

PSYC 3199-11 Introduction to Psychopharmacology

Fall 2019

9:35-10:50 am, Tuesdays and Thursdays

Location: 1957 E, B16

INSTRUCTOR

Guangying Wu, PhD, assistant professor of psychology
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School of Medicine and Health Sciences, GW
Email: gwu2@gwu.edu

Office location and hours: Ross Hall 402B, 11:30 am -12:30 pm, Thursdays

* **Please email me at least 24 hours in advance, so that I can sign you in from the front desk.**

** **You will need to bring your GWID to access Ross Hall**

COURSE DESCRIPTION

This course examines the history, rationale, pharmacology, and mechanisms of drug actions in the treatment of disorders and diseases of the central nervous system (CNS). General strategies, techniques, and challenges of drug discovery will be also addressed. Specific drug classes to be considered include alcohol, nicotine, caffeine, antidepressants, antipsychotics, stimulants, and narcotics. These drugs will serve as probes to identify neural substrates of behavior.

COURSE PREREQUISITES: CHEM3165/3166, BISC 3261, BISC 2220, BISC 3320, BISC 2320, PSYC 2015, or BISC 2202

LEARNING OUTCOMES

As a result of completing this course, students will be able to:

- Understand the pharmacology and pharmacodynamics of major drug groups used in the treatment of CNS disorders
- Recognize the mechanisms of action of drugs under the context of nervous systems
- Understand the general strategies of drug discovery, including the drug development process from target identification to FDA approval and ongoing safety surveillance
- Demonstrate a comprehensive and comparative understanding of the mechanisms underlying the effects and side-effects of the major drug groups
- Access, critique, and assimilate evidence from scientific studies as it relates to translational neuroscience and the search for promising drug interventions.
- Demonstrate an ethical foundation and awareness of issues in the use of psychoactive agents in treatment.
- Articulate an understanding of factors related to substance abuse, treatment models, and prognostic indicators.

REQUIRED TEXTS & MATERIALS

Author	Title	Edition	
Meyer JS & Quenzer LF	Psychopharmacology: Drugs, the Brain, and Behavior	3rd Edition. (2018)	Sinauer Associates, Inc ISBN: 978-1605355559

Average minimum amount of independent, out-of-class, learning expected per week:

- In a 15-week semester, including exam week, students are expected to spend a minimum of 100 minutes of out-of-class work for every 50 minutes of direct instruction, for a minimum total of 2.5 hours a week. A 3-credit course (PSYC3xxx) includes 2.5 hours of direct instruction (lecture, presentations, and discussions) in class and a minimum of 5 hours of independent learning outside of classroom. Totally, 7.5 hours per week will be needed to accomplish our goals in PYSC3xxx.

ASSIGNMENTS

Research Article Reading

Current research articles in the field of psychopharmacology will be assigned for reading and discussing at different times during the semester (See the timeline below).

Term Paper Writing

At the end of the semester, you will be assigned to write a 10-page term paper (APA-style), on a single subject chosen from a list of topics covered in the class. The term paper should be written in the style of a review article that summarizes the current state of knowledge and research in the student's area of interest. It should be based on one of your presentations. Papers must be submitted electronically on Blackboard as Word documents by **December 14, 2018 (11:59 PM EST)**. It's highly suggested to submit your paper earlier (for example, if you feel interested in the first article, you can submit your written paper based on it even right after our first class presentation. It will prevent a late submission and reduce your overall burden in the last couple of weeks this semester.)

A Written Paper Guideline and Rubrics will be provided for your reference. 10% will be deducted from your grade for each calendar day that your term paper is submitted late.

EXAMS

Three exams (multiple-choice and a few short-answer questions) will be given throughout the semester. Exams will be designed to assess students' understanding of basic concepts of neuropharmacology presented in the class, and to ensure that students will be able to follow more specific topics covered in the second and third part of the course.

PRESENTATION:

Students will be expected to give one from a list of topics covered in the class. Each one of eight presentation/discussion sessions will have 5 presenters. Each student will be given 10 minutes to present followed by 5 min for questions and discussion. Presentations should focus on one to two recently published basic or clinical research articles in student's area of interest, and should include: introduction to the research area, discussion of methods, results and conclusions of each paper, as well as future directions. Students not presenting will be expected to read the papers before coming to the class and to participate in discussions following presentations. Throughout the course, students will also be expected to participate in class discussions that will follow the overview lectures given by the instructor.

GRADING (TOTAL: 100%)

- Exam 1: 20%
- Exam 2: 20%
- Exam 3: 20%
- Presentation: 20%
- Essay: 20%

Final grade point scale:

94 and more points = A	80-83 points = B-	67-69 points = D+
90-93 points = A-	77-79 points = C+	64-66 points = D
87-89 points = B+	74-76 points = C	60-63 points = D-
84-86 points = B	70-73 points = C-	59 and fewer points = F

In cases where the number of points falls in between letter grades, points will be rounded to the nearest whole number. Please do NOT compute your final grade based on a running percentage of individual components.

