



Psychology 478-01

Behavioural Neuroscience

Instructor:	Michael Antle	Lecture Location:	A253
Phone:	403-220-2574	Lecture Days/Time:	M,W,F 10-10:50am
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Office:	A018	Lab days/Time:	T,Th 1-3:50pm
Office Hours:	By appointment	TA:	Brooke Rakai
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Course Description and Goals

The principle function of the nervous system is to produce behaviour. Thus, the goal of most behavioural work with laboratory animals in neuroscience is to understand how the nervous system produces behaviour and how experience changes the functioning of the nervous system. Understanding the brain-behaviour relationships also offers a way to find treatments for dysfunctions of behaviour. While dramatic advances have occurred at the molecular and cellular levels how these established factors ultimately impact behaviour will primarily be examined in rodents (mainly rats).

This course has multiple objectives that include, but are not limited to, the following;

- 1) Introduce students to the field of behavioural neuroscience.
- 2) Describe the organization and complexity of rodent behaviour.
- 3) Familiarize students with multiple behavioural apparatus and behavioural tests.
- 4) Relate behaviours to localized regions of the brain.
- 5) Provide students with hands on experiential learning opportunities with rodents.

Most students do find that taking the course is a worthwhile experience but there is no doubt that it requires real work. The course is considered as, and taught as, a senior-level course.

Prerequisites

Psyc 312 – Principles of Psychology and Psyc 375 – Brain and Behaviour or consent of the Department

Required Text

The Behaviour of the Laboratory Rat: a handbook with tests. Edited by Ian Q. Whishaw and Bryan Kolb, Oxford University Press, 2005

Text is available in the University Bookstore. There is also an online version (missing some figures).

Evaluation

Exams

Exams will be short answer and will cover lecture and text material up to exam date. The final exam is not cumulative.

1. Exam 1 Monday, February 27th, 25% of final grade
2. Exam 2 Scheduled by Registrar, 25% of final grade

Class assignments

In class presentations, March 26th to April 13th, 10% of final grade

- a. A short 10 minute presentation describing a behavioural neuroscience experiment selected and designed by the student. The presentation should be a proposal format.
- b. Due to time constraints, missed presentations cannot be made up, and will receive 0%

Lab Assignments – Short assignments

Short (usually ~2 page) assignments based on the previous week's lab.

<u>Assignment</u>	<u>Due:</u>	<u>% of final grade</u>
Handling	In lab Jan 24, 26	2%
Motor behavior	In lab Feb 7, 9	2%
Maternal Behavior	In lab Feb 14, 16	2%
Drinking	In lab March 6, 8	2%
Circadian	In lab March 27,29	2%

Lab Assignments – Full lab assignments (~15-20 pages)

These assignments are to be prepared according to the style of the Journal of Neuroscience

(http://www.jneurosci.org/site/misc/ifa_organization.xhtml)

<u>Assignment</u>	<u>Due:</u>	<u>% of final grade</u>
Pup development	In lab, Feb 28, March 1	10%
Stroke	In lab, March 20, 22	10%
Learning	April 13 th , to prof or Psych green box	10%

Students must achieve a passing grade on both the class and lab components to pass this course.

Grading Scale

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

As stated in the University Calendar, it is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades.

To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

Tentative Lecture Schedule

Date	Topic/Activity/Readings/Due Date (revise and add columns & rows as necessary)	Readings
M Jan 9	Introduction	
W Jan 11	History / Philosophy	
F Jan 13	History / Philosophy	
M Jan 16	Motor systems	Chapter 11
W Jan 18	Motor systems	Chapter 12
F Jan 20	Motor systems <i>Last day to drop a course with tuition refund and no W grade.</i>	Chapter 14
M Jan 23	Motor systems <i>Last day for registration/change of registration.</i>	Chapter 15
W Jan 25	Motor systems	Chapter 25
F Jan 27	Motor systems	
M Jan 30	Sex	Chapter 29
W Feb 1	Sex	
F Feb 3	Sex	
M Feb 6	Maternal Behavior	Chapter 27
W Feb 8	Maternal Behavior	
F Feb 10	Maternal Behavior	
M Feb 13	Feeding	Chapter 18
W Feb 15	Drinking	Chapter 19
F Feb 17	Thermoregulation	Chapter 21
M Feb 20	Alberta Family Day. No lecture.	
W Feb 22	Reading days. No lecture.	
F Feb 24	Reading days. No lecture.	
M Feb 27	Exam #1 (all class material up to and including Feb17)	
W Feb 29	Support systems of the brain	
F Mar 2	Blood flow and Stroke (Guest Lecture – Brook Rakai)	
M Mar 5	Circadian rhythms (Guest Lecture – Ryan Jeffers)	Chapter 17
W Mar 7	Circadian rhythms (Guest Lecture – Vicki Smith)	Chapter 17
F Mar 9	Circadian rhythms (Guest Lecture – Glenn Yamakawa)	Chapter 17
M Mar 12	Anxiety and Fear	Chapter 39
W Mar 14	Depression (Guest Lecture – Veronika Kiryanova)	
F Mar 16	Stress (Guest Lecture – Matt Hill)	Chapter 22
M Mar 19	Learning	Chapter 36

