

PSY 432: PSYCHOPHARMACOLOGY, Winter 2024

Section 01: Mondays and Wednesdays 1:30-2:45 PM, 103 Lake Huron Hall

Instructor: Glenn R. Valdez, Ph.D.

Office: 1313 AuSable Hall

Office hours: Mondays, Wednesdays, Fridays, 11:00 AM-12:00 PM, 1313 AuSable Hall

Online meetings are available by appointment through Navigate

<https://gvsu.campus.eab.com/pal/SJc6c1-HHk>

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Course Description:

This course will examine the interactions between psychoactive drugs, the central nervous system, and behavior. Topics that will be covered include basic pharmacology, the nervous system, and the effects of various classes of psychoactive drugs on behavior. Prerequisites: PSY 101 and PSY 300 or SS 300 or equivalent. This course is subject to the GVSU policies listed at <http://www.gvsu.edu/coursepolicies/>.

Learning Objectives:

Upon successful completion of this course, students should be able to:

- Describe basic pharmacological concepts such as agonists, antagonists, dose-effect curves, efficacy, and potency
- Identify the structure and function of major parts of the nervous system
- Describe the process of action potentials
- Describe the process of neurotransmission
- Identify the behavioral function of major brain chemical systems and how various classes of drugs affect them
- Discuss basic research in psychopharmacology
- Relate principles of psychopharmacology to everyday behavior

Course Attendance:

This course will be taught in a traditional face-to-face format. **Please do NOT come to class if you are sick.** At any point in the semester if you cannot come to class because you have symptoms, have had a potential COVID exposure, etc., you should contact me and we will work together to ensure you can still meet class requirements.

Course Blackboard Site: lms.gvsu.edu

All relevant content can be accessed through the course website on Blackboard. When you first access the site, click on the "Start Here" link in the course menu for an overview of the site. Links to course content, course tools, and other relevant information can be found in the course menu. A detailed weekly course schedule can be found at the end of the syllabus.

Technology Needs:

Although this course is being taught in a traditional face to face format, there are some basic technology requirements for the course.

High-speed internet access.

Laptop, tablet, and/or smartphone with a video camera and microphone. A video camera and microphone are only required if you would like to meet with me virtually. If you do not have a laptop, you may be able to apply for financial aid to help cover the cost of one. Please visit the GVSU [Special Circumstance & Financial Hardship Requests](#) site for more information. Laptops may also be checked out from the Library for up to four hours with a photo ID.

Microsoft Office. As a GVSU student, you have access to Microsoft Office 365 for free. You will find the information on how to access this at <http://www.gvsu.edu/it/softwarehardware-discounts-31.htm>.

Zoom. I will be holding virtual appointments through Zoom. All current term enrolled students are eligible to use the GVSU Zoom Business license. You can find more information at <https://www.gvsu.edu/it/gvsu-zoom-business-plan-247.htm>



Flip. We will be using Flip (<https://info.flip.com/>) for online video discussions.



Communication:

I will be sending emails regularly (at least once a week) through Blackboard. You are expected to check your GVSU email regularly for course announcements and updates. The best way to contact me is by email. Monday through Friday, I will check my email regularly between the hours of 9:00 AM-5:00 PM. I will generally respond to emails within 24 hours. If you do not receive a response after 24 hours, please feel free to follow up on the original email. I check my email occasionally during the weekend. However, I do reserve the right to limit my email access over the weekend so please do not expect a response until the following Monday unless it is something urgent. If your email is regarding an urgent matter (i.e. illness, family emergency, etc.), please include the word "URGENT" in the subject line, and I will do my best to respond to your email as soon as possible.

Office Hours:

My regularly scheduled office hours will be held face to face in my office (1313 AuSable Hall) on Mondays, Wednesdays, and Fridays from 11:00 AM-12:00 PM. I also keep an “Open Door Policy” so please feel free to drop in any time I am in my office and the door is open or knock if the door is closed. I am also available to meet in person or online outside of my regularly scheduled office hours by appointment. Appointments can be scheduled through the “Book an Appointment” link on Blackboard or through the link above.

Texts:

Hancock, SD, McKim, WA. (2018) *Drugs and Behavior: An Introduction to Behavioral Pharmacology* (8th edition).

