DRUGS AND THE BRAIN
PSYC62 2006 (Fri, 10 am-12 pm)

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*(*please see note about e-mail below)*

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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 (2002) *Drugs and Human Behavior, Fourth Edition.* Boston, MA: Allyn & Bacon.

Intranet

All students must obtain a UTSC e-mail account, if they do not already have one. This is required in order to access the course page through the intranet. The intranet will be used for posting of lecture notes, posting of grades, and all important class announcements. *Please get your e-mail accounts set up ASAP.* To set up your account, go to https://intranet.utsc.utoronto.ca/home.php?login=1 and click on the link "sign up for student account".

E-mail

If you wish to send me an e-mail message, please use the course e-mail address (psyc62@utsc.utoronto.ca). *I will not respond to e-mail sent to my personal account.*

Evaluation

Evaluation will be based on two term tests (20% each of final grade), a final exam (40% of final grade), and a group assignment (20%). The 45 min term tests will be written in class and consist of approximately 30 multiple choice questions. *There will be no make-ups for missed term tests. Given that a legitimate medical note is proffered for a missed test, the weight of that test (20%) will be carried over to the final exam.* The tests will be based on lecture material, textbook material that corresponds to topics covered in lecture, and assigned readings. The final exam will be cumulative and multiple choice in format. Information on the group assignment is provided in a separate handout.

Assigned readings (see Schedule of Lectures)

Articles are 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.

Deroche-Gamonet V, Belin D, Piazza PV. (2004) Evidence for addiction-like behavior in the rat. Science, 305:1014-7

De Vries, T.J., Shaham, Y., Homberg, J.R., Crombag, H., Schuurman, K., Dieben, J., Vanderschuren, L.J., Schoffelmeer, A.N. (2001) A cannabinoid mechanism in relapse to cocaine seeking. Nature Medicine, 7, 1099-1100.

De Vries TJ, Homberg JR, Binnekade R, Raaso H, Schoffelmeer AN. (2003) Cannabinoid modulation of the reinforcing and motivational properties of heroin and heroin-associated cues in rats. Psychopharmacology, 168, 164-169.

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 13	• Introduction to course • Principles of Pharmacology I: Defining drugs; drug-receptor interactions	• Ch 2
Jan 20	• Principles of Pharmacology II: Dose-response functions; drug-drug interactions • Pharmacokinetics I: Absorption; Routes of administration; Distribution; Metabolism	• Ch 2 • Ch3
Jan 27	• Neuronal transmission and conduction • Neuroactive ligands	• Ch 4 • Ch 5
Feb 3	• **TERM TEST 1** • Research tutorial	• Ch 2-5
Feb 10	• Research proposal tutorial A(*see below)	
Feb17	• Research proposal tutorial B(*see below)	
Feb 24	**NO CLASS – READING WEEK**	
Mar 3	• Tolerance and dependence … and sensitization	• Ch 6
Mar 10	• Drug classification • Psychostimulants	• Ch 7 • Ch 9
Mar 17	• Important topics in addiction research: Focus on *psychostimulants*	• Ahmed & Koob, 1998 • Deroche-Gamonet, 2004
Mar 24	• **TERM TEST 2**	• Ch 6, 7, 9 and readings

**Each group will be required to attend one of the two proposal tutorials (i.e., Feb 10 or 17); you will find out which tutorial you should attend in the first several weeks of class.*

Mar 31	• Opioids • Important topics in addiction research: Focus on *opioids*	• Ch. 10 • Siegel, 1976; Siegel et al, 1982
April 7	• Psychotomimetics, psychedelics, and hallucinogens • Important topics in addiction research: Focus on *cannabinoids*	• Ch 11 • De Vries et al, 2001; De Vries et al, 2003