W Mar 21	Learning	Chapter 37
F Mar 23	Learning	Chapter 40
M Mar 26	Student presentations	
W Mar 28	Student presentations	
F Mar 30	Student presentations	
M Apr 2	Student presentations	
W Apr 4	Student presentations	
F Apr 6	Good Friday. No lecture.	
M Apr 9	Student presentations	
W Apr 11	Student presentations	
F Apr 13	BSD – student evaluations and Student presentations if necessary <i>Lecture ends. Last day to withdraw.</i>	

Tentative Lab Schedule

Week	Lab	Assignment due
Jan 10,12	No Lab	
Jan 17,19	Handling	
Jan 24,26	General Behavior	Handling (short assignment)
Jan 31, Feb 2	Skilled Behavior	
Feb 7,9	Maternal Behavior and Pup Development #1	Motor behavior (short assignment)
Feb 14,16	Pup Development #2 and Stroke Surgery Demonstration	Maternal Behavior (short assignment)
Feb 28, Mar 1	Drinking	Pup Motor Development (Full Report)
Mar 6,8	Post stroke motor behavior	Drinking (short assignment)
Mar 13,15	Circadian rhythms	
Mar 20,22	Fear and Anxiety	Stroke (Full Report)
Mar 27,29	Avoidance	Circadian (short assignment)
Apr 3,5	Spatial learning	
Apr 10,12	Recognition	Learning (Full Report, Due April 13, 4pm)

Reappraisal of Grades

A student who feels that a piece of graded term work (e.g., term paper, essay, test) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within 15 days of being notified about the mark or of the item's return to the class. If not satisfied, the student shall immediately take the matter to the Head of the department offering the course, who will arrange for a reassessment of the work within the next 15 days. The reappraisal of term work may cause the grade to be raised, lowered, or to remain the same. If the student is not satisfied with the decision and wishes to appeal, the student shall address a letter of appeal to the Dean of the faculty offering the course within 15 days of the unfavourable decision. In the letter, the student must clearly and fully state the decision being appealed, the grounds for appeal, and the remedies being sought, along with any

special circumstances that warrant an appeal of the reappraisal. The student should include as much written documentation as possible.

Plagiarism and Other Academic Misconduct

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged. Consequently, plagiarism or cheating on any assignment is regarded as an extremely serious academic offense. Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Students should examine sections of the University Calendar that present a Statement of Intellectual honesty and definitions and penalties associated with Plagiarism/Cheating/Other Academic Misconduct.

Academic Accommodation

It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 403-220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than 14 days after the start of this course.

Absence from a Test/Exam

Makeup tests/exams are NOT an option without an official University medical excuse (see the University Calendar). A completed Physician/Counselor Statement will be required to confirm absence from a test/exam for health reasons; the student will be required to pay any cost associated with this Statement. Students who miss a test/exam have 48 hours to contact the instructor and to schedule a makeup test/exam. Students who do not schedule a makeup test/exam with the instructor within this 48-hour period forfeit the right to a makeup test/exam. At the instructor's discretion, a makeup test/exam may differ significantly (in form and/or content) from a regularly scheduled test/exam. Except in extenuating circumstances (documented by an official University medical excuse), a makeup test/exam must be written within 2 weeks of the missed test/exam.

Freedom of Information and Protection of Privacy (FOIP) Act

The FOIP legislation disallows the practice of having student's retrieve tests and assignments from a public place. Therefore, tests and assignments may be returned to students during class/lab, or during office hours, or via the Department Office (Admin 275), or will be made available only for viewing during exam review sessions scheduled by the Department. Tests and assignments will be shredded after one year. Instructors should take care to not link students' names with their grades, UCIDs, or other FOIP-sensitive information.

Course Credits for Research Participation (Max 2% of final grade)

Students in most psychology courses are eligible to participate in Departmentally approved research and earn credits toward their final grades. **A maximum of two credits (2%) per course, including this course, may be applied to the student's final grade. Students earn 0.5% (0.5 credits) for**

each full 30 minutes of participation. The demand for timeslots may exceed the supply in a given term. Thus, students are not guaranteed that there will be enough studies available to them to meet their credit requirements. Students should seek studies early in the term and should frequently check for open timeslots. Students can create an account and participate in Departmentally approved research studies at <http://ucalgary.sona-systems.com>. The last day to participate in studies and to assign or reassign earned credits to courses is **Apr 13th, 2012**.

Evacuation Assembly Point

In case of an emergency evacuation during class, students must gather at the designated assembly points

Primary Assembly Point: Social Science - Food Court
Alternate Assembly Point: ICT - Food Court

Student Organizations

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS). They are located in Administration 170 and may be contacted at 403-220-5567.

Student Union VP Academic: Phone: 403-220-3911 suypaca@ucalgary.ca

Student Union Faculty Rep.: Phone: 403-220-3913 socialscirep@su.ucalgary.ca

Important Dates <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **January 20, 2012**. Last day for registration/change of registration is **January 23, 2012**. The last day to withdraw from this course is **Apr 13, 2012**.