This text is available as an eBook in the Course Blackboard site as part of the GVSU Save program.

Neuroscience Online <https://nba.uth.tmc.edu/neuroscience/>

This is an open-access (free) textbook for the study of neuroscience is provided by current and former faculty of the Department of Neurobiology and Anatomy at The University of Texas Health Science Center at Houston, McGovern Medical School. The Neuroscience Online readings are not required but may be helpful in reviewing the material or for additional reading.

Research Articles (available on Blackboard):

Required Articles for Assignments

Cropsey KL, Schiavon S, Hendricks PS, Froelich M, Lentowicz I, Fargason R. Mixed-amphetamine salts expectancies among college students: Is stimulant induced cognitive enhancement a placebo effect?. *Drug Alcohol Depend.* 2017;178:302-309. doi:10.1016/j.drugalcdep.2017.05.024

Greene KM. Perceptions of driving after marijuana use compared to alcohol use among rural American young adults. *Drug Alcohol Rev.* 2018;37(5):637-644. doi:10.1111/dar.12686

Additional Articles for Assignments

Arria AM. Nonmedical Use of Prescription Stimulants and Analgesics: Associations with Social and Academic Behaviors among College Students. *J Drug Issues.* 2008;38(4):1045-1060. doi:10.1177/002204260803800406

Arria AM, Geisner IM, Cimini MD, et al. Perceived academic benefit is associated with nonmedical prescription stimulant use among college students. *Addict Behav.* 2018;76:27-33. doi:10.1016/j.addbeh.2017.07.013

Chan E, Fogler JM, Hammerness PG. Treatment of Attention-Deficit/Hyperactivity Disorder in Adolescents: A Systematic Review. *JAMA.* 2016;315(18):1997-2008. doi:10.1001/jama.2016.5453

Fairman KA, Davis LE, Peckham AM, Sclar DA. Diagnoses of Cardiovascular Disease or Substance Addiction/Abuse in US Adults Treated for ADHD with Stimulants or Atomoxetine: Is Use Consistent with Product Labeling?. *Drugs Real World Outcomes.* 2018;5(1):69-79. doi:10.1007/s40801-017-0129-2

Hartman RL, Brown TL, Milavetz G, et al. Cannabis effects on driving lateral control with and without alcohol. *Drug Alcohol Depend.* 2015;154:25-37. doi:10.1016/j.drugalcdep.2015.06.015

Ilieva I, Boland J, Farah MJ. Objective and subjective cognitive enhancing effects of mixed amphetamine salts in healthy people. *Neuropharmacology.* 2013;64:496-505. doi:10.1016/j.neuropharm.2012.07.021

Kvålseth TO. Effects of marijuana on human reaction time and motor control. *Percept Mot Skills.* 1977;45(3 Pt 1):935-939. doi:10.2466/pms.1977.45.3.935

Lenné MG, Dietze PM, Triggs TJ, Walmsley S, Murphy B, Redman JR. The effects of cannabis and alcohol on simulated arterial driving: Influences of driving experience and task demand. *Accid Anal Prev.* 2010;42(3):859-866. doi:10.1016/j.aap.2009.04.021

Moran LV, Ongur D, Hsu J, Castro VM, Perlis RH, Schneeweiss S. Psychosis with Methylphenidate or Amphetamine in Patients with ADHD. *N Engl J Med.* 2019;380(12):1128-1138. doi:10.1056/NEJMoa1813751

Peterkin AL, Crone CC, Sheridan MJ, Wise TN. Cognitive performance enhancement: misuse or self-treatment?. *J Atten Disord.* 2011;15(4):263-268. doi:10.1177/1087054710365980

Course Topics:

The course Blackboard site is organized by course topic. PowerPoint slides with additional notes can be found in each course topic folder. Links to quizzes, readings, online discussions, and other relevant materials will also be found in these modules.

