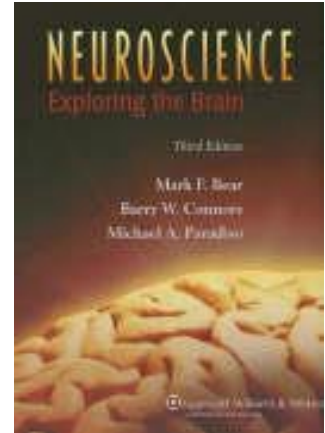


Neuroanatomy Lab (NROB60)

Tentative Syllabus, Fall 2014



Professor: Dr. Janelle LeBoutillier

Office: SW557

Office Hours: After lectures on Wed 1-2 pm

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Textbook: “Neuroscience: Exploring the Brain” 3rd revised edition by Bear, Connors and Paradiso (new and used copies available at the UTSC bookstore)

This text has been previously used for NROC61 & NROC64

Lab Text: Sheep Brain Atlas: A Photographic Guide, Fall 2014 Edition
(available at the UTSC bookstore)

Lectures: 11-1 SW 309

Labs: You are expected to attend your scheduled lab section each week.
Any lab section changes must be made through ROSI.
Labs start Sept 4.

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.

Learning neuroanatomy is like learning both a new language and a map of a new world, so be patient, practice the nomenclature, and your hard work will be rewarded. 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

GRADING SCHEME:

Lecture Component – total 55%

Midterm Exam 20%

- Held during lecture period on Oct 22 (tentative)
- Tests lecture material and textbook chapters 1, 2, 3, plus the content of Chapt 7 + Appendix that has been covered in lecture

Final Exam 35%

- Held during final exam period (2 hours); date TBA by Registrars Office
- Tests lecture material covered since the midterm, and textbook chapters 4, 5, 6, plus ***all of the content*** of Chapt 7 + Appendix

Lecture tests may include multiple choice, short answer, diagrams/labelling, and matching questions

Lab Component – total 45%

Midterm Bellringer Test	15%
Final Bellringer Test	30%
Bonus Dissection Protocol Quizzes	up to 5%

LECTURE SCHEDULE:

The topics highlighted in yellow will be included on your first lecture midterm exam. You are responsible for all content in the assigned text readings, unless otherwise noted during lectures.

Week	Date	Topic	Chapter
1	Sept 3	Course Introduction Neuroscience: Past, Present and Future	1
2	Sept 10	Structure of the Nervous System <ul style="list-style-type: none"> Gross Organization Anatomical References CNS PNS Video 	7 and Appendix
3	Sept 17	Development of the Nervous System <ul style="list-style-type: none"> Meninges BBB Ventricular system Cranial nerves 	7 and Appendix
4	Sept 24	Cortical Function Brain Cells <ul style="list-style-type: none"> The prototypical neuron Glia 	7 and Appendix, 2
5	Oct 1	Resting Membrane Potential Action Potential	3,4
6	Oct 8	Mid Term Bell Ringer Test	
	Oct 15	Reading Week Oct 14-17	
7	Oct 22	Tentative Lecture Test	
8	Oct 29	Principals of Synaptic Integration Principals of Chemical Synaptic Transmission Neurotransmitters <ul style="list-style-type: none"> Cholinergic neurons Catecholamine neurons Dopaminergic neurons 	5
9	Nov 5	Neurotransmitters <ul style="list-style-type: none"> Cholinergic neurons Catecholamine neurons Dopaminergic neurons 	6
10	Nov 12	Hippocampus	7 and Appendix
11	Nov 19	Cerebellum Basal Ganglia	7 and Appendix
12	Nov 26	Tying it all together	

LABORATORY COMPONENT:

The lab schedule will be discussed in the first week of labs which start Sept 4. Any changes in your assigned lab section may only be made through ROSI.

Colour printed copies of the *Sheep Brain Atlas: A Photographic Guide* will be available for purchase through the bookstore (the Fall 2014 edition of the atlas is required). All students will be able to utilize the online sheep atlas and dissection videos posted on BlackBoard. Details and a demonstration regarding the use of this atlas will be presented in your first lab.

