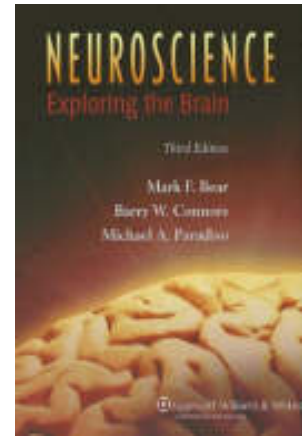


Neuroscience 1: Cell Anatomy and Physiology NROB60 Tentative Syllabus Fall 2009



- Professor: Dr. Janelle LeBoutillier
- Office: S557
- Office Hours: Mon and Thurs 2-3 pm.
- Phone: 287-7430
- E-mail: leboutillier@utsc.utoronto.ca
- Textbook: “Neuroscience: Exploring the Brain” 3rd revised edition by Bear, Connors and Paradiso. Note, in the past this text has been used for NROC61 and NROC64.
- New and used copies available in the bookstore.
- Lab Text: *On-line atlas; link available through the INTRANET*
Optional printed copies of the lab atlas will be available for sale at the first lab.
- Lectures: Lectures Wed 11-1 in SY110
- Labs: You are expected to attend your scheduled lab section each week. Any lab section changes must be made through ROSI not through your TA.

Course Description:

Neuroscience is the scientific study of nervous systems. It includes the study of the nature and functioning of the nervous system at all levels, from the molecules that make up individual nerve cells and the transfer of information from one nerve cell to another, to the complexities of how thoughts, emotions and behaviours are produced.

Neuroscience is at the interface between biology and psychology. It is unique in that it makes use of a variety of methods and investigations from a wide range of traditional disciplines. To understand the nervous system and how it works requires knowledge of anatomy, molecular biology, biochemistry, pathology, physiology, pharmacology, psychology and zoology.

The lecture part of this course deals with the anatomy of the NS. In this component you will learn about the anatomy of the brain, as well as the structure and function of the cells of the nervous system. You will also develop an understanding of how neurons communicate with a focus on their physiological properties. We will examine specific brain regions which you will identify in the lab component of this course and discuss their functions and connections.

Weekly lab sessions will cover gross and systems anatomy of the nervous system. Students will dissect sheep brains and will examine a wide variety of nervous system structures in 3-D. Basic dissecting equipment will be provided but if you plan to continue in other science labs you may wish to purchase a dissecting kit. Lab coats are required to be worn at all times when in the lab and safety glasses are also required for the dissections. Disposable gloves will be provided in the labs at cost. Proper safety procedures, as discussed at the first lab must be followed at all times. **Non-compliance will result in a zero for the lab component of the course**

Altogether, this course lays the framework for understanding subsequent neuroscience courses. We will begin to understand how the activity of even small groups of neurons can lead to the activity of circuits specialized for all of our sensations, movements, specific goal directed behaviours, emotions, and ultimately, we hope, cognition

Grading

30% Midterm Exam: 2 hours.
Week of Oct 20 requested. Exact date TBA by the Registrar.
[Lectures & text chapters 1,2,3,7]

40% Final Exam: 2 hours.
During Final Exam Period TBA by Registrar
[All content from the mid-term.]

Note: Lecture tests may include the following testing format: Multiple choice, short answer, labelling, matching.

30% Lab component (see lab syllabus for specific breakdown)

Missed Tests and Quizzes are discussed at the end of the syllabus

Tentative Course Syllabus

You will find below lecture and lab syllabi for this course. These will be discussed in detail at the first class meeting. The topics highlighted in yellow will be included on your first mid-term. Unless other wise noted during lectures you are responsible for all content in the assigned text readings.

	Date	Topic	Chapter
1	Sept 16	Course Introduction Neuroscience: Past, Present and Future	1
2	Sept 23	Structure of the Nervous System <ul style="list-style-type: none"> • Gross Organization • Anatomical References • CNS • PNS • Video 	7
3	Sept 30	Development of the Nervous System <ul style="list-style-type: none"> • Meninges • BBB • Ventricular system • Cranial nerves 	7
4	Oct 7	Cortical Function Brain Cells <ul style="list-style-type: none"> • The prototypical neuron • Glia 	7, 2
5	Oct 14	Resting Membrane Potential Action Potential	3,4
6	Oct 21	No new lecture material, midterm requested	
7	Oct 28	Principals of Synaptic Integration Principals of Chemical Synaptic Transmission	5
8	Nov 4	Neurotransmitters <ul style="list-style-type: none"> • Cholinergic neurons • Catecholamine neurons • Dopaminergic neurons 	6
9	Nov 11	Hippocampus	7
10	Nov 18	Cerebellum	7
11	Nov 25	Basal Ganglia	7
12	Dec 2	Tying it all together Final Review	

Tentative Lab Syllabus

Fall 2009

This lab schedule will be discussed in the first week of labs. Any changes in your assigned lab section may only be made through ROSI. Colour printed copies of the atlas will be available for purchase at cost (the fall 2008 edition of the atlas is required). All students will utilize the on-line sheep atlas posted to the Intranet. Details and a demonstration regarding the use of this atlas will be presented in your first lab. Students are required to wear a lab coat at all times while in S242 and to follow all lab rules and regulations which will be discussed at your first lab. Failure to follow these safety rules will result in a zero for your lab grade.