Exams:

There will be three in class exams that will be worth 100 points each. The exam format will be fill in the blank, short answer, and short essays. **The goal of the exams is to**

gauge your ability to integrate and explain concepts in a manner that goes beyond a simple repetition of facts and definitions. You will be required to answer all questions on the exam. You do not need to answer the short essay questions in strict essay format, and you may include diagrams, bullet points, etc. to clarify your answers. Your exams will be graded mainly on the content of your answers. Minor grammatical errors will not be penalized. However, grammatical errors that make your answers difficult to understand and/or spelling errors that change the meaning of the answer will result in point deductions. **See the weekly schedule for specific exam dates.**

Quizzes:

There will be 13 online quizzes based on the topics covered in the course. **The goal of these quizzes is to evaluate your basic understanding of the material.** These quizzes will consist of 10 multiple choice questions worth one point each, for a total of 10 points per quiz. **You will only have one attempt to submit the quiz.** Once you submit the quiz, you will no longer be able to revise your answers. You are free to use your notes, readings, and other supplemental materials to complete the quizzes. If a technical error occurs and your quiz is not submitted properly, please email me as soon as possible. **All quizzes will be due on a Friday by 11:59 PM** (see specific dates in the weekly course schedule).

Your score will be available upon submission of the quiz. Correct answers will be available for you to review after the due date for the quiz. See the video tutorial on Blackboard for instructions on how to review your quizzes.

Research Paper Assignments:

There will be two research paper assignments based on the required research articles and relevant course content. **The goal of this assignment is to assess your ability to understand current research in the field of psychopharmacology, and to integrate the course material when examining the real-world implications of this research.** Each assignment is worth 50 points. See the Research Paper Assignment Sheet for more details.

The general topics of these papers are:


- Non-medical Use of Stimulants
- Marijuana Use and Driving

Assignment sheets will be made available in the Research Paper Assignment folder in Blackboard as Word Documents. Assignments must be completed and uploaded to the same folder on Blackboard. **I will only accept assignments that are uploaded as Word Documents or PDF files. If you are using another program to write the paper (Pages, Google Docs, etc.), please export the file to a Word Document or PDF file (instructions for how to do so are posted in Blackboard).** Feedback will be provided within the paper and gradebook on using comments through Blackboard's grading tool. **All assignments will be due on a Friday by 11:59 PM** (see specific dates in the

weekly course schedule). **After the due date, 10 points will be deducted from the overall grade per calendar day that the assignment is turned in late.**

Online Video Discussions:

There will be three graded discussions during the semester, worth 10 points each, using Flip. Flip is a video discussion platform that can be accessed through their website (<https://info.flip.com/>), directly through the link in Blackboard, or by downloading the free app. If you are accessing Flip through the app, make sure you enter the correct join code or scan the correct QR code for your section.

Section	Join Code	QR Code
Section 01	782ca8cc	

The topics for these discussions are:

- Introductions
- What is a Drug?
- Psychiatric Medications

The goal of this assignment is to allow us to have more interactive discussions regarding contemporary topics in the field of psychopharmacology. For each topic, you will be required to record a post regarding the discussion topic that will be worth 10 points. These posts **will be due on a Friday by 11:59 PM** (see specific dates in the weekly course schedule). **After the due date, 2 points will be deducted from the overall grade per calendar day for late submissions.**

While you are not required to reply to other students' posts, you may earn 5 points towards the Class Participation portion of your grade (see below for more details) by leaving a **substantive video reply** to other students' posts. You may earn a maximum of 15 Class Participation points (three replies) for each discussion topic. Although you are free to post more than three replies, you will not receive additional Class Participation points for the additional replies. **Replies will be due on a Friday by 11:59 PM** (see specific dates in the weekly course schedule).

Discussion Boards:

I will set up a discussion forum regarding the material covered in each topic. While you are not required to post to the discussion board, you may earn points towards the Class

Participation portion of your grade (see below for more details) by posting **substantive questions** or leaving a **substantive reply** to other students' questions. In general, posts may address the following questions:

- What did you struggle with this in this topic?
- What questions do you have regarding the materials covered?

If you have a general question about the material, I would encourage you to post them to the discussion board rather than emailing me directly. This will allow others in the class to benefit from your question, and also allow you to earn participation points. Posting a substantive question regarding the material will be worth 2 points towards your Class Participation Grade. Posting a substantive reply to another student's question will be worth 5 points towards your Class Participation Grade. **In order to receive class participation credit, posts must be submitted on the on the due dates before the exam on which the topic is covered by 11:59 PM** (see specific dates in the weekly course schedule).

