

# Neuroscience Principles and Methods 2007.03

## 2009 Course Outline

### Instructors:

Kevin Duffy, Ph.D.  
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Office 2338  
Department of Psychology  
Office hours: Wednesday 10:00-12:00

Simon Gadbois, Ph.D.  
E-mail: simon.gadbois@dal.ca  
Office 3326  
Department of Psychology  
Office hours: Monday, 14:00-16:00

### Lectures:

Tuesdays and Thursdays  
10:00am – 11:30am  
McCain Building Auditorium 1

### Labs:

Section B01 - Tuesdays at 2:30pm-4:00pm  
Section B02 - Tuesdays at 4:00pm-5:30pm  
Section B03 - Thursdays at 2:30pm-4:00pm  
Section B04 - Thursdays at 4:00pm-5:30pm  
\* All labs in room 5208 LSC-Psychology

### Leader:

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### Office hours:

Wed. 12:30-2:30  
Wed. 4:00-6:00  
Tues. 12:00-2:00  
Mon. 11:30-1:30

\* All office hours in room 5257 LSC-Psychology

This course will provide an understanding of principal concepts in research design and analysis. It will afford a conceptual and practical appreciation of modern and traditional neuroscience techniques, including both strengths and limitations. The course will provide an innovative and engaging laboratory environment for supervised experiments where you will implement in the lab what is encountered first in lectures.

Required text: Bordens, K. S. & Abbott, B. B. (2008). Research Design and Methods: A Process Approach; 7th edition. Boston: McGraw Hill.

Tentative Schedule: You are required to participate in all four labs offered by this course. Labs 1 to 3 will take place in LSC 5208 with background lectures every Friday in Computer Science 127. Lab #4 takes place in Computer Science 127 only.

Lab#1 – Psychophysics – This lab will introduce key research concepts in psychophysics, which will come from lectures and from an experiment on colour aftereffects. Each student is required to complete a full-length laboratory report on this experiment, the details of which will be described in class. Report due October 19, 2009.

Lab #2 – Physiology – This lab will present the fundamentals of neurophysiological research methods. You will use a computer simulation program, MetaNeuron, to recapitulate seminal experiments in neurophysiology. A brief report on this exercise is due October 30, 2009.

Lab #3 – Anatomy – Principles of neuroanatomy will be presented in the context of traditional and contemporary research methods. The lab component of this section will require you to characterize several anatomical features of the brain. A full-length lab report is due November 30, 2007.

Lab #4 – Behavioural Neuroscience - This series of lectures focuses on behavioural measures in behavioural neuroscience. Students will be taught the basics of observational methods relevant to behavioural pharmacology, endocrinology, toxicology, etc. The theoretical emphasis will be on the interface between behaviour and neurobiology and how behavioural measures of innate or acquired behaviours can inform us about the state and organization of the nervous system and endocrine system.

Evaluations: All tests are multiple-choice questions. Test content is not cumulative from test to test. Note that you will be tested on 1) Material from the book, 2) Material from the lecture notes, 3) Material presented in class not included in the book or the lecture notes.

Evaluation	Date	% of final grade
Test 1	October 29	25%
Test 2 (final)	Announced by Registrar	30%
Lab 1: Psychophysics lab	October 19	20%
Lab 2: Physiology lab	November 2	5%
Lab 3: Anatomy lab	December 7	20%

Grades for the lab section: There will be two full lab reports (Labs #1 and #3) and one brief report (Labs #2), details of which will be presented in class.

Grading Scheme: The letter grade equivalents of numerical grades are shown below (from the Faculty of Science). Grades below 50% are given an F. Grades are not negotiable.

A+	90-100	B+	75-79.9	C+	62-64.9	D	50-54.9
A	85-89.9	B	70-74.9	C	58-61.9	F	below 50
A-	80-84.9	B-	65-69.9	C-	55-57.9		

Missed tests or labs: If you miss a test or a lab, you must give a valid excuse (a medical certificate stating that you were too sick to write the test or attend the lab, or documentation of exceptional circumstances other than illness). If you cannot immediately reach the instructor, phone or see the departmental secretaries and ask to leave a note outlining your problem for the instructor. Do not delay providing the instructor with documentation. Failure to provide documentation within a reasonable period of time may cause your mark for the test to be listed as zero.

No make-ups but two options:

- You write a literature review (see [http://web.me.com/ysg/Courses/Missed\\_exams.html](http://web.me.com/ysg/Courses/Missed_exams.html) for details). Electronic and hard copy submissions are mandatory.

Missed deadlines (if applicable): 25% for each day late.

Plagiarism: All the information you need on plagiarism is at <http://academicintegrity.dal.ca/>. It is your responsibility to read, understand and respect the guidelines presented there. Make sure you understand the concept of “self-plagiarism” (see the student calendar): you are not allowed to “re-cycle” papers or other projects submitted in other courses.

Students with disabilities: Students with permanent or temporary disabilities who would like to discuss classroom or exam accommodations are asked to come and see me as soon as possible. Such students are also encouraged to register as quickly as possible at Student Accessibility Services if they want to receive academic accommodations. To do so please phone 494-2836, e-mail [access@dal.ca](mailto:access@dal.ca), go to Killam room G28, or visit the website at: [www.studentaccessibility.dal.ca](http://www.studentaccessibility.dal.ca)