During the lab students are required to wear a lab coat at all times, wear closed toed shoes 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.

Bellringer Test Format

Your TA will give a demonstration of the bellringer format during the first lab. In brief, specimen samples will be set up in dissection trays with a total of 3 neuroanatomical structures pinned per tray. You will be given 1 minute to identify all 3 pins at each tray. Practice bellringers will be set up during most labs.

The Midterm bellringer will be held during the lecture on Wed Oct 8. Monitor Blackboard regularly for announcements.

- The midterm bellringer will cover all content highlighted in yellow on the lab schedule and will consist of approximately 10 dissecting trays with 3 pins each.
- The final bellringer test will consist of approximately 20 trays with 3 pins each and will be **cumulative on all lab content (Photoseries 1-6)**.

Cell phones and computers will not be permitted in the room during the bellringer tests, so please do not bring them on test days. All you will need to complete your lab test is a pen and your lab coat.

Bonus Dissection Protocol Quizzes

Dissection protocol quizzes will be given at the start of labs, with a total of 5 administered over the term. These will be based on the *Dissection Protocols* located at the beginning of each Photoseries in your Sheep brain Atlas, and the accompanying *Dissection Videos*. The purpose of these quizzes is to ensure you are prepared for the lab that week. There will be no lab quiz during the first lab. If you arrive late to the lab you will not be permitted to write the quiz.

LAB SCHEDULE:

The content highlighted in yellow will be included on your midterm bellringer lab test. The final bellringer test is cumulative, testing the content of Photoseries 1-6. You are responsible for knowing all neuroanatomical structures as presented in the Sheep Brain Atlas: A Photographic Guide, Fall 2014 edition.

DATE	TOPIC	PHOTO SERIES
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Week 1: Sept 4	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 2: Sept 11	1. Ventral surface structures 2. Cranial nerves and functions	1 and 2
Week 3: Sept 18	1. Mid-sagittal sectioning 2. Identification of mid-sagittal structures	3
Week 4: Sept 25	1. Dorsal and lateral dissections 2. Hippocampal dissection	4
Week 5: Oct 2	Review and Practice Quiz	1,2,3,4
Week 6 Oct 8	Lab Test During Lecture Details posted to BB	
Oct 16/17	Reading Week, No Labs	
Week 7: Oct 23	1. Identification of Horizontal structures Lab Quiz Returned	5
Week 8: Oct 30	1. Rostral coronal sections 2. Caudal coronal sections	6
Week 9: Nov 6	1. Cerebellar coronal sections 2. Practice Quiz	all
Week 10: Nov 13	Lab Test Requested Time TBA	all
Week 11: Nov 20	No Labs	
Week 12: Nov 27	1. Pick-up Lab Test 2. Confirm final lab grade 3. Office hours for final lecture exam	

MISSED TEST PROCEDURES:

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.utsct.utoronto.ca/~registrar/. No other medical notes will be accepted.

Missed Midterm Bellringer Lab Test

No make-up tests will be conducted in the course. If you miss this test, 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 Bellringer Lab Test

Missed final lab tests will only be conducted with the proper medical documentation and notification of the missed test to me within one week. Please complete the UTSC medical form available through the registrar's site and present this to me at the make-up bell ringer test. 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 to BB.

Missed Bonus Dissection Protocol Quizzes

There are no make-up quizzes. If you miss a quiz for any reason or arrive late to the lab a mark of zero will be assigned. The goal of these quizzes is to encourage you to be prepared for the weekly lab. You may only write the quiz in your assigned lab. All quizzes will be given at the start of the lab. You may receive up to a maximum of 5 points for your performance on these quizzes.

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.

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>).

Please note: The University of Toronto's Code of Behaviour on Academic Matters applies to all University of Toronto Scarborough students. The Code prohibits all forms of academic dishonesty including, but not limited to, cheating, plagiarism, and the use of unauthorized aids. Students violating the Code may be subject to penalties up to and including suspension or expulsion from the University.