Class Participation:

50 points of your grade will be based on the completion of Class Participation activities. **Class Participation Points are a required part of your grade and NOT extra credit.** You may earn points towards your Class Participation Grade by replying to your classmates' Flip videos or participating the Discussion Boards (see above for more details). You may also earn Class Participation points by meeting with me during my regularly scheduled office hours or virtually outside of my office hours to discuss the course, neuroscience in general, academic or career advice, hockey, cycling (I'm only partially joking about those last two), or anything else you may want to chat about. Below is a summary of ways to earn points towards your class participation grade. You do not need to complete each activity, only enough activities to earn 50 points.

Activity	Points Value
Replying to Flip posts	5 points
Posting substantive questions to the discussion boards	2 points
Replying to questions posted to the discussion boards with a substantive answer	5 points
Meeting with me during office hours or a scheduled appointment	5 points

Some examples of how to earn full Class Participation Points:

- Reply to 3 Flip Introduction posts (15 points), reply to 3 Flip posts on Perception of E-Cigarettes (15 points), answer two Discussion Board questions (10 points), meet with me twice (10 points)

- Answer 10 Discussion Board questions (50 points)
- Ask 5 Discussion Board questions (10 points), reply to 3 Flip Introduction posts (15 points), reply to 2 Flip posts on What is a Drug? (10 points), answer two Discussion Board questions (10 points), meet with me once (5 points)

Course Grades:

Grades will be based on your performance on examinations, quizzes, short papers, discussion assignments, and in-class participation. **EXTRA CREDIT OPPORTUNITIES WILL NOT BE LIKELY.** Grades are calculated based on the following point values.

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Quizzes	130 points
Research Paper Assignments	100 points
Flip Discussions	30 points
Class Participation	50 points
Total Available Points	610 points

Letter grades will be assigned according to the following scale. Final grades are calculated as the percentage of points based on the of the total points available and are rounded to the nearest whole number.

A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	60-66%
F	≤ 59

Please consider this general description of what each grade means.

F/D/D+: Despite your best efforts, you are struggling with the material and need help to understand why you are having difficulty. **Please set up an appointment so that we can determine the best course of action for you if you fall in this range.**

C-/C/C+: You did all the necessary work. You learned all the basic material and **know the correct answers.**

B-/B/B+: You did all the necessary work. You learned all the basic material, and you know the correct answers. Plus you really get the material. You **understand the correct answers** and could teach it to a friend.

A-/A: You did all the necessary work. You learned all the basic material, and you know the correct answers. You really get the material. You understand the correct answers and could teach it to a friend. Plus you can use it flexibly and adaptively. You **understand WHY the answers are what they are, and how this material can be applied to different situations.**

Academic Integrity:

The principles of truth and honesty are recognized as fundamental to a community of teachers and scholars. The university expects that both faculty members and students will honor these principles and in so doing protect the validity of university grades. This means that **all academic work will be done by the student to whom it is assigned without unauthorized aid of any kind**. Compliance shall include compliance with the following specific rules:

1. No student shall knowingly, without authorization, procure, provide, or accept any materials which contain questions or answers to any examination or assignment.
2. No student shall, without authorization, complete, in part or in total, any examination or assignment for another person.
3. No student shall, without authorization, allow any examination or assignment to be completed, in part or in total, by another person.
4. No student shall knowingly plagiarize or copy the work of another person and submit it as their own.
5. No student shall submit work that has been previously graded or is being submitted concurrently to more than one course without authorization from the instructor(s) of the class(es) to which the student wishes to submit it.

Accommodation for disability:

If you are in need of accommodations due to a learning, physical, or other disability you must present a memo to me from Disability Support Resources (DSR), indicating the existence of a disability and the suggested reasonable accommodations. If you have not already done so, please contact the Disability Support Resources office (215 CON) by calling 331-2490 or email to dsrgvsu@gvsu.edu. Please note that I cannot provide accommodations based upon disability until I have received a copy of the DSR issued memo. All discussions will remain confidential.

