



Research Methods in Behavioural Neuroscience
Number & Section: Psych 396
Term & Year: Winter 2009
Course Meeting Times: T, TR: 10:30am - 12:20 pm
Course Meeting Location(s): Class: PAS 3026
Lab: 2nd floor

Course Instructor:

Dr. Sunita Shankar
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Teaching assistant:

Kevin Barton, PAS 2235, krbarton@uwaterloo.ca

Animal health technician and lab demonstrator:

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Purpose of the course:

In this course, the content will be drawn from the particular subdiscipline of psychology known as behavioural neuroscience. Behavioural neuroscience involves the study of the relationship between structures in the nervous system and behaviour. So, in this course, you will learn some things about the structure of the nervous system (and how to study that structure) and some things about behaviour (and how to study behaviour). As behavioural neuroscientists are interested in both humans and animals, we will conduct experiments on both humans (ourselves) and animals (gerbils).

A brief note about vivisection: This is a course that involves the conduct of experiments with animals (gerbils) and handling of tissue (gerbil, sheep). As you may know, some people have ethical objections to the use of biological tissue for research or teaching. If you have such objections, and you have somehow found yourself in this course, you might want to consider an alternative. If for some reason this is not possible, you should speak to me about alternatives. It might be important for you to know that your contact with animals will be limited to observation (and possibly some handling) of normal animals. We will, of course, ensure that you are properly trained in this regard.

Course readings:

- Vanderwolf, C. H. & Cooley, R. K. The sheep brain: A photographic series.
- Crossman & Neary, Neuroanatomy: An illustrated colour text. (Elsevier)
- Original journal articles as required to complete assignments

Evaluation: The evaluation process in the course will consist of the following:

	Type	Description	Date/Due date	Final marks %
1	Anatomy test A	Practical - "bell-ringer"	Jan 22	10
2	Anatomy test B	Written	Jan 29	10
3	Short assignment	Research ethics	Feb 12	10
4	Seminar	Group presentation	Mar 19 - Apr 2	20
5	Short assignment	Human spatial cognition	March 3	10
6	Short assignment	Animal spatial cognition	March 19	10
7	Full APA style paper	Animal or Human experiment	April 2	20
8	UW-Ace quizzes	8 online learning units	Different deadlines	10

Descriptions of content:

Anatomy tests. These tests will include a practical (a "bell-ringer") and a written component.

Short assignment on research ethics. This assignment will consist of written answers to a series of short questions designed to guide you through the process of understanding ethics around animal use in experimentation and general research ethics.

Short assignment on the human spatial cognition experiment. This assignment will consist of written answers to a series of questions designed to guide you through the process of analyzing and presenting results.

Short assignment on the animal spatial cognition experiment. This assignment will consist of written answers to a series of questions designed to guide you through the process of analyzing and presenting results.

Seminar. For the seminar, you and your group members will make a presentation on an assigned topic. The main requirement is that you design the seminar as a group and that you all contribute equally to the oral presentation. I will give the class a short set of readings to do to prepare for the seminar, and the presenting group is encouraged to go beyond these papers to make their seminar more detailed.

Full experimental paper on either the animal or the human experiment. This paper will be a full experimental write-up (cover page, abstract, method, results, discussion, references) adhering to the APA format. A major goal of the course is to teach you how to write such papers.

UW-ACE quizzes. These learning units are designed to help you, both by guiding your readings in neuroanatomy early in the course, and also by helping you to understand how to write different parts of an APA paper. In total, there are 8 online learning units (self-assessment quizzes, other kinds of short assignments) and each of them contains some form of feedback with their own deadlines and rewards.

A brief note about deadlines: There are many different types of evaluation in this course and it will be very important for you to plan ahead. I will try to give you advice about *what* to be working on *when*, but the final responsibility for organizing your time rests with you. Occasionally, in extenuating circumstances, I may grant extensions of deadlines but you will need to talk to me in advance and you will need to obtain signed, written permission for the extension. If you fail to do so, late work will be assessed with a penalty of 5%/day, including weekend days.

Tentative class schedule: *C=meet in PAS 3026, L=meet near 2nd floor lab doors

January 6(C)*	Introduction, discussion of goals of the course
January 8(L)	Sheep brain dissection I – external features
January 13(L)	Sheep brain dissection II – midsagittal section, other dissections
January 15(L)	Sheep brain dissection III – coronal and horizontal sections
January 20(L)	Sheep brain dissection IV – review and practice quiz
January 22(L)	Practical neuroanatomy exam
January 27(L)	Lecture/discussion: Neuroanatomical systems Library instructional session
January 29(C)	Systems neuroanatomy test
February 3(C)	Animal ethics and experimentation (Gibson)
February 5(C)	Animal ethics and experimentation – hands on (Gibson) Group 1: First half Group 2: Second half
February 10 (L)	Group 1: Histology I (Gibson) Group 2a: Human spatial cognition
February 12 (L)	Animal ethics assignment due Group 2: Histology I (Gibson) Group 1a: Human spatial cognition
February 16-20	No class, Reading Week
February 24 (L)	Group 1: Histology II (Gibson) Group 2b: Human spatial cognition
February 26 (L)	Group 2: Histology II (Gibson) Group 1b: Human spatial cognition
March 3 (C)	Human spatial cognition assignment due Interim summary and prognosis for the rest of the term
March 5 (L)	Group 2a: Animal spatial cognition
March 10 (L)	Group 2b: Animal spatial cognition
March 12 (L)	Group 1a: Animal spatial cognition
March 17 (L)	Group 1b: Animal spatial cognition
March 19 (L)	Animal spatial cognition assignment due Seminar 1: TBA
March 24 (C)	Seminar 2: TBA
March 26 (C)	Seminar 3: TBA
March 31 (C)	Seminar 4: TBA
April 2 (C)	Animal or Human experiment full paper due Seminar 5: TBA

The Official Version of the Course Outline

If there is a discrepancy between the hard copy outline and the outline posted on UW-ACE, the outline on UW-ACE will be deemed the official version. Outlines on UW-ACE may change as instructors develop a course, but they become final as of the first class meeting for the term.

Students with Disabilities

The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Concerns About the Course or Instructor (Informal Stage)

We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Affairs (Dr. Colin Ellard) is available for consultation and to mediate a resolution between the student and instructor. Dr. Ellard's contact information is as follows:

Email: cellard@uwaterloo.ca Ph 519-888- 4567 ext 36852

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 and 71 below for further details.

Academic Integrity, Academic Offenses, Grievance, and Appeals

To protect course integrity, as well as to provide appropriate guidance to students, course outlines in the Faculty of Arts incorporate the following note on avoidance of academic offenses:

Academic Integrity: in order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about 'rules' for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 - Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>