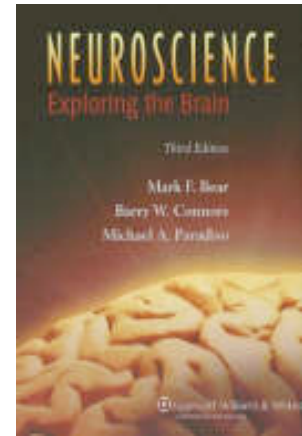


# Neuroanatomy Lab

## NROB60

### Tentative Syllabus Fall 2011



Professor: Dr. Janelle LeBoutillier

Office: S557

Office Hours: Tues 1:30 to 3 pm

Phone: 287-7430

E-mail: leboutillier@utsc.utoronto.ca

Textbook: "Neuroscience: Exploring the Brain" 3<sup>rd</sup> revised edition by Bear, Connors and Paradiso. **Note:** In the past this text has been used for NROC61 and NROC64.

New and used copies are 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 in the bookstore when term starts.

Lectures: Wed 11-1 in room SW 309

Labs: You are expected to attend your scheduled lab section each week.  
Any lab section changes must be made through ROSI.

### Course Description:

Neuroscience is the scientific study of nervous systems. It is 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 to 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. Proper safety procedures, as discussed at the first lab must be followed at all times. **Non-compliance will result in a grade of 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

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## ***Grading***

20% Midterm Exam: 2 hours.  
Week of Oct 17 requested. Exact date TBA by the Registrar.  
[Lectures & text chapters 1, 2, 3 and content covered to date in lectures from Chapt 7 and the Appendix]

35% Final Exam: 2 hours.  
During Final Exam Period TBA by Registrar  
[Lectures & text chapters 4, 5, 6 and all content from Chapt 7 and the Appendix]

**Note:** Lecture tests may include the following testing format: multiple choice questions, short answers, labelling, and matching.

45% Lab Component Lab Quiz valued at 15%  
Final lab test valued at 30%

## 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. You are responsible for all content in the assigned text readings, unless otherwise noted during lectures.

Week	Date	Topic	Chapter
1	Sept 14	Course Introduction Neuroscience: Past, Present and Future	1
2	Sept 21	Structure of the Nervous System <ul style="list-style-type: none"> <li>• Gross Organization</li> <li>• Anatomical References</li> <li>• CNS</li> <li>• PNS</li> <li>• Video</li> </ul>	7 and Appendix
3	Sept 28	Development of the Nervous System <ul style="list-style-type: none"> <li>• Meninges</li> <li>• BBB</li> <li>• Ventricular system</li> <li>• Cranial nerves</li> </ul>	7 and Appendix
4	Oct 5	Cortical Function Brain Cells <ul style="list-style-type: none"> <li>• The prototypical neuron</li> <li>• Glia</li> </ul>	7 and Appendix, 2
5	Oct 12	Resting Membrane Potential Action Potential	3,4
6	Oct 19	Lab quiz during lecture Lecture Test requested for this week	
7	Oct 26	Principals of Synaptic Integration Principals of Chemical Synaptic Transmission	5
8	Nov 2	Neurotransmitters <ul style="list-style-type: none"> <li>• Cholinergic neurons</li> <li>• Catecholamine neurons</li> <li>• Dopaminergic neurons</li> </ul>	6
9	Nov 9	Hippocampus	7 and Appendix
10	Nov 16	Cerebellum	7 and Appendix
11	Nov 23	Basal Ganglia	7 and Appendix
12	Nov 30	Tying it all together Final Review	

## **Tentative Lab Syllabus**

**Fall 2011**

The 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 through the bookstore (the summer 2010 edition of the atlas is required). All students will be able to utilize the on-line sheep atlas posted on 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** - 45% of your final grade in this course

Lab Quiz - 15%

Final Lab test - 30 %

### **Lab Quiz and Test Format**

Your TA will give a demonstration of the quiz format during the first lab. 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. The Lab Quiz will be held during the lecture on Wed Oct 19 and will cover all content highlighted in yellow on the lab schedule. The lab quiz will consist of approximately 10 dissecting trays with 3 pins each. The final bell ringer test will consist of approximately 20 trays with 3 pins each and will be cumulative on all lab content.

Cell phones and computers will not be permitted in the room during the lab tests. Please do not bring these to the lecture room on the day of the quiz or to the assigned room on the day of the final lab test. All you will need to complete your lab test is a pen and your lab coat.

**Lab Outline Summary:**

<b>DATE</b>	<b>TOPIC</b>	<b>PHOTO SERIES</b>
Week 1: Tues Sept 13	No labs	
Week 2: Tues Sept 20	Introductory Lab 1. Lab rules 2. Basic Terminology 3. Accessing the on-line atlas 4. Demo of lab test format 5. Gross Anatomy 6. Removal of Meninges 7. Major sulci and gyri	1
Week 3: Tues Sept 27	1. Ventral surface structures 2. Cranial nerves and functions	1 and 2
Week 4: Tues Oct 4	1. Mid-sagittal sectioning 2. Identification of mid-sagittal structures	3
Week 5: Tues Oct 11	1. Dorsal and lateral dissections 2. Hippocampal dissection	4
Week 6: Tues Oct 18	1. Identification of Horizontal structures One Hour Labs this Week	5
<b>Wed Oct 19</b>	<b>LAB QUIZ 11-1</b>	
Week 7: Tues Oct 25	1. Horizontal structures con't 2. Rostral coronal sections	6
Week 8: Tues Nov 1	1. Caudal coronal sections 2. Cerebellar coronal sections	6
Week 9: Tues Nov 8	1. Lab review and wrap-up	all
Week 10: Tues Nov 15	Lab Test only Date/time to be assigned by instructor	all
Week 11: Tues Nov 22	No labs	
Week 12: Tues Nov 29	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 55% 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/](http://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**

No make-up quizzes will be conducted in the course. If you miss the quiz, complete the proper medical documentation as indicated above and notify your TA within one week. Your final lab test will be valued at 45%.

### **Missed Final Lab Test**

Missed final lab tests will only be conducted with the proper medical documentation and notification of the missed test to your TA within one week. Please complete 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. The date and time of the make-up test will be posted on the intranet.

### **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. 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](mailto: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/resourcesforstudents.html>).