

PS 333 B1 - Drugs and Behavior

Time: Tues-Thurs 12:30-2:00, CAS 316 **Instructor:** Prof. Michael Hasselmo, <http://people.bu.edu/hasselmo/>
e-mail: hasselmo@bu.edu (e-mail is the best way to contact me) **Tel:** 353-1397 **Office hours:** Tues-Thurs 2-3 pm, Wed 10:30-11:30 am, Room 105E, 2 Cummington St. **Prerequisites:** PS 101 only, but Physiol. Psych is very helpful. **Text:** *A Primer of Drug Action (9th Edition)* by Robert M. Julien. Available at Barnes and Noble in Kenmore Square.
Grading: **TWO MID-TERM EXAMS** and a **FINAL EXAM** each worth 1/3 of grade. All are multiple-choice exams with questions based on lecture materials and reading. Exam scores will be posted on the PS333 B1 site on courseinfo.bu.edu. Missed exams require medical note for taking make-up exam near end of course (before final). Attendance is expected at all meetings of course. Students should know and understand the CAS Academic Conduct Code available in CAS Rm. 105.
Topic: Overview of the effect of drugs on neurophysiology and behavior. Students will learn the anatomical distribution of neurotransmitters and neuromodulators, physiological effects of drugs recorded in vivo and in vitro, behavioral evidence on the role of specific drugs, the diagnostic indications of specific mental and neurological diseases, and the generic and trade names of numerous drugs commonly used to treat specific individual disorders. Lecture notes are distributed via e-mail at regular intervals and before each exam.

Course outline:

Dates:	Topic:	Reading:
Sept. 4th	Introduction, course overview, sign in students from waiting list	
Sept. 9tu	Neuroanatomy and Neuron structure	Chapter 3
Sept. 11th	Neuron membrane potential (action potentials)	Chapter 3 and handouts
Sept. 16tu	Synaptic transmission (synaptic potentials)	handouts
Sept. 18th	Principles of drug action (delivery, lipid solubility)	Chapter 1
Sept. 23tu	drug-receptor interaction, metabolism and excretion	Chapter 2

I. AMINO ACID NEUROTRANSMITTERS		
Sept. 25th	Glutamate - AMPA and NMDA receptors	pp. 80-85 (in chapter 3)
Sept. 30tu	GABA – GABAA and GABAB receptors	pp. 42-45 (chapter 2)
Oct. 2th	Barbiturates and benzodiazepines	Chapter 5
Oct. 7tu	Anxiety disorders	Chapter 6, Chapter 19 (esp. pp. 561-568)
Oct. 9th	EXAM #1 (one hour -- all topics covered before this date)	
Oct. 14tu	<i>No class – Substitute Monday schedule of classes</i>	
Oct. 16th	Alcohol – and effects on GABAA receptor	Chapter 4

II. ACETYLCHOLINE.		
Oct. 21tu	Physiology and anatomy of acetylcholine, muscarinic drugs	pp. 70-74, pp. 330-334
Oct. 23th	ACh and memory, effects of nicotine and caffeine	Chapter 8

III. CATECHOLAMINES		
Oct. 28tu	Anatomy and physiology of catecholamines, Parkinson's disease	pp. 74-79, Chapter 18
Oct. 30th	Cocaine and amphetamines, ADHD and Ritalin	Chapter 7
Nov. 4tu	Schizophrenia – symptoms and treatment	Chapter 17, Chapter 19 (esp. pp. 558-561)
Nov. 6th	Neurochemical bases of schizophrenia	Chapter 17
	Typical and atypical antipsychotics	
Nov. 11tu	EXAM #2 (one hour – on topics covered since Exam #1)	
Nov. 13th	Marijuana	Chapter 11

IV. SEROTONIN		
Nov. 18tu	Anatomy and physiology of serotonin, Hallucinogens	pp. 78-80, Chapter 12
Nov. 20th	Affective disorders, MAOIs, tricyclic antidepressants	Chapter 15, and pp. 554-558
Nov. 25tu	Selective serotonin reuptake inhibitors	Chapter 15
Nov. 27th	<i>No class – Thanksgiving Holiday</i>	
Dec. 2 tu	Treatment of bipolar disorder: lithium	Chapter 16

V. NEUROACTIVE PEPTIDES		
Dec. 4th	Anatomy and physiology of neuropeptides.	Chapter 9, 14
Dec. 9tu	Hormones & reproduction, psychoneuroimmunology	Chapter 14
Dec. 11th	Opiate analgesia and addiction	Chapter 9.

Dec. 17wed	FINAL EXAM (one hour – on topics covered since Exam #2 – non-cumulative)	Wed. 3-5pm