

# Fall 2015 - PSYC\*2410 - Behavioural Neuroscience I

## Course outline

### Instructor: Dr. Elena Choleris

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Office Hours: Meeting by arrangement; e-mail at all times

Class Time: Tues and Thurs 4:00-5:20PM

Lecture Location: ALEX 200

### Teaching Assistants:

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**Objective:** Can the human brain ever fully understand itself? Psychology and Neuroscience involve the scientific study of behaviour and the nervous system, respectively. In this course, we will consider both of these pursuits from the integrative perspective of biopsychology, or behavioural neuroscience. The ultimate effect of nervous system function is to produce and control behaviour. This course deals with the link between psychological processes and the brain. As such, we will consider evolutionary, genetic, anatomical, pharmacological, synaptic, neurochemical, and developmental bases of aspects of human and animal behaviour, including the neurobiological mechanisms underlying memory and movement. Throughout, we will emphasize the behavioural relevance of the biological and physiological mechanisms under discussion.

**Specific Learning Outcomes:** By the end of this course, successful students should be able to:

1. Identify gross anatomical structures of the mammalian brain and describe their basic functions.
2. Recognize various genetic and pharmacological factors that influence brain function and behavior.
3. Critically evaluate various methods used to study the intersection between brain and behavior.
4. Apply the above concepts to understanding the neural bases and possible therapies for human brain disorders.
5. Recognize the major neurobiological features of the mammalian sensory and motor systems.

**Format:** lectures

**Required Text:** J. P. Pinel. Biopsychology. New York: Allyn and Bacon, 8<sup>th</sup> or 9<sup>th</sup> Edition.

There are several copies of the textbook on reserve in the library.

**Web site:** lecture notes will be available online before each class. Just logon to Course Link using your U of G email username and password.

## **Instructor – Student Communication**

You can email me at any time. I will set up an e-mail class list that I will use to communicate important information to you (e.g., exam marks). I will use your U of G email address as default.

## **General comments**

I appreciate that students in this course have varied backgrounds and that many of you may have encountered several of these topics in other courses. This is natural considering the integrative nature of the subject matter being covered in PSYC\*2410. The linking of biology to behaviour is what distinguishes PSYC\*2410 from other courses in which similar material may have been covered. This course covers a fast developing area of psychology where new and exciting discoveries are the rule rather than the exception. During the semester, we will address many issues that are of broad interest. For each topic, we will first cover some “biological” background; then we will introduce the behavioural relevance of the biological system. Considering material you may have encountered elsewhere from a different perspective can actually aid in your depth of understanding of that material. At the same time, you may notice a phenomenon that is common in fast developing areas like biopsychology: there exist different lines of thought among scientists, typically based on differential interpretations of the same scientific evidence. Experiencing and appreciating such cases will aid in the development of your own critical thinking. To this end, I also encourage open discussion in class. Please ask questions freely, remembering that your question will probably reflect what others are also wondering. I will be happy to provide further explanation or clarification.

I realize that some of the biological topics may be covered at a level that seems ‘basic’ to some of the science students in the class. However, it is my responsibility to ensure that all students, including BA students, are provided with the necessary foundations to follow and appreciate the course. Keep in mind that the defining feature of this course is the in-depth consideration given to the relationship between biological processes and BEHAVIOUR, something that few other courses emphasize.

I suggest that you read the chapters and lecture notes ahead of time, especially if you feel that your background in a particular area being covered is limited.

## **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.

Sept 8 <sup>th</sup>	Chpt 1.	Brief Orientation, questions and answers, introduction
Sept 15 <sup>th</sup>	Chpt 1/3.	Intro (cont’d)/Anatomy and Functions of the Central Nervous System
Sept 17 <sup>th</sup>	Chpt 3.	Anatomy and Functions of the Central Nervous System
Sept 22 <sup>nd</sup>	Chpt 3.	Anatomy and Functions of the Central Nervous System
Sept 24 <sup>th</sup>	Chpt 2.	Evolution
Sept 29 <sup>th</sup>	Chpt 2.	Genetics of Behaviour
Oct 1 <sup>st</sup>	Chpt 2.	Genetics of Behaviour
Oct 6 <sup>th</sup>	Chpt 4.	Excitable cell membranes
Oct 8 <sup>th</sup>	Chpt 4.	Neuronal action potentials
Oct 13 <sup>th</sup>		***Fall Break: No Classes***

Oct 15 <sup>th</sup>	Chpt 4.	Synapses and synaptic transmission
<b>Oct 20<sup>th</sup></b>		<b>&lt;First midterm exam&gt;</b>
Oct 22 <sup>nd</sup>	Chpt 4.	Neurotransmitters and Behavior
Oct 27 <sup>th</sup>	Chpt 4.	Neurotransmitters and Behavior
Oct 29 <sup>th</sup>	Chpt 4.	Neurotransmitters and Behavior
Nov 3 <sup>rd</sup>	Chpt 9.	Development of the central nervous system
Nov 5 <sup>th</sup>	Chpt 9.	Development of the central nervous system
Nov 10 <sup>th</sup>	Chpt 9.	Development of the central nervous system
<b>Nov 12<sup>th</sup></b>		<b>&lt;Second midterm exam&gt;</b>
Nov 17 <sup>th</sup>	Chpt 8	Motor system
Nov 19 <sup>th</sup>	Chpt 8.	Motor system
Nov 24 <sup>th</sup>	Chpt 11.	Learning, Memory and Amnesia
Nov 26 <sup>th</sup>	Chpt 11.	Learning, Memory and Amnesia
Dec 1 <sup>st</sup>	Chpt 11.	Learning, Memory and Amnesia
Dec 3 <sup>rd</sup>	Chpt 11.	Learning, Memory and Amnesia (make up class for Oct 13 break)

## Examinations

There will be three written exams; the time of the Final exam is set by the university.

1 <sup>st</sup> Midterm, worth 20 %	Oct 20 in class
2 <sup>nd</sup> Midterm (non-cumulative), worth 35 %	Nov 12 in class
Final Exam (cumulative), worth 45 %	December 12: 2:30 – 4:30 PM; Location TBA

The written exams may be:

- a mix of multiple choice questions and short answer questions
- entirely multiple choice

## 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](mailto: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 6<sup>th</sup>, 2015. For regulations and procedures for Dropping Courses, see the Academic Calendar:

[Current Undergraduate Calendar](#)