Grading Scheme for Labs:

Total Lab Mark = 30% of your final grade in this course

Quizzes = 15% (5 * 3% = 15%)

Bell ringer test = 15%

Quizzes

A total of 6 quizzes will be given during your labs with only your best 5 counting towards your final mark. No make-up quizzes will be given and you may only write the quiz in your assigned lab period. If you are satisfied with your first 5 quiz results you are not required to complete the 6th quiz. Each quiz will consist of 9 points. You will be required to give the name of the structure or the function of a structure/brain region as indicated.

During the first lab your TA will give a demonstration of the quiz format. Three dissection trays will be set up with 3 pins in each tray. You will be given 1 minute to answer all questions at one tray. Each quiz will be valued at 3% of your final grade in the course. Quizzes will be conducted at the start of the lab. All students are expected to be at their lab no later than 10 minutes after the hour. If you do not write a quiz, or are late for a quiz, a grade of zero will be assigned. All grades will be posted to the Intranet.

Bell-ringer Component

The bell-ringer test component will take place in Week 10 of the term during your scheduled lab period. Each student will complete approximately 30 bellringer stations with one or two pins per station. The format of the test will be similar to the quizzes.

Lab Outline Summary:

DATE	TOPIC	PHOTO SERIES	LAB QUIZ
Week 1: Tues Sept 15	No Labs		No quiz
Week 2: Tues Sept 22	Introductory Lab 1. Lab rules 2. Basic Terminology 3. Accessing the on-line atlas 4. Demo of lab quiz format 5. Gross Anatomy 6. Removal of Meninges 7. Major sulci and gyri	1	No quiz
Week 3: Tues Sept 29	1. Ventral surface structures 2. Cranial nerves and functions	1 and 2	Practice Quiz
Week 4: Tues Oct 6	1. Mid-sagittal sectioning 2. Identification of mid-sagittal structures	3	#1 (series 1 and 2)
Week 5: Tues Oct 13	1. Dorsal and lateral dissections 2. Hippocampal dissection	4	#2 (series 1,2 3)
Week 6: Tues Oct 20	Identification of Horizontal structures	5	#3 (series 1,2,3,4)
Week 7: Tues Oct 27	1. Rostral coronal sections 2. Caudal coronal sections.	6	#4 (series 1,2,3,4,5)
Week 8: Tues Nov 3	1. Cerebellar coronal sections	6	#5 (everything covered through week 7)
Week 9: Tues Nov 10	1. Lab review 2. Demo of final bell ringer format	all	#6 (all series)
Week 10: Tues Nov 17	Lab Test in scheduled lab period	all	
Week 11: Tues Nov 24	No labs		
Week 12: Tues Dec 1	1. Pick-up Lab Test 2. Confirm final lab grade		

Missed Lecture Test

Makeup tests will not be scheduled in this course. If you miss the midterm test you will be permitted to write a final cumulative exam on all course content valued at 70% of your final grade provided you meet the following criteria.

1. Notify me by email ASAP following the missed test. Provide a brief explanation of the reason why you missed the test.
2. Deliver a medical note from a physician to me within 2 weeks of the test. Please use only the official medical note available for download at www.utsc.utoronto.ca/~registrar/. No other medical notes will be accepted. In the event that you are not able to obtain a medical note you should contact me by email within 2 weeks of the test for further instructions.

Missed Lab Quiz

Makeup quizzes are not scheduled in the lab. Six quizzes will be given and only your best 5 quizzes will count. You are not required to write all 6 quizzes but are encouraged to try each quiz. Remember, practice makes perfect!

Missed Lab Bell Ringer

Missed bell-ringer tests will only be conducted with the proper medical documentation and notification of the missed test to your TA within one week. The only medical form that will be accepted is the UTSC medical form available through the registrar's site. Failure to meet these requirements will result in a grade of zero for the bell ringer. Make-up tests may not follow the same format.

General Information which you should be aware of:

The University of Toronto is dedicated to fostering an academic community in which the learning and scholarship of every member may flourish, with vigilant protection for individual human rights, and a resolute commitment to the principles of equal opportunity, equity and justice.

ACCESSABILITY STATEMENT

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

ACADEMIC INTEGRITY STATEMENT

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

IN PAPERS AND ASSIGNMENTS: Using someone else's ideas or words without appropriate acknowledgement. Submitting your own work in more than one course without the permission of the instructor. Making up sources or facts. Obtaining or providing unauthorized assistance on any assignment.

ON TESTS AND EXAMS: Using or possessing unauthorized aids. Looking at someone else's answers during an exam or test. Misrepresenting your identity.

IN ACADEMIC WORK: Falsifying institutional documents or grades. Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes. All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see http://www.utoronto.ca/academicintegrity/resourcesfor_students.html).

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H1N1 STATEMENT

Students are advised to consult the university's preparedness site (<http://www.preparedness.utoronto.ca>) for information and regular updates regarding procedures relating to H1N1 planning and individual student responsibilities.