

PSYC*3030, Course Outline: Fall 2015

General Information

Course Title: PSYC*3030 – Neurochemical Basis of Behaviour

Course Description: This course deals with the link between neurochemical systems and behaviour. The actions of neurotransmitters in the brain strongly influence all aspects of behaviour, from emotions and motivation to perception, learning, and memory. This course will help you to understand the role of these neurochemical systems in behaviour and the mechanisms through which psychoactive drugs influence these systems and affect psychological processes. Topics of discussion will include anatomical, biochemical and physiological aspects of neurotransmitter systems in the brain, current theories of function of these systems in behaviour, and actions of psychotropic drugs.

Credit Weight: 0.5

Academic Department (or campus): Psychology

Semester Offering: F15

Class Schedule and Location: Tuesdays and Thursdays, 2:30-3:50 PM; MCKN 116

Instructor Information

Instructor Name: Dr. Boyer Winters

Instructor Email: bwinters@uoguelph.ca

Office location and office hours: MCKN 3005; ext. 52163; Meeting by arrangement; e-mail at all times

GTA Information

GTA Name: TBA

GTA Email: TBA

GTA office location and office hours: TBA

Course Content

Specific Learning Outcomes:

By the end of this course, successful students should be able to:

1. Recall and describe various neurochemical mechanisms underlying nervous system function and its regulation of aspects of behaviour such as cognition, motor performance, and addiction.
2. Explain various pharmacological concepts germane to the properties of the nervous system and the effects of drugs on neurochemical and behavioural function (e.g., drug efficacy vs potency).
3. Explain and evaluate the relative strengths and weaknesses of various methods used in the field of neuropsychopharmacology to study the neurochemical basis of behaviour.
4. Explain and contrast specific cellular and behavioural effects of drugs and neurotransmitters acting at different receptors in the nervous system (e.g., ionotropic vs metabotropic receptors).
5. Describe the neurochemical bases of various neurodegenerative and neurological disorders and critically evaluate candidate treatment strategies based on pharmacological manipulations.

Lecture Content:

Schedule of topics and dates.

The following is an outline of how the course will proceed. However, if necessary, I reserve the right to progress more slowly than indicated.

<u>Schedule</u>	<u>Topic</u>	<u>Readings</u>
Sept 10	Lecture 1: Introduction	Ch 8 (1 st ed)/Ch 9 (2 nd ed) Ch 1
Sept 15	Lecture 2: Principles of Pharmacology	
Sept 17	Lecture 3: Principles of Pharmacology	Ch 1
Sept 22	Lecture 4: Cellular components of The Nervous System	Ch 2 Ch 3
Sept 24	Lecture 5: Synaptic Structure and Function	
Sept 29	Lecture 6: Synaptic Structure and Function	Ch 3
Oct 1	Lecture 7: Methods in Neuropsychopharmacology	Ch 4
Oct 6	Lecture 8: Methods in Neuropsychopharmacology/ <u>Neurotransmitter Systems - Acetylcholine</u>	Ch 4/6 (1 st ed)/7 (2 nd ed)

Oct 8	Lecture 9: Neurotransmitter Systems - Acetylcholine	Ch 6 (1 st ed)/7 (2 nd ed)
Oct 15	Lecture 10: Neurotransmitter Systems – Acetylcholine/Neurotransmitter Systems - Serotonin	Ch 6 (1 st ed)/7 (2 nd ed)
Oct 20	Mid-Term I [Lectures 1 to 10 (not including serotonin)]	
Oct 22	Class cancelled for SFN meeting	
Oct 27	Lecture 11: Neurotransmitter Systems - Serotonin	Ch 6
Oct 29	Lecture 12: Neurotransmitter Systems – Catecholamines/Neurotransmitter Systems - Dopamine	Ch 5
Nov 3	Lecture 13: Neurotransmitter Systems - Dopamine	Ch 5
Nov 5	Lecture 14: Neurotransmitter Systems - Norepinephrine	Ch 5
Nov 10	Lecture 15: Neurotransmitter systems – Norepinephrine/ <u>Amino Acid Neurotransmitters</u>	Ch 5/7 (1 st ed)/8 (2 nd ed)
Nov 12	Lecture 16: Amino Acid Neurotransmitters	Ch 7 (1 st ed)/8 (2 nd ed)
Nov 17	Lecture 17: Amino Acid Neurotransmitters/ <u>Major Drug Classes - Opiates</u>	Ch 7 (1 st ed)/8 (2 nd ed) / <u>10 (1st ed)/11(2nd ed)</u>
Nov 19	Lecture 18: Major Drug Classes - Opiates	Ch 10 (1 st ed)/11(2 nd ed)
Nov 24	Mid-Term II [Lectures 10 (serotonin only) to 17 (not including opiates)]	
Nov 26	Lecture 19: Major Drug Classes – Opiates/ <u>Major Drug Classes – Marijuana and Cannabinoids</u>	Ch 10 (1 st ed)/11(2 nd ed)/ <u>13 (1st ed)/14(2nd ed)</u>
Dec 1	Lecture 20: Major Drug Classes - Marijuana and Cannabinoids/ <u>Alcohol</u>	Ch 13 (1 st ed)/14(2 nd ed)/ <u>Ch 9 (1st ed)/10 (2nd ed)</u>
Dec 3	Lecture 21: Major Drug Classes - Alcohol	Ch 9 (1 st ed)/10 (2 nd ed)

Labs: N/A

Seminars: N/A

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Midterm #1	Oct 20, in class	25%	1-5
Midterm #2 (non-cumulative)	Nov 24, in class	25%	1-5
Final Exam (cumulative)	Dec 12, 2015	50%	1-5

Additional Notes: The written exams will be a mix of multiple choice and short answer questions.

Final examination date and time: December 12th 2015, 7:00-9:00 pm; location TBA

Final exam weighting: 50%

Course Resources

Required Texts: J.S. Meyer & L.F. Quenzer (2005). Psychopharmacology: drugs, the brain, and behavior. Massachusetts: Sinauer. ***1st or 2nd edition is acceptable.***

There are three copies of the textbook (1st edition) on reserve in the library.

Recommended Texts:

Lab Manual: N/A

Other Resources:

Web site: lecture notes will be available on line before each class. Just logon to Courselink using your U of G email username and password.

Field Trips: N/A

Additional Costs: N/A

Course Policies

Grading Policies

If you miss an exam, please inform me AS SOON AS POSSIBLE, so that a make-up can be arranged.

Course Policy on Group Work: N/A

Course Policy regarding use of electronic devices and recording of lectures:

Default text: Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

[Academic Misconduct Policy](#)

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: [Student Accessibility Services Website](#)

Course Evaluation Information

Please refer to the [Course and Instructor Evaluation Website](#) .

Drop date

The last date to drop one-semester courses, without academic penalty, is November 6th, 2015.

For regulations and procedures for Dropping Courses, see the Academic Calendar:

[Current Undergraduate Calendar](#)