Furthermore, if you have a physical disability and think you will need assistance evacuating this classroom and/or building in an emergency situation, please make me aware so I can develop a plan to assist you.

Weekly Course Schedule (Subject to change)

Week	Date	Readings	Assignments
Week 1	1/8	Required Readings: - Syllabus	Due Friday, 1/12 by 11:59 PM Required - Flip: Introductions
	1/9	Recommended Readings - Hancock & McKim: Chapter 4 Optional Readings - Neuroscience Online: Section 1, Chapter 1, 1.1-1.4 - Neuroscience Online: Section 1, Ch 6, 6.1, 6.2, 6.5, 6.6	Participation Credit - Neurons and Neurotransmission Discussion Board Posts
1/15 Martin Luther King Jr. Day Recess No Class			
Week 2	1/17	Recommended Readings - Hancock & McKim: Chapter 4 Optional Readings - Neuroscience Online: Section 1, Chapter 1, 1.1-1.4 - Neuroscience Online: Section 1, Ch 6, 6.1, 6.2, 6.5, 6.6	Due Friday, 1/19 by 11:59 PM Required - Neurons and Neurotransmission Quiz Participation Credit - Flip: Replies to Introductions
	Neurons and Neurotransmission continued		Participation Credit - Neurons and Neurotransmission Discussion Board Posts

Week	Date	Readings	Assignments
Week 3	1/22	<p>Required Video Lectures</p> <ul style="list-style-type: none"> - Cerebral Cortex - Lower Brain Regions <p>Recommended Readings</p> <ul style="list-style-type: none"> - Hancock & McKim: Chapter 4 <p>Optional Readings</p> <ul style="list-style-type: none"> - Neuroscience Online: Section 2, Chapter 1 	<p>Due Friday, 1/26 by 11:59 PM</p> <p>Required</p> <ul style="list-style-type: none"> - Neurotransmitter Systems and Neuroanatomy Quiz - Flip: What is a Drug?
	1/24	<p>Required Video Lectures</p> <ul style="list-style-type: none"> - Absorption - Efficacy and Potency - Agonists - Antagonists <p>Recommended Readings</p> <ul style="list-style-type: none"> - Hancock & McKim: Chapters 1, 2, 3 	<p>Participation Credit</p> <ul style="list-style-type: none"> - Neurons and Neurotransmission Discussion Board Posts - Neurotransmitter Systems and Neuroanatomy Discussion Board Posts - Basic Pharmacology Discussion Board Posts
Week 4	1/29, 1/31	<p>Required Video Lectures</p> <ul style="list-style-type: none"> - Absorption - Efficacy and Potency - Agonists - Antagonists <p>Recommended Readings</p> <ul style="list-style-type: none"> - Hancock & McKim: Chapters 1, 2, 3 	<p>Due Friday, 2/2 by 11:59 PM</p> <p>Participation Credit</p> <ul style="list-style-type: none"> - Flip: Replies to What is a Drug? <p>Participation Credit</p> <ul style="list-style-type: none"> - Neurons and Neurotransmission Discussion Board Posts - Neuroanatomy Discussion Board Posts - Basic Pharmacology Discussion Board Posts

Week	Date	Readings	Assignments
Week 5	2/5	Required Video Lectures <ul style="list-style-type: none"> - Absorption - Efficacy and Potency - Agonists - Antagonists Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapters 1, 2, 3 	Due Friday, 2/9 by 11:59 PM Required <ul style="list-style-type: none"> - Basic Pharmacology Quiz - Drug Addiction Quiz
	2/7	Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 5 	Due Sunday, 2/11 by 11:59 PM Participation Credit <ul style="list-style-type: none"> - Neurons and Neurotransmission Discussion Board Posts - Neuroanatomy Discussion Board Posts - Basic Pharmacology Discussion Board Posts - Drug Addiction Discussion Board Posts
Week 6	2/12 EXAM 1 - Neurons and Neurotransmission, Neurotransmitter Systems and Neuroanatomy, Basic Pharmacology, Drug Addiction		
	2/14	Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 6 	Participation Credit <ul style="list-style-type: none"> - Alcohol Discussion Board Posts
Week 7	2/19	Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 6 	Due Friday, 2/23 by 11:59 PM Required <ul style="list-style-type: none"> - Alcohol Quiz - Sedative Hypnotics Quiz
	2/21		Participation Credit <ul style="list-style-type: none"> - Alcohol Discussion Board Posts - Sedative Hypnotics Discussion Board Posts

