

Research Methods in Behavioural Neuroscience (PSYCH 396 – 001)

Time: Tuesday & Thursday; 10:30 am -12:30 pm

Location(s): HH373 (classroom); PAS 2271 (lab)

Course Instructor:

Dr. Colin Ellard

Office: PAS 4036

Phone: 519-888-4567 x36582

Email: cellard@uwaterloo.ca

Teaching Assistant:

Kevin Barton

Office: PAS 2235

Email: krbarton@uwaterloo.ca

Animal Health Technician and Lab Demonstrator:

Nancy Gibson

Office: PAS 1244

Phone: 519-888-4567 x34825

Email: ngibson@uwaterloo.ca

Course Materials:

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.

Purpose of the course:

This course is designed to expose you to a specific subdiscipline of psychology known as behavioural neuroscience. Behavioural neuroscience is focused on investigating the relationship between the structures and organization of the nervous system and observed behaviour. As such, this course will consist of two major components: 1) you will learn something about the structure of the nervous system and how you study that structure; 2) you will learn how to measure behaviour and relate it back to the structure of the nervous system. As behavioural neuroscience can often be interested in explaining the broader function of nervous system structures, both humans and animals will be conducted. It is our goal that by the end of the course you will not only have a stronger understanding of what behavioural neuroscience is, but also have some of the tools and concepts necessary to practice behavioural neuroscience research. Beyond the particular knowledge domain of behavioural neuroscience, this course is also designed to help you to learn how to write scientific papers in psychology in the specialized format that scientists use to communicate new findings to one another. This training should give you deeper insight

into how the knowledge base you acquire from reading, for example, a textbook or a review article, connects with the front line of research. A final aim of the course is to provide you with an opportunity to work on your presentation and group work skills. All students will participate in a seminar presentation as a part of a small group, and you will receive detailed feedback from the instructors about your presentation.

A brief note about the use of tissues and animal research: This course involves the handling of tissue (sheep and human) and to conduct experiments with Mongolian gerbils. Some people may have personal or ethical objections to either of these parts of the course. If you have such objections, and you have somehow found yourself in this course, you may want to consider an alternative. If this is not possible, you should speak to the instructor about possible alternative teaching methods. If it helps alleviate your concerns, it might be important to note that your contact with animals will be limited to observation (and possibly some handling) of normal healthy animals, such as those that you would find at a pet shop. Students will be trained to ensure that the animals are kept as comfortable as possible and be observed at all times to ensure that this continues to be the case. Likewise, when exposed to tissue or chemicals, gloves and a lab coat will be provided for safety and a fume hood will be available.

Evaluation: Your performance in the course will be evaluated based on the following:

Area	Type of Assessment	Date/Due Date	Value (%)
Anatomy	Practical and written	Jan 27th	20
Human experiment	APA paper	Feb 17th	25
Animal Experiment	APA Paper	April 4 th (last day of classes)	25
Presentation	Seminar presentation	varying	20
Short ACE assignments		Varying	10

Description of course content:

Anatomy test This test include a practical (“bell-ringer”) component and a written exam. A bell-ringer requires you to identify different locations on a physical/tissue specimen and so is geared towards assessing your understanding of the layout of the brain. The written exam will test both your identification skills and your understanding of the function of different parts of the brain. More details on both will be provided prior to their dates.

Written assignments. These papers will be full experimental write-ups (cover page, abstract, method, results, discussion, and references) adhering to APA format. The content of the papers will be drawn from the human experiment and the animal experiment.

Quizzes (UW-ACE). The quizzes are meant to guide your neuroanatomy readings early in the course and help you better understand the research process later in the course.

Academic Integrity:

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

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (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>

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>

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>

Academic Integrity website (Arts):

http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html

Academic Integrity Office (University): <http://uwaterloo.ca/academicintegrity/>

Accommodation for Students with Disabilities:

Note for 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.

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 a penalty of 5%/day, including weekend days.

Syllabus:

Date:	Location	Description
January 4	HH373	Introduction and discussion of the goals of the course
January 6	HH373	An overview of neuroanatomy (Barton)
January 11	PAS 2271	Sheep brain dissection I – external features
January 13	PAS 2271	Sheep brain dissection II – mid/parasagittal
January 18	HH373	Neuroanatomical systems (Barton)
January 20	PAS 2271	Sheep brain dissection III – coronal and horizontal sections
January 25	PAS 2271	Sheep brain dissection IV – Review and mock test
January 27	PAS 2271	*Neuroanatomy test (practical and written)
February 1	HH373	Debrief on human experiment and introduction to methods in animal behaviour (Ellard)
February 3	HH373	Animal ethics (Gibson)
February 8	PAS 2271	G1 – histology (Gibson) G2a – animal experiment
February 10	PAS 2271	G2 – histology G1b – animal experiment
February 15	PAS 2271	G1 – histology G2b – animal experiment
February 17	PAS 2271	G2 – histology G1a – animal experiment *Human paper due today
February 22	READING WEEK	
February 24	READING WEEK	
March 1	HH373	Debrief on animal experiment (Ellard)
March 3	HH373	Giving effective presentations (Ellard)
March 8	HH373	Seminar 1
March 10	HH373	Seminar 2
March 15	HH373	Seminar 3
March 17	HH373	Seminar 4
March 22	HH373	Seminar 5
March 24	HH373	Seminar 6
March 29	<OPTOM>	Human anatomy demonstration

March 31	HH373	Course summary *Animal paper due
----------	-------	-------------------------------------