

| Psychology 478 | Behavioural Neuroscience | Winter 2013 |
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| Instructor: Brooke Rakai | Lecture Location: SH288 | |
| Phone: 403-220-7709 | Lecture Days/Time: MWF 10:00-10:50 | |
| Email: bdrakai@ucalgary.ca | Lab Location: A047 | |
| | Lab Time: TR 13:00-15:50 | |
| Office: A09 | TA: Brendan McAllister | |
| Office Hours: By appointment | Email: bmcallis@ucalgary.ca | |

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. 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.

The laboratory component of this course involves the compassionate use of animals (rats). Most students find this hands-on learning experience valuable and exciting. This work is approved by the Life and Environmental Sciences Animal Care Committee and adheres to the guidelines laid down by the Canadian Council of Animal Care. Intentional abuse and mistreatment of animals will not be tolerated. Such abuse constitutes Academic Misconduct, and will result in a failing grade in the course. Students who are uncomfortable or nervous about handling animals should discuss their concerns with the professor or TA.

Prerequisites

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

Required Text

The following text is available for free online:

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

<http://www.oxfordscholarship.com.ezproxy.lib.ucalgary.ca/oso/public/content/neuroscience/9780195162851/toc.html>

Evaluation

Exams

Exams will be in the form of take home term papers and will include lecture, lab, and text material up to the due date (~20 pages).

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| 1. Exam 1 Feb 1 in class (lectures 1-10) | 15% of final grade |
| 2. Exam 2 March 1 in class (lectures 11-18) | 15% of final grade |
| 3. Exam 3 Scheduled by registrar (lectures 19-29) | 15% of final grade |

Class assignments

1. Proposal for final Lab experiment, February 15th 5% of final grade
 - a. A short document proposing a study that can be completed in designated lab time (~2 pages or whatever is necessary to appropriately describe the study design). Proposals that are handed in late will receive 0%. Proposals must be completed to proceed with the final lab assignment.
2. In class presentations, April 1st to April 15th 10% of final grade
 - a. A short 8 minute presentation describing a behavioural neuroscience experiment selected and designed by the student.
 - 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.

| Assignment Due: | % of final grade |
|-------------------------------------|------------------|
| Handling In lab Jan 22, 24 | 2% |
| Motor behavior In lab Feb 5, 7 | 2% |
| Maternal Behavior In lab Feb 12, 14 | 2% |
| Circadian In lab March 5, 7 | 2% |
| Learning in lab March 19, 21 | 2% |

Lab Assignments – Full lab assignments (~ 10-20 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). While this style stipulates word limits for

the introduction and discussion, you must exceed these limits to demonstrate adequate understanding of the material.

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|---|------------------|
| Assignment Due: | % of final grade |
| Pup development In lab, Feb 26, 28 | 10% |
| Stroke In lab, March 26, 28 | 10% |
| Lab Project, April 19, to TA or Psyc Drop box | 10% |

All late assignments will receive 10% penalty per day late, including weekends.

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

Grading Scale

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|----|---------|----|--------|----|--------|----|--------|
| 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 | |
|----------|----------------------------------|-----------------|
| T Jan 8 | Winter Term lecture begins | |
| W Jan 9 | Introduction | |
| F Jan 11 | History | |
| M Jan 14 | History/Scientific Approaches | |
| W Jan 16 | Motor systems | |
| F Jan 18 | Motor systems | |
| M Jan 21 | Motor systems | |
| W Jan 23 | Motor systems | |
| F Jan 25 | Sex | |
| M Jan 28 | Sex | |
| W Jan 30 | Sex | |
| F Feb 1 | Exam #1 | (lectures 1-10) |
| M Feb 4 | Maternal Behaviour | |
| W Feb 6 | Maternal Behaviour | |
| F Feb 8 | Maternal Behaviour | |
| M Feb 11 | Circadian – Dr. Antle | |

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|-------------|--|------------------|
| W Feb 13 | Circadian | |
| F Feb 15 | Circadian | |
| M Feb 18 | Family Day. No Lecture. University Closed | |
| W Feb 20 | Reading Week. No Lecture | |
| F Feb 22 | Reading Week. No Lecture | |
| M Feb 25 | Blood flow and Stroke | |
| W Feb 27 | Stroke | |
| F Mar 1 | Exam #2 | (lectures 11-18) |
| M Mar 4 | Learning and Memory | |
| W Mar 6 | Learning and Memory | |
| F Mar 8 | Hippocampus – Dr. Simon Spanswick | |
| M Mar 11 | Hippocampus - Dr. Simon Spanswick | |
| W Mar 13 | Stress – Dr. Matt Hill | |
| F Mar 15 | Basal Ganglia and PD – Andrew Brown | |
| M Mar 18 | Depression – Veronika Kiryanova | |
| W Mar 20 | Schizophrenia – Veronika Kiryanova | |
| F Mar 22 | Fear and Anxiety | |
| M Mar 25 | Vision or Guest Lecture | |
| W Mar 27 | Vision or Guest Lecture | |
| F Mar 29 | Good Friday – No Lectures, University Closed | |
| M Apr 1 | Student Presentations | |
| W Apr 3 | Student Presentations | |
| F Apr 5 | Student Presentations | |
| M Apr 8 | Student Presentations | |
| W Apr 10 | Student Presentations | |
| F Apr 12 | Student Presentations | |
| M Apr 15 | Student Presentations | |
| T Apr 16 | Winter Term Lectures End. Last day to withdraw from courses. | |
| F Apr 19-30 | Winter Term Final Exams | (lectures 19-29) |

| Date | Topic | Assignment Due |
|---------------|---|--|
| T Jan 8 | Winter Term Lecture Begins. | |
| R Jan 10 | No Lab | |
| T,R Jan 15,17 | Ethics and Handling | |
| F Jan 18 | Last day to drop Winter Term courses. | |
| M Jan 21 | Last day to add or swap Winter Term courses. | |
| T,R Jan 22,24 | General Behaviour (pre-stroke) | Handling-short assignment |
| T,R Jan 29,31 | Skilled Behaviour (pre-stroke) | |
| T,R Feb 5,7 | Maternal Behaviour and Pup Development #1 | Motor Behaviour-short assignment |
| T,R Feb 12,14 | Pup Development #2 | Maternal behavior-short assignment |
| T,R Feb 19,21 | Reading Week. No Lab | |
| T,R Feb 26,28 | Circadian | Pup Development (Full Lab Report) |
| T,R Mar 5,7 | Stroke | Circadian phase shift-short assignment |
| T,R Mar 12,14 | Spatial learning, recognition | |
| T,R Mar 19,21 | Fear and Anxiety | Learning-short assignment |
| T,R Mar 26,28 | Data collection for lab project | Stroke (Full Lab Report) |
| T,R Apr 2,4 | Data collection for lab project | |
| T,R Apr 9,11 | Data collection for lab project | |
| T Apr 16 | Data collection for lab project | |
| F Apr 19-30 | Winter Lectures End. Last day to withdraw. | Apr 19 – Lab Project Full Report |

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 16th, 2012**

Evacuation Assembly Point

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The list of assembly points is found at

<http://www.ucalgary.ca/emergencyplan/assemblypoints>

Please check this website and note the nearest assembly point for this course.

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 suvpaca@ucalgary.ca

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

Important Dates

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **January 18, 2013**. Last day for registration/change of registration is **January 21, 2013**. The last day to withdraw from this course is **Apr 16th, 2013**.