentence)

HOMEWORK 5

READ

May 2017, Marijuana May Boost, Rather Than Dull, the Elderly Brain

<https://www.scientificamerican.com/article/marijuana-may-boost-rather-than-dull-the-elderly-brain/>

May 2018, Biphasic effects of THC in memory and cognition

<https://pubmed.ncbi.nlm.nih.gov/29574698/>

May 2021, Are the Acute Effects of THC Different in Aging Adults?

<https://pubmed.ncbi.nlm.nih.gov/34062795/>

RESPOND

Submit 3 *brief* 1-sentence comments that address any of these points (or something related):

- How might the idea that the endocannabinoid system is related to homeostasis/balance explain it having seemingly pro-aging effects?
- Define hormesis and what, if anything, it has to do with THC
- Describe the craving figure in the last article. What does this say about CBD? Is it potentially addictive because it is "crave-able"?

HOMEWORK 6

Go to [leafly.com/news](https://www.leafly.com/news) and if your last name starts with:

A-E, select an article from 'Cannabis 101' (on left menu); F-G, select an article from 'CBD' (on left menu); H, select an article from 'Strains & products' (on left menu); J-L, select an article from 'Health' (on left menu); M-O, select an article from 'Lifestyle' (on left menu); P-Z, select an article from 'Science & Tech' (on left menu)

Click on the left menu term and then, under the header, choose "see all".

Now: pick one article on this page that you think discusses a topic that should be *added* to this class. Provide the link to the article with 1-2 sentences of why you think the information was interesting. It can be a 'huh, I wonder if this is true?' or a 'wow, I finally get it!'

HOMEWORK 7

READ THIS ARTICLE FROM 1975

Speed and Pot: A Mirror Image

<https://www.nytimes.com/1975/10/24/archives/speed-and-pot-a-mirror-image.html>

READ 1 OF THE FOLLOWING (Your choice)

February 2020, Sex differences in the acute effects of smoked cannabis: evidence from a human laboratory study of young adults

<https://pubmed.ncbi.nlm.nih.gov/31637452/>

June 2021, Cannabis use frequency, route of administration, and co-use with alcohol among older adults in Washington state

<https://pubmed.ncbi.nlm.nih.gov/34082833/>

RESPOND

For the 1975 article, name 2 things that are shockingly parallel to discussions we are having as a society today. (bulleted list, full sentences not required)

After reading the other article, imagine a study that you think needs to be done to understand individual differences in the effects of cannabis/THC/CBD. Describe it in a few sentences.

HOMEWORK 8

READ

How should we use drugs now?

<https://www.nytimes.com/2021/07/09/opinion/sunday/drug-legalization-mdma-psilocybin.html>

<https://www.npr.org/2021/06/18/1007022652/oregons-pioneering-drug-decriminalization-experiment-is-now-facing-the-hard-test>

RESPOND

Read about where in the world drugs have been legalized (and which drugs and for what reasons). Tell me something interesting in 1-2 sentences. For example: What is legalization “experiment” telling us? Or, on the flip side, what about illegality of drugs – how has that been working out for everyone? Try to find something that I didn't know [and is verifiable] for extra credit. **You MUST include your sources!**

HOMEWORK 9

WATCH

The Business of Drugs (Cannabis) on Netflix

RESPOND

- 1 comment in the video that you disagree with or you feel were more opinion than fact
- 1 *brief* comment on what you noticed about indoor versus outdoor growing
- 1 *brief* comment on how money affects cannabis

HOMEWORK 10

READ

June 2020. Exaggerating Harmful Drug Effects on the Brain Is Killing Black People

<https://reader.elsevier.com/reader/sd/pii/S0896627320304736?token=8B23BD416C2CCE451223C15177BE17398A91E8A503B8FBA26BFE79CF1487AD48306FF00B17E220690E17B42144230CB4&originRegion=us-east-1&originCreation=20210812212003>

WATCH

Sept 2016, What is the Drug War? With Jay-Z and Molly Crabapple

<https://www.youtube.com/watch?v=HSozqaVcOU8>

RESPOND

In 2-3 sentences, discuss the way that racism affects/has affected our society's view on drug use. There is so so so much to consider here when you think back across the course materials and what you have learned from your own life. Try to make one coherent point that you think your fellow students will NOT make. This will be the focus of our final, **IN-CLASS DEBATE** about what we should do next (as a society).