CLASS POLICIES

Attendance

Regular attendance is imperative in order to succeed in this class. Class discussion and participation are fundamental components of an effective learning environment. Thus, attendance is not only a course expectation but also a requirement. Because we will be covering course material in great depth and at a rapid pace, attending class will help to provide a more thorough understanding of important concepts. Attendance will be taken every class by recording your responses to i>clicker questions. If your i>clicker stops working for any reason, you are responsible for replacing your i>clicker before the next class. *You will also need to sign a sheet that my GTA will have, and indicate that your i>clicker is not working or you forgot to bring it to class. Otherwise, you will not receive credit for attending class or answering clicker questions; both will adversely affect your grade.*

Three absences (illness, vacation, religious holidays, etc.) are permitted. Use these personally determined absences wisely. After three absences, your final grade will be lowered by 5% for each additional absence. Exceptions to this rule will only be considered if documentation is provided of a prior academic or athletic university commitment, illness, or death in the family.

Use of laptops is NOT permitted in class. As a courtesy to the instructor and your fellow students, please **turn cell phones to silent and refrain from text messaging in the classroom.** Both are distracting and detract from the goal of establishing an effective learning environment.

COMPUTER ACCOUNTS

This class will use Blackboard and your GW email for all class announcements and submitting assignments. It is your responsibility to check Blackboard and your personal GW email frequently and timely for course announcements and class updates. Blackboard will also be used for submitting all assignments. If you have any questions or difficulties, please contact the IT Help Desk at 202-994-GWIT (4948) or by email at ithelp@gwu.edu. You are strongly encouraged to forward your GW email to the account you read most frequently.

UNIVERSITY POLICIES

University policy on observance of religious holidays

In accordance with University policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance. For details and policy, see: students.gwu.edu/accommodations-religious-holidays.

Academic integrity code

Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For details and complete code, see: studentconduct.gwu.edu/code-academic-integrity.

Safety and security

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM

Disability Support Services (DSS)

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information see: disabilitysupport.gwu.edu/

Mental Health Services 202-994-5300

The University's Mental Health Services offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations confidential assessment, counseling services (individual and small group), and referrals. For additional information see: counselingcenter.gwu.edu/

COURSE SCHEDULE

The course schedule is subject to change – any changes will be announced in class and communicated via email. Please read the assigned chapters from the textbook in advance of the day that it is to be covered so that you are better prepared to understand the material discussed in class and to answer iClicker questions accurately.

8/28	Basic principles of neuropharmacology/ pharmacokinetics and pharmacodynamics	Chapter 1
8/30	Chemical signaling in the central nervous system	Chapter 2
9/4	Molecular targets for drug action	Chapter 3
9/6	Neurotransmitter systems I (Amino acids or modified AAs)	Chapter 6-7
9/11	Neurotransmitter systems II (Catecholamines and Indolamines)	Chapter 5-7
9/13	Neurotransmitter systems III (Neuropeptides and Hormones)	Chapter 7
9/18	Drug abuse, dependence, and addiction	Chapter 8
9/20	Strategies and methods for drug discovery	Chapter 4
9/25	Clinical trials, R&D, and regulations	TBA
9/27	Exam 1	
10/2	Alcohol	Chapter 9
10/4	Presentation and Discussion: TBA	
10/9	Nicotine and Caffeine	Chapter 12
10/11	Presentation and Discussion: TBA	
10/16	Opiates	Chapter 10
10/18	Presentation and Discussion: TBA	
10/23	Stimulants	Chapter 11
10/25	Presentation and Discussion: TBA	
10/30	Exam 2	
11/1	Marijuana/Cannabinoids	Chapter 13
11/6	Presentation and Discussion: TBA	
11/8	Hallucinogens	Chapter 14
11/13	Presentation and Discussion: TBA	
11/15	Sex hormones and brain function	Chapter 15
11/20	Presentation and Discussion: Steiner M, Dunn E, Born L. (2003) Hormones and mood: from menarche to menopause and beyond. <i>J Affect Disord.</i> 74(1):67-83. Deecher D, Andree TH, Sloan D, Schechter LE. (2008) From menarche to menopause: exploring the underlying biology of depression in women experiencing hormonal changes. <i>Psychoneuroendocrinology.</i> 33(1):3-17.	

	Zitzmann M. (2006) Testosterone and the brain. <i>Aging Male</i> . 9(4):195-9. Hijazi RA, Cunningham GR. (2005) Andropause: is androgen replacement therapy indicated for the aging male? <i>Annu Rev Med</i> . 56:117-37.	
11/22	Affective disorders and Antidepressant	Chapter 16
11/27	Presentation and Discussion: Krishnan V, Nestler EJ (2008) The molecular neurobiology of depression. <i>Nature</i> 455:894-902. Thase ME, Denko T. (2008) Pharmacotherapy of mood disorders. <i>Annu Rev Clin Psychol</i> . 4:53-91.	
11/29	Schizophrenia and Antipsychotics	Chapter 18
12/4	Presentation and discussion: Ross CA, Margolis RL, Reading SA, Pletnikov M, Coyle JT (2006) Neurobiology of schizophrenia. <i>Neuron</i> . 52:139-53. Gray JA, Roth BL. (2007) The pipeline and future of drug development in schizophrenia. <i>Mol Psychiatry</i> . 12(10):904-22.	
12/6	Office hours for Papers and Exams	*voluntary
12/14	Written Paper Due	*11:59 pm
12/12- 12/20	Final Exam (Exam 3), TBA	