

DRUGS AND THE BRAIN
PSYC62
(Fri 10 am-12 pm; Rm. HW-216)

Instructor: Prof Suzanne Erb
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Course description

Psychopharmacology is the study of the effects of drugs on behaviour, cognition, and emotion. There are many different classes of drugs that act within the central nervous system to alter behaviour, cognition and emotion. Some have been designed for the treatment of mental disorders such as schizophrenia and depression. Other drugs are known primarily for their social or recreational abuse potential. This course will provide an introduction to basic principles of psychopharmacology, with a specific focus on drugs of abuse.

A range of topics pertinent to the study of psychopharmacology will be covered, including behavioural pharmacology and pharmacokinetics, neurobiological mechanisms of drug action, tolerance and dependence, and classification of psychotropic drugs. In addition, several of the major classes of drugs of abuse will be studied and recent research on the behavioural and neurobiological effects of these drugs will be examined.

Textbook

David M. Grilly (2006) *Drugs and Human Behavior, Fifth Edition*. Boston, MA: Allyn & Bacon.

Course Website

Course-related information including lecture notes and assigned readings will be provided on the intranet.

Evaluation

Evaluation will be based on a midterm exam and final exam (each 50% of final grade). Both exams will consist of a combination of multiple choice and short answer questions. The mid-term exam will be based on lecture material and the assigned chapters from the textbook. The final exam will be based on material covered after the midterm, including lecture material and assigned readings.

Policy on make-up for mid-term

A make-up exam will be scheduled for Monday Feb 23 (11am-1pm) in Rm S-229. Students will be permitted to write the make-up *only* if they e-mail Prof Erb within 24 hours of the date of the original exam (i.e., Feb 13), and provide an appropriately dated medical note at the time of the make-up exam.

Assigned readings (see Schedule of Lectures)

Articles will be posted on the intranet in pdf format.

Ahmed, S., & Koob, G. (1998). Transition from moderate to excessive drug intake: change in hedonic set point. Science, 282, 298-300.

Brown, ZA, Tribe, E, D'Souza, N, Erb, S (2008) Interaction between noradrenaline and corticotropin releasing factor in the reinstatement of cocaine seeking in the rat. Psychopharmacology.

Epstein DH, Preston KL, Stewart J, Shaham Y (2006) Toward a model of drug relapse: an assessment of the validity of the reinstatement procedure. Psychopharmacology, 189: 1-16.

Grimm, JW, Hope, BT, Wise, RA, Shaham, Y (2001) Neuroadaptation. Incubation of cocaine craving after withdrawal. Nature, 412: 141-2.

Kupferschmidt, DA, Tribe, E, Erb, S (2008) Effects of repeated yohimbine on the extinction and reinstatement of cocaine seeking. Pharmacology, Biochemistry, and Behavior, e-pub ahead of print.

Siegel, S. (1976). Morphine analgesic tolerance: Its situation specificity supports a Pavlovian conditioning model. Science, 193, 323-325.

Siegel, S., Hinson, R. E., Krank, M. D., & McCully, J. (1982). Heroin "overdose" death: Contribution of drug-associated environmental cues. Science, 216, 436-437.

SCHEDULE OF LECTURES

DATE	TOPICS	READINGS
Jan 9	<ul style="list-style-type: none"> • Introduction to course • Principles of Pharmacology 	<ul style="list-style-type: none"> • Ch 2
Jan 16	<ul style="list-style-type: none"> • Principles of Pharmacology (cont.) • Pharmacokinetics 	<ul style="list-style-type: none"> • Ch 2 • Ch3
Jan 23	<ul style="list-style-type: none"> • Neuronal transmission and conduction • Neuroactive ligands 	<ul style="list-style-type: none"> • Ch 4 • Ch 5
Jan 30	<ul style="list-style-type: none"> • Tolerance and dependence 	<ul style="list-style-type: none"> • Ch 6
Feb 6	<ul style="list-style-type: none"> • Drug classification 	<ul style="list-style-type: none"> • Ch 7
Feb13	MIDTERM EXAM	<ul style="list-style-type: none"> • Ch 2-7
Feb 20	READING WEEK	
Feb 27	<ul style="list-style-type: none"> • Film: "Addiction" 	
Mar 6	<ul style="list-style-type: none"> • Psychostimulants • Opiates 	<ul style="list-style-type: none"> • Ch 9 • Ch 10
Mar 13	<ul style="list-style-type: none"> • Psychotomimetics, psychedelics, and hallucinogens 	<ul style="list-style-type: none"> • Ch 11
Mar 20 and 27	<p><u>Advanced topics in addiction research</u></p> <ul style="list-style-type: none"> • Relapse and reinstatement 	<ul style="list-style-type: none"> • Epstein et al, 2006 (Mar 20) • Kupferschmidt et al, 2008 (Mar 20) • Brown et al, 2008 (Mar 27) • Grimm et al, 2002 (Mar 27)
April 3	<p><u>Advanced topics in addiction research</u></p> <ul style="list-style-type: none"> • Allostasis and the cycle of addiction • Compensatory conditioning and opiate withdrawal 	<ul style="list-style-type: none"> • Ahmed & Koob, 1998 • Siegel, 1972 • Siegel et al, 1986