Week	Date	Readings	Assignments
Week 8	2/26, 2/28 Psychostimulants	Required Video Lectures <ul style="list-style-type: none"> - Rate Dependency Hypothesis - Non-Medical Psychostimulant Use - Harmful Effects of Psychostimulants Required Reading <ul style="list-style-type: none"> - Cropsey et al, 2017 Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 10 	Participation Credit <ul style="list-style-type: none"> - Alcohol Discussion Board Posts - Sedative Hypnotics Discussion Board Posts - Psychostimulants Discussion Board Posts
Week 9	3/3-3/10 Spring Break No Classes		
Week 10	3/11 Psychostimulants continued	Required Video Lectures <ul style="list-style-type: none"> - Rate Dependency Hypothesis - Non-Medical Psychostimulant Use - Harmful Effects of Psychostimulants Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 10 	Due Friday, 3/15 by 11:59 PM Required <ul style="list-style-type: none"> - Non-medical Use of Stimulants Assignment - Psychostimulants Quiz - Nicotine Quiz
	3/13 Nicotine Exam 2 Review	Recommended Readings <ul style="list-style-type: none"> - Hancock & McKim: Chapter 8 	Due Sunday, 3/17 by 11:59 PM Participation Credit <ul style="list-style-type: none"> - Alcohol Discussion Board Posts - Sedative Hypnotics Discussion Board Posts - Psychostimulants Discussion Board Posts - Nicotine Discussion Board Posts

Week	Date	Readings	Assignments
Week 11	3/18 EXAM 2 - Sedative Hypnotics, Alcohol, Psychostimulants, Nicotine		
	3/20 Caffeine	Recommended Readings - Hancock & McKim: Chapter 9	Due Friday, 3/22 by 11:59 PM Required - Caffeine Quiz
			Participation Credit - Caffeine Discussion Board Posts
Week 12	3/25, 3/27 Opioids	Recommended Readings - Hancock & McKim: Chapter 11	Due Friday, 3/29 by 11:59 PM Required - Opioids Quiz
			Participation Credit - Caffeine Discussion Board Posts - Opioids Discussion Board Posts
Week 13	4/1, 4/3 Antipsychotics	Recommended Readings - Hancock & McKim: Chapter 12	Due Friday, 4/5 by 11:59 PM Required - Antipsychotics Quiz - Flip: Psychiatric Medications
			Participation Credit - Caffeine Discussion Board Posts - Opioids Discussion Board Posts - Antipsychotics Discussion Board Posts

Week	Date	Readings	Assignments
Week 14	4/8, 4/10	Recommended Readings - Hancock & McKim: Chapters 13 and 15	Due Friday, 4/12 by 11:59 PM Required - Antidepressants and Psychedelics Quiz Participation Credit - Flip: Replies to Psychiatric Medications
	Antidepressants and Psychedelics		Participation Credit - Caffeine Discussion Board Posts - Opioids Discussion Board Posts - Antipsychotics Discussion Board Posts - Antidepressants and Psychedelics Discussion Board Posts
Week 15	4/15, 4/17	Required Video Lectures - Cannabinoid Pharmacology - Behavioral Effects - Legalization Required Readings - Greene, 2018 Recommended Readings - Hancock & McKim: Chapter 14	Friday, 4/19 by 11:59 PM Required - Greene Assignment - Cannabinoids Quiz
	4/17 Exam 3 Review		Due Sunday, 4/21 by 11:59 PM Participation Credit - Caffeine Discussion Board Posts - Opioids Discussion Board Posts - Antipsychotics Discussion Board Posts - Antidepressants and Psychedelics Discussion Board Posts - Cannabinoids Discussion Board Posts

Week	Date	Readings	Assignments
Finals Week	Monday 4/22 12:00-1:50 PM	EXAM 3 - Caffeine, Opioids, Antipsychotics, Antidepressants and Psychedelics, Cannabinoids	